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KED & ASSOCIATES, LLP  
P.O. Box 8638  
Reston, VA 20195

**ISSUE NOTIFICATION**

The projected patent number and issue date are specified above.

**Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)**  
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 569 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Kyoungsu KIM, Anyang-si, KOREA, REPUBLIC OF;  
Hakryun KANG, Gwangju-si, KOREA, REPUBLIC OF;

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Complete and send this form, together with applicable fee(s), to: **Mail**

**Commissioner for Patents**  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

**Fax**  
(571)-273-2885

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**CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)**

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**APPLICATION NO.**

| 12/265,022 | 11/05/2008 |

**FIRST NAMED INVENTOR**

| Kyoungsu KIM |

**ATTORNEY DOCKET NO.**

| RPL-0337 |

**CONFIRMATION NO.**

| 1355 |

**TITLE OF INVENTION:** CASE LOCKING DEVICE

**APPLN. TYPE**

| nonprovisional |

**SMALL ENTITY**

| NO |

**ISSUE FEE DUE**

| $1770 |

**PUBLICATION FEE DUE**

| $300 |

**PREV. PAID ISSUE FEE**

| $0 |

**TOTAL FEE(S) DUE**

| $2070 |

**DATE DUE**

| 04/30/2013 |

**EXAMINER**

| CUMAR, NATHAN |

**ART UNIT**

| 3674 |

**CLASS-SUBCLASS**

| 292-163000 |

1. **Change of correspondence address or indication of “Fee Address” (37 FR 1.363).**

2. **For printing on the patent front page, list**

   (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

   (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

3. **ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)**

   **PLEASE NOTE:** Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recording as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignee.

   **(A) NAME OF ASSIGNEE**

   | HUMAX CO., LTD. |

   **(B) RESIDENCE: (CITY AND STATE OR COUNTRY)**

   | SEOYONAM-SI, KYOUNGCT-DO, REPUBLIC OF KOREA |

   Please check the appropriate assignee category or categories (will not be printed on the patent):  

   | □ Individual | X Corporation or other private group entity | □ Government |

4. **Change in Entity Status**

   **(from status indicated above)**

   a. Applicant claims SMALL ENTITY status. See 37 CFR 1.77.  

   b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.77(g)(2).

   **NOTE:** The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or another party in interest as shown by the records of the United States Patent and Trademark Office.

   **Authorized Signature**

   | Carol L. Duzbcik |

   **Date**

   | March 13, 2013 |

   **Registration No.**

   | 40,287 |

   This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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PTOL-85 (Rev. 02/11) Approved for use through 08/31/2013.  
OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
# Electronic Patent Application Fee Transmittal

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Filed as Large Entity

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**Warnings:**

**Information:**

**Total Files Size (in bytes):** 133044

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**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
NOTICE OF ALLOWANCE AND FEE(S) DUE

KED & ASSOCIATES, LLP
P.O. Box 8638
Reston, VA 20195

APPLICATION NO. 12/265,022
FILING DATE 11/05/2008
FIRST NAMED INVENTOR Kyoungsu KIM
ATTORNEY DOCKET NO. RPL-0337
CONFIRMATION NO. 1355

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

Page 1 of 3

PTOL-85 (Rev. 02/11)
PART B - FEE(S) TRANSMITTAL

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Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax
(571)-273-2885

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CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

34610
7590
01/31/2013

KED & ASSOCIATES, LLP
P.O. Box 8638
Reston, VA 20195

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Applicant's name)
(Signature)
(Date)

APPLICATION NO. 12/265,022
FILING DATE 11/05/2008
FIRST NAMED INVENTOR Kyoungsu KIM
ATTORNEY DOCKET NO. RPL-0337
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TITLE OF INVENTION: CASE LOCKING DEVICE

APPLN. TYPE nonprovisional
SMALL ENTITY NO
ISSUE FEE DUE $1770
PUBLICATION FEE DUE $300
PREV. PAID ISSUE FEE $0
TOTAL FEE(S) DUE $2070
DATE DUE 04/30/2013

EXAMINER CUMAR, NATHAN
ART UNIT 3674
CLASS-SUBCLASS 292-163000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTOL/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTOL/47/Rev 03-02 or more recent) attached. Use of a Customer Number is required.

☐ Change of post box number required.

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent):

☐ Individual ☐ Corporation or other private group entity ☐ Goverment

4a. The following fee(s) are submitted:

☐ Issue Fee

☐ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies

4b. Payment of fee(s): (Please first reapply any previously paid issue fee shown above)

☐ A check is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _______________(enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature ________________________
Date ________________________

Typed or printed name ________________________
Registration No. ________________________

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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PTOL-85 (Rev. 02/11) Approved for use through 08/31/2013.

OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 474 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 474 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.
Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.
Notice of Allowability

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-65) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/14/2012.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1, 2, 4-8 and 10-22.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☒ All  b) ☐ Some*  c) ☐ None  of the:
   1. ☒ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____.
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE MAILING DATE of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER’S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS ( as “replacement sheets”) must be submitted.
   (a) ☐ including changes required by the Notice of Draftsman’s Patent Drawing Review (PTO-948) attached
      1) ☒ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner’s Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner’s comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____  7. ☐ Examiner’s Amendment/Comment
4. ☐ Examiner’s Comment Regarding Requirement for Deposit of Biological Material  8. ☐ Examiner’s Statement of Reasons for Allowance
   9. ☒ Other Amendment of 8/14/2012

/NATHAN CUMAR/
Examiner, Art Unit 3674

/Thomas A Beach/
Supervisory Patent Examiner, Art Unit 3674
## Applicant-Initiated Interview Summary

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<td>NATHAN CUMAR</td>
<td>3674</td>
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All participants (applicant, applicant’s representative, PTO personnel):

(1) **NATHAN CUMAR**
(2) **Thomas Beach**
(3) **Caroll Drubick**
(4) ****

**Date of Interview:** 24 July 2012.

**Type:**
- [x] Telephonic
- [] Video Conference
- [] Personal [copy given to: [] applicant
- [] applicant’s representative]

**Exhibit shown or demonstration conducted:**
- [ ] Yes
- [ ] No

- [ ]

**Issues Discussed**

1. [] 100
2. [] 112
3. [x] 102
4. [] 103
5. [] Others

(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

**Claim(s) discussed:** 1 and 17.

**Identification of prior art discussed:** KR10-2006-0080005.

**Substance of Interview**

(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

*Discussed proposed amendment to overcome the rejection of record and will be subject to updated search and consideration upon filing.*

---

**Applicant recording instructions:** The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

**Examiner recording instructions:** Examiners must summarize the substance of any interview of record. A complete and proper recodaration of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recodaration including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

---

[Signature]
Examiner, Art Unit 3674

[Signature]
Supervisory Patent Examiner, Art Unit 3674

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U.S. Patent and Trademark Office
PTOL-413 (Rev. 8/11/2010)
Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner’s responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No. placed in the right hand portion of the file, and listed on the “Contents” section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant’s correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant’s record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner’s version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, “Interview Record OK” on the paper recording the substance of the interview along with the date and the examiner’s initials.
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<td>Wu, Yaz-Tzung</td>
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**FOREIGN PATENT DOCUMENTS**

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**NON-PATENT DOCUMENTS**

Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages

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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.
## Notice of References Cited

### U.S. Patent Documents

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### Foreign Patent Documents

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Applicant-Initiated Interview Summary

Application No. 12/265,022
Applicant(s) KIM ET AL.
Examiner NATHAN CUMAR
Art Unit 3674

All participants (applicant, applicant’s representative, PTO personnel):

(1) NATHAN CUMAR,
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(4) 

Date of Interview: 24 July 2012.

Type: ☑ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant’s representative]

Exhibit shown or demonstration conducted: ☐ Yes ☐ No.
If Yes, brief description: 

Issues Discussed ☑ 101 ☑ 112 ☑ 102 ☑ 103 ☐ Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1 and 17.


Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Discussed proposed amendment to overcome the rejection of record and will be subject to updated search and consideration upon filing.

Applicant recording instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

Examiner recording instructions: Examiners must summarize the substance of any interview of record. A complete and proper recodaration of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recodaration including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/NATHAN CUMAR/ Examiner, Art Unit 3674

/Thomas A Beach/ Supervisory Patent Examiner, Art Unit 3674
Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.
It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner’s responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the “Contents” section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant’s correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.
A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner, (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.
Examiners are expected to carefully review the applicant’s record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner’s version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, “Interview Record OK” on the paper recording the substance of the interview along with the date and the examiner’s initials.
Unexamined Patent Application (A)

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H04N 5/655 (2006.01)

Application No 10-2005-0000450
Application Date 2005-01-04
Publication No 10-2006-0080005
Publication Date 2006-07-07
Agent Yong-In Kim
Inventor Gyu-Yeol Cho
Applicant LG Electronics Inc.
Examination Requested
Title of Invention assembly for wall mounting of video display appliance

Abstract
The present invention is to provide the wall tapestry assembly of the video display which the problem as described above is solved, and therefore, it stronglys and it convenientss, the object of the present invention unites the main body of the video display with the wall. The present invention is to provide the wall tapestry assembly of the main body bracket: fixing means, which elastically moves with the external force it is combined in hole and the video display it is fixed to the wall, and the third bracket combined with the first bracket is formed in the top, and for being included including the supporter bracket in which the fourth bracket fixed and coupled in the lower part with the fixing means is formed. The second bracket having the hole in the lower part the first bracket of hook-shaped is formed in the top it is combined in the back side indicating image of the main body is formed.

Representative Drawing(s)

Fig. 1

Keyword(s)
The video display, wall tapestry, pulse tilt, swivel.

Description
Brief Explanation of the Drawing(s)

Figure 1 is a perspective view of the wall tapestry assembly of the video display according to the first working example of the present invention.

Figure 2a is an exploded view of the fixing means according to the invention.

Figure 2b is a lateral cross sectional view of the fixing means according to the invention.

Figure 3 is a perspective view of the wall tapestry assembly of the video display according to the second preferred embodiment of the present invention.

Figure 4 is an exploded view of the hinge assembly of the invention.

Figure 5 is a perspective view of the wall tapestry assembly of the video display according to the third preferred embodiment of the present invention.

* Description of the symbol of the main part of the drawing*.

10: main body 100: main body bracket.

200: supporter bracket 300: fixing means.

400: tilt-bracket 430: hinge assembly.

440: link assembly 500: swivel assembly.

600: month bracket.

Detail of the Invention

Purpose of the Invention

The Technical Field to which the Invention belongs and the Prior Art in that Field

The invention relates to the video display. And more specifically, it is about the wall tapestry assembly clinching the main body of the video display on the wall.

As a kind of the display including the video display is the television, the computer monitor etc, it presently widely prevails for each home and office etc. In the video display of prior, most adopted the cathode-ray tube but the volume suitables due to the need space in which the electronic beam is advanced. Even though it thins, it is developed like the liquid crystal display device (LCD), the plasma display panel (PDP) etc. the flat type monitor and volume littles it is recently widely used. And the trend that moreover gradually increases the demand.

And the various supporter is in order to since effectively utilizing and conveniencing, suspend the video display on the wall the residential space than the case the plane type display device as described above more and more becomes large size in the of late, and where the thickness thins and it suspends on the wall and this video display uses developed.
But the disadvantage that the task in which the wall hanging device of the video display coming out in the present market mounts the video display in the wall or gotten rid of complicateds or it troublesomes and many times and effort are required to the deferment or the stripping work has.

In short, there is a problem that many working factories and time are consumed in order to couple screw in a plurality of base apertures to use the screw connection method in order to interconnect the wall bracket installed at the wall and main body bracket installed at the main body of the video display.

Of course, there is a problem that the video display can be mounted through the simple laxial which is not the screw connection method in the wall. But it is eradicated due to impact etc. and the high price display body is added from outside it is in this case damaged, or the concern of the etc. in which screen is not fixed and which becomes easily away highs. It manies the structure of supporter is not simple and it is complicated and in case of being taken into account this supporter is manufactured but the cost and the high long time are required.

Particularly, if the existing wall hanging device first of all hangs on the wall, the structure in which it does not easy to take off the display body from the wall tapestry is large minutes. Many defect exists to disuniting from the wall tapestry while operator eats trouble through the process of troublesoming.

- The Technical Challenges of the Invention

The present invention is to provide the wall tapestry assembly of the video display which the problem as described above is solved, and therefore, it strongs and it convenientis, the object of the present invention unites the main body of the video display with the wall.

- Structure & Operation of the Invention

To accomplish the above objects, one type of the present invention provides the wall tapestry assembly of the main body bracket: fixing means, which elastically moves with the external force it is combined in hole and the video display it is fixed to the wall, and the third bracket combined with the first bracket is formed in the top, and for being included including the supporter bracket in which the fourth bracket fixed and coupled in the lower part with the fixing means is formed. The second bracket having the hole in the lower part the first bracket of hook-shaped is formed in the top it is combined in the back side indicating image of the main body is formed.

In the meantime, the other one type of the present invention provides the wall tapestry assembly of the video display it is combined in the main body bracket: hole while the second bracket having the hole in the lower part the first bracket of hook-shaped is formed in the top it is combined in the back side indicating image of the main body is formed and the third bracket combined with the first bracket is formed at the upper part of the fixing means which elastically moves with the external force, and being fixed to the supporter bracket, in which the fourth bracket fixed and coupled in the lower part with the fixing means is formed and wall, and for being included including the tilt-bracket (tilt bracket) in which the fifth bracket in which it is possible to rotate the pulse tilt, the supporter bracket is combined with the link assembly length-controlled in both sides with the hinge assembly is formed.

In the meantime, and, the other one type of the present invention provides the wall tapestry assembly of the video display in which the second bracket having the hole in the lower part the first bracket of hook-shaped is formed in the top it is combined in the back side indicating image of the main body comprises by including the swivel assembly capable of the length adjustment the third bracket combined with the first bracket is formed at the upper part of the fixing means which is combined in the main body bracket: hole while being formed and elastically moves with the external force, and it is possible to rotate, it is combined in the supporter bracket, in which the fourth bracket fixed and coupled in the lower part with the fixing means is formed and the month bracket in which one side is fixed to the wall.
Hereinafter, it is referring to the figure explained. These working examples are explained. The same title and denotation are used about the same composition. And the additional description according to the above is labor-saved.

In fig. 1, the wall tapestry assembly of the video display according to the first working example of the present invention is illustrated.

Referring to Figure 1, the wall tapestry assembly of the video display according to the first working example includes the main body bracket (100), and the fixing means (300) and supporter bracket (200).

The second bracket (120) having the hole (121) in the lower part the first bracket (110) of hook-shaped is formed in the top the main body bracket (100) is combined in the back side indicating image of the main body (10) is formed.

If described in more detail, it adheres closely to the main body (10) and the center area of the main body bracket (100) is combined. And it perpendiculars, the top of the main body bracket (100) is bent in the center area of the main body bracket (100). The end of the bent part is again bent to downward and the first bracket (110) of hook-shaped is formed.

And the lower part of the main body bracket (100) forms the second bracket (120) perpendicularizing, is bent in the center area of the main body bracket (100) and has a plurality of holes (121). In the hole (121), the fixing means (300) is combined. And the shape of square is had.

The fixing means (300) is as described above combined in the hole (121). And the fixing means (300) elastically moves with the external force. The fixing means (300) next specifically explains.

The supporter bracket (200) is fixed to the wall. The third bracket (210) combined with the first bracket (110) is formed in the top. And the fourth bracket (220) fixed and coupled with the fixing means (300) is formed in the lower part.

If described in more detail, it adheres closely to the wall and the center area of the supporter bracket (200) is combined. And it perpendiculars, the top of the supporter bracket (200) is bent in the center area of the supporter bracket (200). The bent part as described above is again bent to the upward and the third bracket (210) is formed. That is, inserted inside the first bracket (110) and the third bracket (210) is combined with the first bracket (110).

And it perpendiculars, it is bent in the center area of the supporter bracket (200) and the lower part of the supporter bracket (200) forms the fourth bracket (220). The fourth bracket (220) is located on the top of said the second bracket (120). And it is fixed and coupled with the fixing means (300). For this, the fourth bracket (220) is bent and groove or the hole in which the fixing means (300) is inserted is formed.

In the meantime, in the drawing 2a, the disassembled perspective view of the fixing means (300) is illustrated. Referring to Figure 2a, if the fixing means (300) is explained, it is fixed and coupled with the fourth bracket (220) and the fixing means (300) prevents from the main body bracket (100) being eradicated in the supporter bracket (200). This fixing means (300) comprises by including the joint (320), and the case (310) and elastic member (330).

Here, in the joint (320), the center area is inserted into the hole of said the second bracket (120). It is formed so that both ends hang of said the second bracket (120). The case (310) is combined in said the second bracket (120). The opening (311) in which the joint (320) is inserted is formed. And it is inserted into the case (310) and the elastic member (330) elastically transfers the joint (320).
If described in more detail, it is inserted into the fourth bracket (220) and the joint (320) is combined among the fixing means (300). For this, in the joint (320), the center area passes through the hole (121). At this time, in order to prevent from being eradicated in the hole (121), the joint (320) is formed so that both ends hang on said the second bracket (120). That is, the center area of the joint (320) locates on the top of said the second bracket (120) while passing through the hole (121). The both ends of the joint (320) locates in the lower part of said the second bracket (120). Therefore, the joint (320) is not eradicated in the hole (121).

And the joint (320) is combined in the lower-part of the center area with the elastic member (330). The joint (320) is elastically carried with the elastic member (330) with the external force. That is, when in the joint (320), the external force actuated, it was not projected in the hole (121). And when the external force was removed, it is projected in the hole (121).

Here, when the main body bracket (100) is combined in the supporter bracket (200), the joint (320) and fourth bracket (220) each other raise interference. If described in more detail, the third bracket (210) is inserted into the first bracket (110). The main body bracket (100) revolves based on the first bracket (110) and said the second bracket (120) locates in the lower part of the fourth bracket (220). At this time, the fourth bracket (220) and joint (320) are each other interfered.

Therefore, the external force actuating on the joint (320) is created in the fourth bracket (220). That is, the joint (320) is carried with the fourth bracket (220) to downward. And it is again carried in the elastic member (330) to the top and it is inserted into the groove of the fourth bracket (220).

At this time, in order that in the joint (320), the fourth bracket (220) smoothly moves, it is formed so that the central part slope to the backward and forward so that height over the time down. Therefore, it is burned the inclined upper side of the extrusion fire and the fourth bracket (220) is carried. Moreover, when the main body bracket (100) separates from the supporter bracket (200), the inclined upper side of the joint (320) is burned and the fourth bracket (220) is smoothly carried.

Here, it is included of the shape corresponding to the center area of the joint (320) in groove, the joint (320) is inserted in order to reduce the frictional force when the fourth bracket (220) moving the upper side of the joint (320), in order to smoothly move, it is bent as shown in the drawing 2b and groove is in other words formed.

In the meantime, the case (310) is combined in said the second bracket (120). As described above, when the fourth bracket (220) locates on the top of said the second bracket (120), the case (310) is combined in the lower-part of said the second bracket (120). In the case (310), the opening (311) in which the joint (320) is inserted is formed. The opening (311) is a lot formed than the hole (121) of said the second bracket (120).

In the meantime, in the case (310), the upper side can be combined with said the second bracket (120). However, in the case (310), the case bracket (312) is formed in the top both sides in order to be more adamantly combined. The case bracket (312) is combined with said the second bracket (120). Here, the case (310) bracket can be combined with rivet or welding in said the second bracket (120). But in order that it easies that the fixing means (300) separates for the repair of the fixing means (300) etc. from the hole (121), the case bracket (312) is combined in said the second bracket (120) with a plurality of screws (340).

Moreover, the case bracket (312) is formed into the longitudinal direction of said the second bracket (120). When the case bracket (312) is formed into the backward and forward in the case (310), the length of said the second bracket (120) increases. Therefore the case bracket (312) is formed into the longitudinal direction of said the second bracket (120) in both sides of the case (310).

In the meantime, it is inserted into the case (310) and the elastic member (330) as described above elastically transfers the joint (320). And in the lower-part of the case (310) and joint (320), the boss guiding the binding position of the elastic member (330) can be formed. It is preferable that this elastic member (330) it is among them included the spring of the coil spring.
Moreover, the first side bracket (130) is formed in the side of the main body bracket (100) right and left binding position of the supporter bracket (200) and main body bracket (100) are guided and the second side bracket (230) are formed in the side of the supporter bracket (200). It perpendiculars, it is bent in both sides of the supporter bracket (200) and main body bracket (100) and the first side bracket (130) and the second side bracket (230) are formed. And the first side bracket (130) is inserted into the second side bracket (230), or the second side bracket (230) is inserted into the first side bracket (130) and right and left binding position of the supporter bracket (220) and main body bracket (100) are guided.

Hereinafter, the operation of the wall tapestry assembly according to the first working example as described above is explained.

In the back side of the main body (10), the main body bracket (100) is combined. The supporter bracket (200) is combined in the wall. And the main body (10) is carried so that the third bracket (210) be inserted into the first bracket (110). After it is inserted, the main body (10) revolves and said the second bracket (120) is located in the lower part of the fourth bracket (220). At this time, it is elastically carried and the fixing means (300) is fixed and coupled with the fourth bracket (220). Therefore, the fixing means (300) prevents from the fourth bracket (220) being carried or eradicated. Here, right and left binding position of the supporter bracket (200) and main body bracket (100) are taken to the first side bracket (130) and the second side bracket (230).

In fig. 3, the wall tapestry assembly of the video display according to the second preferred embodiment of the present invention is illustrated.

Referring to Figure 3, the wall tapestry assembly includes the main body bracket (100), the fixing means (300), and the supporter bracket (200) and tilt-bracket (400). Here, the main body (10) and main body bracket (100) referring to Figure 1 explain.

In the meantime, in the second preferred embodiment of the present invention, the main body bracket (100), and the fixing means (300) have the same configuration as the first working example of the present invention. Therefore, in the second preferred embodiment of the present invention, the repeated comment toward the content of the same composition stating before in the first working example of the present invention decides to shirk.

Moreover, the supporter bracket (200) according to the second preferred embodiment is included of the same configuration as the supporter bracket (200) according to the first working example. But it is not fixed to the wall. Therefore, the third bracket (210) of the supporter bracket (200) and detailed explanation of the fourth bracket (220) omit.

The second bracket (120) having the hole (121) in the lower part the first bracket (110) of hook-shaped is formed in the top the main body bracket (100) is combined in the back side of the main body (10) is formed. It is combined in the hole (121) and the fixing means (300) elastically moves. In the supporter bracket (200), the third bracket (210) combined in the top with said the first bracket (110) is formed. And the fourth bracket (220) fixed and coupled with the fixing means (300) is formed in the lower part. And the tilt-bracket (400) is fixed to the wall. The fifth bracket (410) in which it is possible to rotate the pulse tilt, the supporter bracket (200) is combined with the hinge assembly (430) and the length-controlled link assembly (440) is formed in the side. Here, the pulse tilt says to rotate the main body (10) at the top and bottom.

If described in more detail, it adheres closely to the wall and the center area of the tilt-bracket (400) is combined. And it perpendiculars, it is bent in the center area of the tilt-bracket (400) and both sides of the tilt-bracket (400) forms the fifth bracket (410).

In the fifth bracket (410), the top is combined with the link assembly (440) with the top of the supporter bracket (200). The lower part is combined with the hinge assembly (430) with the lower part of the supporter bracket (200). Here, the hinge assembly (430) the role of preventing by using the frictional force that the main body (10) revolves with the weight. The hinge assembly (430) next in detail explains.
And the second side bracket (230) is in order to do easy the bond with the link assembly (440) in the supporter bracket (200) and hinge assembly (430) formed. The second side bracket (230) is formed in as described above, both sides of the supporter bracket (200). And it perpendiculars, it is bent in the center area of the supporter bracket (200).

Therefore, in the second side bracket (230), the top is combined with the hinge assembly (430) with the top of the fifth bracket (410). The lower part is combined with the hinge assembly (430) with the lower part of the fifth bracket (410). Here, as to the second side bracket (230), the role it is similar in the first working example, of guiding right and left binding position of the supporter bracket (200) and main body bracket (100). For this, the first side bracket (130) is formed in the side of the main body bracket (100).

In the meantime, in the fifth bracket (410), the main body (10) tilt rotates, in order that it is rotated based on the front side of the main body (10) to the phase /, the lower part is longer formed as the complement part. Therefore, in the main body (10) is the wall, since gap being spaced and installed, it can be freely tilted and rotated the phase /, Moreover, the fifth bracket (410) can be formed for the strength reinforcement into the shape in which the length over the time lengthens to downward of triangle.

Moreover, in order that the main body (10) is rotated the pulse tilt, the length is controled and the link assembly (440) controls interval between the wall and the main body (10). That is, it interlinks the lower part of the fifth bracket (410) and said the second bracket (120) and the hinge assembly (430) serves as the rotary shaft. And the link assembly (440) controls the headspace of the fifth bracket (410) and said the second bracket (120). The main body (10) is rotated the pulse tilt.

In the meantime, the link assembly (440) comprises by including two or more links. Hereinafter, it comprises by including two links, the link assembly (440) explains.

The link assembly (440) comprises by including the first link (441) which is possible to rotate, is connected to the fifth bracket (410) and the second link (442) in which it is possible to rotate, one side is connected to the first link (441) and it is possible to rotate, the other side is particularly connected than the supporter bracket (200) to the second side bracket (230).

Therefore, the first link (441) and the second link (442) get folded or the link assembly (440) gets unfolded and the length is controled. That is, the link assembly (440) controls the top length between the tilt–bracket (400) and the supporter bracket (200).

Moreover, the link assembly (440) is the maximum length is formed with length shorter than the minimum dimension is the fifth bracket (410) it longs than the fifth bracket (410). That is, the first link (441) and the second link (442) are formed with length shorter than the length the length when getting unfolded to maximum being in a long queue formed than the lower part length of the fifth bracket (410), and when getting folded in maximum. Is the lower part length of formulation 5 the bracket (410).

And one is at least combined among the fifth bracket (410) and the first link (441), and the first link (441), the second link (442) and the second side bracket (230) with the hinge assembly (430). But it is preferable that the hinge assembly (430) in the connection of connection between links (441, 442) and the link assembly (440) and fifth bracket (410) and the second side bracket (230) it is altogether used.

In the meantime, referring to Figure 4, the hinge assembly (430) is explained particularly. Here, the bond of the fifth bracket (410) and the second side bracket (230) is explained for example. The linker assembly, and the bond of the fifth bracket (410) and the second side bracket (230) are identically included.
When in the hinge assembly (430), the external force does not generate in the main body (10) in other words, the supporter bracket (200), it is included of the friction hinge which prevents that the main body (10), in other words, the supporter bracket (200) revolves by using the frictional force.

The hinge assembly (430) includes the bolt (431), the screwnut (432), the flat washer (433), the fixed washer (434) and spring (435). Here, one side of the flat washer (433) is projected and the fixed washer (434) is formed.

In the second side bracket (230), the penetration hole (232) in which the bolt (431) is inserted is formed. The insertion hole (231) in which the projected part of the fixed washer (434) is inserted is formed in the penetration hole (232) surrounding. And in the fifth bracket (410), the penetration hole (437) in which the bolt (431) is inserted is formed. The insertion hole (436) in which the projected part of the fixed washer (434) is inserted is formed in the penetration hole (437) surrounding.

Therefore, the fixed washer (434) is respectively included in both sides of the fifth bracket (410) and the second side bracket (230). It is inserted into insertion holes (231, 436) and it is combined. And the flat washer (433) is included for the second side bracket (230) and fifth side bracket between in other words, the fixed washer (434).

The spring (435) is included of the disk spring. And in order to be included between the head of the bolt (431) and the fixed washer (434) combined in the outside of the fifth bracket (410) and the frictional force of the constant about above is created in the hinge assembly (430) the power is offered. At this time, the flat washer (433) can be more included between the head of the bolt (431) and spring (435).

And the bolt (431) is combined through the flat washer (433), the fixed washer (434), and the second side bracket (230) fifth bracket (410) with the screw nut (432).

Therefore, when the external force did not generate in the main body (10), the hinge assembly (430) prevents with the fixed washer (434) and the frictional force created in the flat washer (433) from the main body (10) revolving with the weight. And the hinge assembly (430) connects the bracket (230) and fifth bracket (410) for the second. In addition, the link assembly (440), the fifth bracket (410) and the second side bracket (230) interlink. Therefore it efficiently prevents from the main body (10) revolving with the weight.

In fig. 5, the wall tapestry assembly of the video display according to the third preferred embodiment of the present invention is illustrated.

Referring to Figure 5, the wall tapestry assembly comprises by including the main body bracket (100), fixing means (300), supporter bracket (200), month bracket (600) and swivel assembly (500). Here, the main body (10) and main body bracket (100) referring to Figure 1 explain.

In the meantime, in the third preferred embodiment of the present invention, the main body bracket (100), and the fixing means (300) have the same configuration as the first working example of the present invention. Therefore, in the third preferred embodiment of the present invention, the repeated comment toward the content of the same composition stating before in the first working example of the present invention decides to shirk.

Moreover, the supporter bracket (200) according to the third preferred embodiment is included of the same configuration as the supporter bracket (200) according to the first working example. But it is not fixed to the wall. Therefore, the third bracket (210) of the supporter bracket (200) and detailed explanation of the fourth bracket (220) omit.

The second bracket (120) having the hole in the lower part the first bracket (110) of hook-shaped is formed in the top the main body bracket (100) is combined in the back side of the main body (10) is formed. It is combined in hole and the fixing means (300) elastically moves. In the supporter bracket (200), the third bracket
(210) combined in the top with said the first bracket (110) is formed. And the fourth bracket (220) fixed and coupled with the fixing means (300) is formed in the lower part. And it is possible to rotate, the swivel assembly (500) is combined in the month bracket (600) (wall bracket) in which one side is fixed to the wall. It is possible to rotate, the other side is combined in the supporter bracket (200). Moreover, in the swivel assembly (500), the length adjustment possibilities. Here, swivel says to rotate the main body (10) the right and left.

In the meantime, the wall tapestry assembly according to the third preferred embodiment more comprises by including the tilt-bracket (400). The tilt-bracket (400) is included between the supporter bracket (200) and swivel assembly (500). The fifth bracket (410) in which it is possible to rotate the pulse tilt, the supporter bracket (200) is combined with the hinge assembly (430) and link assembly (440) is formed in both sides. It is possible to rotate, the swivel assembly (500) is combined in the back side. Here, the tilt-bracket (400) is included of the same configuration as the tilt-bracket (400) according to the second preferred embodiment. But it is not fixed to the wall. Therefore, the tilt-bracket (400), the link assembly (440), and the detailed explanation of the combining relation between the hinge assembly (430) and the supporter bracket (200) and configuration decide to omit.

In the swivel assembly (500) is the wall the main body (10), in order to make the left right panning, two or more bars which is each other possible to rotate, is connected is by including comprised.

Therefore, the swivel assembly (500) comprises by including the first engaging bracket (510) fixed to the month bracket (600), the first bar (520), and the second bar (530). The first bar (520) is possible to rotate, is combined in the first engaging bracket (510). The second bar (530) is possible to rotate, is combined in the second engaging bracket (550) and the second engaging bracket (550) fixed to the tilt-bracket (400). Here, it is each other possible to rotate, the first bar (520) and the second bar (530) are combined.

Moreover, the third bar (540) in which it is possible to rotate with the first bar (520), one end is combined and it is possible to rotate with the second bar (530), the other end is combined is by including comprised in order to smoothly move the swivel assembly (500) is the main body (10).

If described in more detail, the first engaging bracket (510) is fixed to the month bracket (600). It is possible to rotate, one end of the first bar (520) is combined in the upper side. It is possible to rotate, one end of the third bar (540) is combined in the other end upper side of the first bar (520). It is possible to rotate, one end of the second bar (530) is combined in the other end upper side of the third bar (540). It is inserted into the second engaging bracket (550) and it is possible to rotate, the other end of the second bar (530) is combined. And the second engaging bracket (550) rivets. It is combined with the joint like screw with the tilt-bracket (400).

Here, when the swivel assembly (500) got folded, when in other words, the upper side and lower-part of bars each other touched, said the second bracket (120) and the third bar (540) can raise interference. Therefore, it is similar in lower-part of the thickness of the end part of the second engaging bracket (550) or the other end of said the second bracket (120) high, the level difference. And the end part of the second engaging bracket (550) is inserted into the level difference proper of the second bar (530). It prevents from the second engaging bracket (550) and the third bar (540) raising interference.

And it is possible to rotate, the swivel assembly (500) is combined with the bolt (560) and screwnut (570). That is, each other possible to rotate, the first engaging bracket (510), second engaging bracket (550), first bar (520), second bar (530) and the third bar (540) are combined with the bolt (560) and screwnut (570). Here, in order that rotation is more smoothly included, the swivel assembly (500) more comprises by including the washer (580).

In the meantime, in order that the main body (10) is supported steadily than the swivel assembly (500), it is included over two. Here, it is preferable that the space of the month bracket (600) the swivel assembly (500) is included of two because of being insufficient. Moreover, it thes same, the length of the swivel assembly (500) is controlled and the main body (10) can be transferred from side to side. And the length of the swivel assembly (500) is controlled differently and the main body (10) can be rotated swivel.
And when the swivel assembly (500) is included of two, in the second engaging bracket (550), two is. Here, it is each other connected and two second engaging brackets (550) is combined with the tilt-bracket (400). In this case, the second engaging bracket (550) widens the contact area of the tilt-bracket (400). And because of being combined to the more combining member, it is more adamantly combined.

Effects of the Invention
As illustrated in the above, the wall tapestry assembly of the video display according to the present invention conveniently mounts the main body in the wall, or it can get rid of.

Moreover, the wall tapestry assembly moves right and lefts. It revolves the pulse tilt rotation, and swivel and the valid audio visual widening than user is offered.

In this specification, the several working example was explained. In spite of that it self-evidents to the person skilled in the art that it can be elaborated into the other specific figure without escaping from the purport and category. Therefore, with being illustrative the above-described working example has to be regarded. And range of the present invention is equipped with all specific figures changed in category and range of equivalency of attached claim.

Scope of Claims
Claim 1:
The wall tapestry assembly of the main body bracket: fixing means, which elastically moves with the external force it is combined in hole and the video display it is fixed to the wall, and the third bracket combined with the first bracket is formed in the top, and for being included including the supporter bracket in which the fourth bracket fixed and coupled in the lower part with the fixing means is formed. The second bracket having the hole in the lower part the first bracket of hook-shaped is formed in the top it is combined in the back side indicating image of the main body is formed.

Claim 2:
The wall tapestry assembly of the video display, wherein: the fixing means as to the first claim the center area is inserted into hole; and the formed joint, the case, and the elastic member is by including comprised so that both ends hang on the second bracket; as to the case, it is combined in said the second bracket; and the opening in which the joint is inserted is formed; and the elastic member is included between the case and joint; and elastically transfers the joint.

Claim 3:
The wall tapestry assembly of the video display, wherein the case as to claim 2 the case bracket combined with said the second bracket is formed in the top both sides.

Claim 4:
The wall tapestry assembly of the video display, wherein the case bracket as to claim 3 it is combined with said the second bracket by screw.

Claim 5:
The wall tapestry assembly of the video display, wherein the central part of the joint as to claim 2 it is formed into the backward and forward to slope so that height over the time down.

Claim 6:
The wall tapestry assembly of the video display included as to claim 5 of the shape corresponding to the fourth bracket is the center area of the joint.

Claim 7:
The assembly of the video display which the elastic member is included as to claim 2 of the spring.

Claim 8:
The wall tapestry assembly of the video display the first side bracket guiding right and left binding position of the supporter bracket and main body bracket being formed as to the first claim in the side of the main body bracket, and for characterizing thing. The second side bracket guiding right and left binding position of the supporter bracket and main body bracket in the side of the supporter bracket is formed.

Claim 9:
The wall tapestry assembly of the video display it is combined in the main body bracket: hole while the second bracket having the hole in the lower part the first bracket of hook-shaped is formed in the top it is combined in the back side indicating image of the main body is formed and the third bracket combined with the first bracket is formed at the upper part of the fixing means which elastically moves with the external force, and being fixed to the supporter bracket, in which the fourth bracket fixed and coupled in the lower part with the fixing means is formed and wall, and for being included including the tilt-bracket (tilt bracket) in which the fifth bracket in which it is possible to rotate the pulse tilt, the supporter bracket is combined with the link assembly length-controlled in both sides with the hinge assembly is formed.

Claim 10:
The wall tapestry assembly of the video display, wherein the fifth bracket as to claim 9 the top is connected to the link assembly to the top of the supporter bracket; and the lower part is connected to the hinge assembly to the lower part of the supporter bracket.

Claim 11:
The wall tapestry assembly of the video display wherein as to claim 10, the top is connected in both sides of the supporter bracket with the link assembly to the top of the fifth bracket; and the second side bracket in which the lower part is connected to the hinge assembly to the lower part of the fifth bracket is formed.
Claim 12:
The wall tapestry assembly of the video display, wherein the fifth bracket as to claim 11 the lower part is longer formed than the top. .

Claim 13:
As to claim 12.

The wall tapestry assembly of the video display, wherein the link assembly it is possible to rotate, the connected first link, and *** is the second link the other side is possible to rotate in the supporter bracket it is possible to rotate, one side is connected to the first link is by including comprised in the fifth bracket.

Claim 14:
The wall tapestry assembly of the video display, wherein the fifth bracket as to claim 13, and the first link, and the first link, the second link, the second link and supporter bracket, at least, one it is combined with the hinge assembly.

Claim 15:
The wall tapestry assembly of the video display, wherein the maximum length of the link assembly as to claim 13 it longer than the lower part length of the fifth bracket; and the minimum dimension is shorter than the lower part length of formulation 5 bracket.

Claim 16:
The wall tapestry assembly of the video display of claims 9 through 14, wherein the hinge assembly the external force does not generate in the supporter bracket; and it is included of the friction hinge which prevents that the supporter bracket revolves by using the frictional force.

Claim 17:
The wall tapestry assembly of the video display in which the second bracket having the hole in the lower part the first bracket of hook-shaped is formed in the top it is combined in the back side indicating image of the main body comprises by including the swivel assembly capable of the length adjustment the third bracket combined with the first bracket is formed at the upper part of the fixing means which is combined in the main body bracket: hole while being formed and elastically moves with the external force, and it is possible to rotate, it is combined in the supporter bracket, in which the fourth bracket fixed and coupled in the lower part with the fixing means is formed and the month bracket in which one side is fixed to the wall.

Claim 18:
The wall tapestry assembly of the supporter bracket as to claim 17, and the video display being included between the month bracket, and the fifth bracket in which it is possible to rotate the pulse tilt, the supporter
bracket is combined with the link assembly length–controlled in both sides with the hinge assembly being formed, and for being included including the tilt–bracket (tilt bracket) combined in the back side with the swivel assembly.

Claim 19:
The wall tapestry assembly of the video display of claim 17 or 18, wherein the swivel assembly two or more bars which is each other possible to rotate, is connected is by including comprised.

Claim 20:
The swivel assembly as to claim 19.

The wall tapestry assembly of the video display wherein: the first engaging bracket fixed to the month bracket, the first bar, the second engaging bracket fixed to tilt–bracket, the second bar, and the third bar is by including comprised: the first bar is possible to rotate, is combined in the first engaging bracket: the second bar is possible to rotate, is combined in the second engaging bracket: and as to the third bar, it is possible to rotate, one end is combined in the first bar: and it is possible to rotate, the other end is combined in the second bar.

Claim 21:
The wall tapestry assembly of the video display, wherein the first engaging bracket, the second engaging bracket, the first f, the second f as to claim 20, and the third bar it is possible to rotate, it is each other combined with the bolt and nut.

Claim 22:
As to the claims 17 through 21.

The wall tapestry assembly of the video display wherein two or more swivel assemblies is combined in the month bracket and supporter bracket.

Claim 23:
The wall tapestry assembly of the video display, wherein two second engaging brackets the swivel assembly is included as to claim 22 two it is each other connected.

Claim 24:
The wall tapestry assembly of the video display wherein as to claim 18, it is formed in both sides of the supporter bracket: the top is connected to the link assembly to the top of the fifth bracket: and the second side bracket in which the lower part is connected to the hinge assembly to the lower part of the supporter bracket is formed.

Claim 25:
The wall tapestry assembly of the video display, wherein the fifth bracket as to claim 24 the lower part is longer formed than the top.

Claim 26:
The wall tapestry assembly of the video display, wherein the link assembly as to claim 24 it is possible to rotate, the connected first link, and *** is the second link the other side is possible to rotate in the supporter bracket it is possible to rotate, one side is connected to the first link is by including comprised in the fifth bracket.

Claim 27:
The wall tapestry assembly of the video display, wherein the fifth bracket as to claim 26, and the first link, and the first link, the second link, the second link and supporter bracket, at least, one it is combined with the hinge assembly.

Claim 28:
The wall tapestry assembly of the video display of claims 24 through 27, wherein the hinge assembly the external force does not generate in the supporter bracket; and it is included of the friction hinge which prevents that the supporter bracket revolves by using the frictional force.

Claim 29:
The wall tapestry assembly of the video display of claim 9 or 17, wherein: the fixing means the central part which is formed into the backward and forward to slope so that height over the time down is inserted into hole; and the formed joint, the case, and the elastic member is by including comprised so that both ends hang on the second bracket: as to the case, the case bracket combined with said the second bracket is formed in the top both sides; and opening is formed in the upper side and the joint is inserted: and the elastic member is included between the case and joint: and elastically transfers the joint.

Claim 30:
The wall tapestry assembly of the video display of claim 9 or 17, wherein the fourth bracket it is included of the shape corresponding to the center area of the joint.

Claim 31:
The wall tapestry assembly of the video display in which the first side bracket is formed of claim 9 or 17, wherein in the side of the main body bracket, right and left binding position of the supporter bracket and main body bracket are guided.
Fig. 2b
Fig. 4
All participants (applicant, applicant's representative, PTO personnel):

(1) NATHAN CUMAR.
(2) Thomas Beach.
(3) Carol Druzbick.
(4) ____.

Date of Interview: 24 July 2012.

Type: ☑ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☐ No.

If Yes, brief description: ____.

Issues Discussed ☐ 101 ☐ 112 ☑ 102 ☐ 103 ☐ Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1 and 17.


Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Discussed proposed amendment to overcome the rejection of record and will be subject to updated search and consideration upon filing.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/NATHAN CUMAR/
Examiner, Art Unit 3674

/Thomas A Beach/
Supervisory Patent Examiner, Art Unit 3674
Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner’s responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the “Contents” section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant’s correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner.
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant’s record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner’s version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, “Interview Record OK” on the paper recording the substance of the interview along with the date and the examiner’s initials.
Docket No.: **RPL-0337**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Kyoungsu KIM and Hakryun KANG

Confirmation No.: **1355**

Group Art Unit: **3674**

Serial No.: **12/265,022**

Examiner: Nathan CUMAR

Filed: **November 5, 2008**

Customer No.: **34610**

For: **CASE LOCKING DEVICE**

**REPLY AND/OR AMENDMENT**

U.S. Patent and Trademark Office
Customer Window, Mail Stop Amendment
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

In reply to the Non-Final Office Action of March 14, 2012, the date for reply having been extended by a Petition for Extension of Time filed herewith, please amend the above-identified application as follows:

**Amendments to the Claims** are reflected in the listing of claims.

**Remarks/Arguments** begin after the listing of the claims.
### SEARCHED

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**Application/Control No.**
12265022

**Applicant(s)/Patent Under Reexamination**
KIM ET AL.

**Examiner**
NATHAN CUMAR

**Art Unit**
3674

### ORIGINAL

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  - T.D.: [ ]
  - R.1.47: [ ]

**09/14/2012**

**Total Claims Allowed:**
20

O.G. Print Claim(s): 1

O.G. Print Figure: 1
### EAST Search History

#### EAST Search History (Interference)

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In reply to the Non-Final Office Action of March 14, 2012, the date for reply having been extended by a Petition for Extension of Time filed herewith, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims.

Remarks/Arguments begin after the listing of the claims.
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A case locking device for securing an inner case of a housing to an outer case of the housing, the case locking device comprising:

   a lock that secures the inner case to the outer case with a pressing force, the lock comprising a plurality of laterally spaced-apart protrusions, each protrusion having an inclined surface, the plurality of protrusions protruding in a same direction through a plurality of laterally-spaced apertures provided in a front cover of the lock, wherein each of the plurality of protrusions has an inclined surface and each of the plurality of protrusions shares a contiguous base portion, and an elastic material that pushes the plurality of protrusions toward a wall of the outer case, wherein the inclined surface of at least one protrusion of the plurality of protrusions is at a different angle of inclination than an angle of inclination of the other protrusions.

2. (Previously Presented) The case locking device of claim 1, wherein an insertion hole is provided in a side wall of the inner case configured to receive the lock therein, and a fastener is provided in a side surface of the outer case to receive at least one of the plurality of protrusions of the lock inserted through the insertion hole.
4. (Previously Presented) The case locking device of claim 1, wherein the plurality of the protrusions moves toward an inside of the inner case by a pressing force exerted by the outer case onto the inclined surface of the at least one protrusion, which locks the outer case to the inner case by a resilient force of the elastic material.

5. (Previously Presented) The case locking device of claim 1, wherein the plurality of the protrusions moves toward an inside of the inner case by a pressing force exerted by at least one protrusion of a jig applied to the inclined surface of the at least one protrusion having the differently angled inclined surface to separate the outer case and the inner case from each other.

6. (Previously Presented) The case locking device of claim 5, wherein the protrusion of the jig is provided near a location corresponding to a connection location of the lock in order to be inserted into a fastener exposed between the outer case and the inner case.

7. (Previously Presented) The case locking device of claim 1, wherein the lock is provided inside the housing and is not visible from outside the housing.

8. (Currently Amended) The case locking device of claim 1, wherein the lock further
comprises a front cover, a hook including the base portion and having the plurality of protrusions, and the elastic material, which is located between the hook and a rear cover.

9. (Canceled).

10. (Previously Presented) The case locking device of claim 2, wherein the insertion hole comprises a through hole having a narrow portion and a wider portion that are integrally formed to each other.

11. (Previously Presented) The case locking device of claim 2, wherein the fastener comprises at least one first hole that penetrates a side wall of the outer case and one or more second holes that penetrate the side wall and a bottom wall of the outer case.

12. (Previously Presented) The case locking device of claim 11, wherein the at least one protrusion is inserted into the at least one first hole, and the remaining protrusion or protrusions are inserted into the one or more second holes.

13. (Previously Presented) The case locking device of claim 12, wherein the at least one protrusion has a step which is hung on the at least one first hole.
14. (Previously Presented) The case locking device of claim 13, wherein the at least one protrusion has a step comprising a surface having a normal vector that extends in the same direction as a vertical component of the inclined surface of the at least one protrusion.

15. (Previously Presented) The case locking device of claim 12, wherein one or more protrusions of a jig is inserted into the one or more second holes from the bottom wall of the outer case to separate the outer case and the inner case from each other.

16. (Previously Presented) The case locking device of claim 15, further comprising a plurality of the locks and a plurality of the fasteners provided at spaced locations around the outer case, wherein the one or more second holes are formed at spaced locations corresponding to the spaced locations of the plurality of the fasteners.

17. (Currently Amended) A case locking device for securing an inner case of a housing to an outer case of the housing, the case locking device comprising:

   a lock comprising a hook having a first protrusion and at least one second protrusion, which are laterally spaced apart and share a contiguous base portion, the first protrusion and the at least one second protrusion protruding in a same direction through a plurality of corresponding laterally-spaced apertures provided in a front cover of the lock, the hook having an extended position and a retracted position, the hook being biased by a spring into the
extended position, the first protrusion having an inclined surface on one side of the first
protrusion, the at least one second protrusion having an inclined surface on one side of the at
least one second protrusion, the one side of the first protrusion facing in a direction opposite to
the one side of the at least one second protrusion, wherein the inclined surface of the first
protrusion engages an edge of the outer case that forces the hook into a retracted position until
the first protrusion is aligned with a first fastener opening formed in the outer case whereupon
the spring forces the hook into the extended position and the first protrusion enters the first
fastener opening and the at least one second protrusion enters a corresponding second fastener
opening formed in the outer case, securing the outer case to the inner case.

18. (Previously Presented) The case locking device of claim 17, wherein the hook is
retractable into the retracted position in which the first protrusion and the at least one second
protrusion are not engaged with the first fastener opening and second fastener opening,
respectively, when a jig contacts the inclined surface of the at least one second protrusion
through the second fastener opening, applying a force to the hook and permitting the outer case
to be separated from the inner case.

19. (Previously Presented) The case locking device of claim 17, wherein the at least
one second protrusion comprises a plurality of second protrusions each having an inclined
surface.
20. (Previously Presented) The case locking device of claim 19, wherein the first protrusion further comprises a non-inclined side opposite to the one side of the first protrusion that engages with a complementary edge of the first fastener opening to prevent the outer casing from being removed from the inner case.

21. (Currently Amended) The case locking device of claim 20, wherein the case locking device is configured to be mountable in a mounting hole formed in the inner case and further comprises a locking device housing having a rear cover in which the hook is slidably mountable, the spring being interposed between the hook and the rear cover, and the front cover, which is configured to contain the hook and spring within the rear cover.

22. (Previously Presented) A tamper resistant housing comprising the case locking device of claim 21, wherein the outer casing further comprises an outwardly turned flange and wherein a plurality of the second fastener openings are partially formed in the flange.
Claims 1-2, 4-8, and 10-22 are pending. By this Amendment, claims 1, 8, 17, and 21 are amended. No new matter is added. Support for the claims can be found throughout the specification, including the original claims, and the drawings. Reconsideration in view of the above amendments and following remarks is respectfully requested.

The Examiner and his supervisor are thanked for the courtesies extended to Applicants’ representative during the July 24, 2012 telephone conference. The points discussed are incorporated herein.


Independent claim 1 has been amended as discussed during the July 24, 2012 telephone interview, and thus, as tentatively agreed defines over Cho. Accordingly, the rejection of independent claim 1 over Cho should be withdrawn. Dependent claims 2, 4, 7-8, and 10 are allowable over Cho at least for the reasons set forth above with respect to independent claim 1, from which they depend, as well as for their added features.

The Office Action rejected claims 11-14, 17, and 19-22 under 35 U.S.C. §103(a) as being unpatentable over Cho. The rejection is respectfully traversed.

Independent claim 17 has been amended similar to independent claim 1, and thus, also defines over Cho. Accordingly, the rejection of independent claim 17 over Cho should be
withdrawn. Dependent claims 11-14, and 19-22 are allowable over Cho at least for the reasons set forth above with respect to independent claims 1 and 17, from which they respectively depend, as well as for their added features.

The Office Action rejected claims 5-6, 15-16, and 18 under 35 U.S.C. §103(a) as being unpatentable over Cho, in view of Brechbill et al. (hereinafter “Brechbill”), U.S. Patent No. 6,347,872. The rejection is respectfully traversed.

Dependent claims 5-6, 15-16, and 18 are allowable over Cho at least for the reasons set forth above with respect to independent claims 1 and 17, from which they respectively depend, as well as for their added features. Brechbill fails to overcome the deficiencies of Cho, as it is merely cited for allegedly teaching a tool that is applied from outside to release a latch that holds two parts together (claims 5-6, 15, and 18). Accordingly, the rejection of dependent claims 5-6, 15-16, and 18 over Cho and Brechbill should be withdrawn.

CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney at the telephone number listed below.
To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
RED & ASSOCIATES, LLP

Carol L. Druzbick, Esq.
Registration No. 40,287

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
(703) 766-3777 CLD/ps/plb

Date: August 14, 2012
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Please direct all correspondence to Customer Number 34610
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of                                Confirmation No.: 1355
Kyoungsu KIM and Hakryun KANG                      Group Art Unit: 3674
Serial No.: 12/265,022                             Examiner: Nathan CUMAR
Filed: November 5, 2008                            Customer No.: 34610
For: CASE LOCKING DEVICE

PETITION FOR EXTENSION OF TIME UNDER 37 C.F.R. §1.136(a)(1)

U.S. Patent and Trademark Office
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

Applicant petitions the Commissioner of Patents and Trademarks to extend the time for response to the Office Action dated March 14, 2012 for two months from July 14, 2012 to August 14, 2012.

Please charge our credit card in the amount of $560.00 for the extension of time under 37 C.F.R. §1.17(a). Any deficiency or overpayment should be charged or credited to Deposit Account No. 16-0607.

Respectfully submitted,
KED & ASSOCIATES, LLP

[Signature]
Carof L. Druzbick
Registration No. 40,287

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
703 766-3777 CLD:clg

Date: August 14, 2012
Please direct all correspondence to Customer Number 34610

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Confirmation No.: 1355
Group Art Unit: 3674
Examiner: Nathan CUMAR
Customer No.: 34610

For: CASE LOCKING DEVICE

U.S. Patent and Trademark Office
Customer Window, MAIL STOP AMENDMENT
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Dear Sir:

Transmitted herewith is an Amendment and/or Reply in the above identified application.

☐ No additional fee is required.
☒ Also attached: Petition for Extension of Time

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If multiple claims newly presented, add $450.00 $0.00

Fee for extension of time $560.00

TOTAL FEE DUE $560.00

☐ Please charge my Deposit Account No. 16-0607 in the amount of $________. An additional copy of this transmittal sheet is submitted herewith.

☒ Please charge my Credit Card.

☒ The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment, to Deposit Account No. 16-0607, including any filing fees under 37 C.F.R. §1.16 for presentation of extra claims and any patent application processing fees under 37 C.F.R. §1.17.

Respectfully submitted,
KED & ASSOCIATES, LLP

[Signature]
Cred L. Brzezick
Registration No. 40,287

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
(703) 766-3777 CLD:rlg

Date: August 14, 2012

Please direct all correspondence to Customer Number 34610

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**PATENT APPLICATION FEE DETERMINATION RECORD**

**APPLICATION AS FILED – PART I**

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**APPLICATION AS AMENDED – PART II**

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**LEGAL INSTRUMENT EXAMINER:**

/Rosa West/

*If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

**If the "Highest Number Previously Paid For" in this space is less than 20, enter "20".

***If the "Highest Number Previously Paid For" in this space is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.
Applicant-Initiated Interview Summary

<table>
<thead>
<tr>
<th>Application No.</th>
<th>Applicant(s)</th>
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<td>12/265,022</td>
<td>KIM ET AL.</td>
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Examiner

<table>
<thead>
<tr>
<th>NATHAN CUMAR</th>
</tr>
</thead>
</table>

Art Unit

| 3674 |

All participants (applicant, applicant’s representative, PTO personnel):

(1) NATHAN CUMAR.

(2) Thomas Beach.

(3) Carol Drubick.

(4) ____.

Date of Interview: 24 July 2012.

Type: ☒ Telephonic ☐ Video Conference

☐ Personal [copy given to: ☐ applicant ☐ applicant’s representative]

Exhibit shown or demonstration conducted: ☐ Yes ☐ No.

If Yes, brief description: ____.

Issues Discussed ☐ 101 ☐ 112 ☒ 102 ☐ 103 ☐ Others

(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1 and 17.


Substance of Interview

(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Discussed proposed amendment to overcome the rejection of record and will be subject to updated search and consideration upon filing...

Applicant recording instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

Examiner recording instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/NATHAN CUMAR/
Examiner, Art Unit 3674

/Thomas A Beach/
Supervisory Patent Examiner, Art Unit 3674
Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner’s responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No. placed in the right hand portion of the file, and listed on the “Contents” section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant’s correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner.
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matter discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner’s version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, “Interview Record OK” on the paper recording the substance of the interview along with the date and the examiner’s initials.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.
Office Action Summary

Application No. 12/265,022
Applicant(s) KIM ET AL.
Examiner NATHAN CUMAR
Art Unit 3674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☑ Responsive to communication(s) filed on 09 February 2012.
2a) ☐ This action is FINAL.  2b) ☑ This action is non-final.
3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _______. The restriction requirement and election have been incorporated into this action.
4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5) ☑ Claim(s) 1-22 is/are pending in the application.
   5a) Of the above claim(s) 3 and 9 is/are withdrawn from consideration.
6) ☐ Claim(s) _____ is/are allowed.
7) ☑ Claim(s) 1,2,4-8 and 10-22 is/are rejected.
8) ☐ Claim(s) _____ is/are objected to.
9) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10) ☐ The specification is objected to by the Examiner.
11) ☑ The drawing(s) filed on 02 October 2009 is/are: a) ☑ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13) ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☑ All  b) ☐ Some  c) ☐ None of:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson’s Patent Drawing Review (PTO-948)
3) ☑ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date 2/29/2012, 3/8/2010
4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date _______.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _______.

U.S. Patent and Trademark Office
PTOL-326 (Rev. 03-11) Office Action Summary Part of Paper No./Mail Date 20120227
DETAILED ACTION

[cleared IDS and addressed comment]

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/9/2012 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

    A person shall be entitled to a patent unless –

    (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 7, 8, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Cho, Publication # KR10-2006-0080005.

As concerns claim 1, Cho shows a case locking device for securing an inner case of a housing to an outer case of the housing, the case locking device comprising:
a lock (fig 3) shows the components of lock assembly) that secures the inner case (220, fig 3) to the outer case (120, fig 3) by with a pressing force,

the lock comprising a plurality of protrusions (the lock assembly in fig 2b has plurality of protrusions, also shown below),

each protrusion having an inclined surface (fig 2b, 320 has inclined surfaces),

the plurality of protrusion in a same direction (vertical protrusion in the same direction, shown below),

an elastic material (fig 2b, 330) that pushes the plurality of protrusions toward a wall of the outer case,

wherein the inclined surface of at least one of the protrusions is at a different angle of inclination than an angle of inclination of the other protrusions (in fig 2b, 320 has vertical and inclined protrusions at different angles).

(the lock assembly in fig 2b has plurality of protrusions).

As concerns claim 2, Cho shows the case locking device of claim 1, wherein

an insertion hole (121, fig 2b) is provided in a side wall of the inner case configured to receive the lock therein, and a fastener (300, fig 3) is provided in a side surface of the outer case to receive at least one of the plurality of protrusions of the lock inserted through the insertion hole.

As concerns claim 4, Cho shows the case locking device of claim 1, wherein the plurality of the protrusions moves toward the an inside of the inner case by a pressing force
exerted by the outer case onto the inclined surface of the at least one protrusion, which locks the outer case to the inner case by a resilient force of the elastic material (fig 3, the lock locks the outer case with the inner case when a force is exerted by either the outer or inner case).

As concerns claim 7, Cho shows the case locking device of claim 1, wherein the lock is provided inside the housing and is not visible from the outside housing (fig 3).

As concerns claim 8, Cho shows the case locking device of claim 1, wherein the lock comprises a front cover (312, fig 2b), a hook (320) having the plurality of protrusions and the elastic material (330), which is located between the hook and a rear cover (bottom of 310).

As concerns claim 10, Cho shows the case locking device of claim 2, wherein the insertion hole (121, fig 2b) comprises a through hole having a narrow portion area and a wider portion that are integrally formed to each other (the hole 121 accepts the hook 320 which resides in 311 that has narrow and wide sides, therefore the hole is considered to have a narrow and wide portions).
Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.


As concerns claims 11 and 12 Cho shows the case locking device of claim 2, wherein the fastener comprises at least one first hole (the hole that receives 340, fig 2b), that penetrates a side wall of the outer case,

one protrusion is inserted into one hole (320 into 121, fig 2b),

one or more second holes that penetrate the side wall (fig. 1 shows multiple fasteners with holes on the side wall)

Cho shows the claimed invention except for one or more second hole on the bottom wall, and protrusions inserted into these holes. Cho shows one protrusion (320, fig 2b) inserted into one hole (121, fig 2b). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have one or more second holes on the bottom wall and protrusions inserted into those holes, since it has been held that
mere duplication of essential working parts of a device involve only routine skill in the

Having multiple holes and protrusions inserted in those holes would yield secured latch.

As concerns claim 13, Cho shows the case locking device of claim 12, wherein the at
least one protrusion (the protrusion of 320, fig 2b) has a step which is hung on the at
least one first hole (when the fastener is use, the step protrusion of 320 will have a hung
position depending upon the position of the side of the case).

As concerns claim 14, Cho shows the case locking device of claim 13, wherein the at
least one protrusion has a step comprising a surface having a normal vector that
extends in the same direction as a vertical component of the inclined surface of the at
least one protrusion(fig 2b, the side protrusion of 320 is vertical to a portion of the
inclined surface).

As concerns claim 17, Cho shows a case locking device for securing an inner case of a
housing to an outer case of the housing, the case locking device comprising:
a hook (320, fig 2b) having a first protrusion (In fig 3, the vertical side of 320, on the left side) and at least one second protrusion (in fig 3, the vertical side of 320 on the right side),

the first protrusion and at least one second protrusion protruding in a same direction (both protrusions are protruding in the same direction),

the hook having an extended position and a retracted position (fig 3 shows the extended position, when 220 is forced in the hook 320 takes a retracted position to allow 220),

the hook being biased by a spring (330, fig 3) into the extended position,

the first protrusion (vertical side, left side, of 320 in fig 3) having an inclined surface (the inclined side protrusion, left side, of 320) on one side of the first protrusion,

the at least one second protrusion (both protrusions have inclined surfaces, shown below) having an inclined surface (the inclined side protrusion, left side, of 320) on one side of the at least one second protrusion,

the one side of the first protrusion facing in a direction opposite to the one side of the at least one second protrusion (fig 1, shows provisions for multiple fasteners, 300)

wherein the inclined surface of the first protrusion (fig 1, one of the fasteners) engages an edge of the outer case, whereupon the spring (330) forces the hook into the extended position and the first protrusion enters the first fastener opening and the at least one second protrusion (fig. 1, another fastener) enters a corresponding second fastener opening formed in the outer case, securing the outer case to the inner case.
Cho shows the invention except the outer case forces the hook into a retracted position until the first protrusion is aligned with a first fastener opening formed in the outer case. However, Cho shows the fastening of two cases where the inner case forces the hook into retracted position until the first protrusion is aligned with a first fastener opening formed in the inner case and thus fastening the two parts. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the hook on the inner case and engaging the fastener opening on the outer case, since it has been held that mere reversal of the essential working parts, such as the hook on the outer case engaging the fastener opening on the inner case, of a device involves only routine skill in the art.

As concerns claim 19, Cho shows the case locking device of claim 17, wherein the at least one second protrusion comprises a plurality of second protrusions each having an inclined surface (fig. 1 shows provisions for multiple fastening; each fastener hook has a protrusion and an inclined surfaces as shown in 320 of fig 2b).

As concerns claim 20, Cho shows the case locking device of claim 19, wherein the first protrusion further comprises a non-inclined side (vertical side, right side, of 320, fig 3) opposite to the one side of the first protrusion that engages with a complementary edge of the first fastener opening to prevent the outer casing from being removed from the
inner case.

As concerns claim 21, Cho shows the case locking device of claim 20, wherein the case locking device comprises a locking device housing (310, fig. 2b),

- the hook is slidably mountable (the hook slides inside the housing; fig 3),
- the spring (330).

Cho shows the invention except,

- case locking device mounted on the inner case, and
- cocking device housing has a front cover and rear cover.

Cho shows the case locking device shown in fig. 3 has a locking device housing mounted on the outer case latches with the inner case and serves the purpose. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the hook on the inner case and engaging the fastener opening on the outer case, since it has been held that mere reversal of the essential working parts, such as the hook on the outer case engaging the fastener opening on the inner case, of a device involves only routine skill in the art.

As concerns claim 22, Cho shows a tamper resistant housing comprising the case locking device of claim 21, wherein the outer casing further comprises an outwardly turned flange (130, fig. 1) and wherein a plurality of the second fastener openings are partially formed in the flange (fig. 1).
6. Claims 5, 6, 15, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho, Publication # KR10-2006-0080005 in view of Brechbill et al., US 6,347,872.

As concerns claims 5 and 6, Cho shows the case locking device of claim 1, wherein the inner case (220, fig 3), and the outer case (120, fig 3).

Cho fails to show a jig that is used to separate the inner and outer cases. Brechbill teaches a tool that is applied from outside to release a latch that holds two parts together (col. 2, lines 30-35). It would have been obvious to one having skill in the art at the time the invention was made to modify Cho, so that the inner and outer cases can be separated by a jig tool, as taught by Brechbill for the expected benefit of providing a simple and efficient method to release the lock and thus an improved latching system.

As concerns claim 15, Cho shows the invention except one or more second holes on the bottom wall of the outer case. Cho shows one protrusion (320, fig 2b) inserted into one hole (121, fig 2b). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have one or more second holes on the bottom wall and protrusions inserted into those holes, since it has been held that mere duplication of essential working parts of a device involve only routine skill in the art. In re Regis Paper Co. v. Bemis Co., 193 USPQ 8.

Having multiple holes and protrusions inserted in those holes would yield secured latch.
Cho fails to show a jig is inserted to separate the cases.

Brechbill teaches a tool that is applied from outside to release a latch that holds two parts together (col. 2, lines 30-35; Brechbill shows a single tool which can be duplicated depending on the situation). It would have been obvious to one having skill in the art at the time the invention was made to modify Cho, so that the inner and outer cases can be separated by a jig tool, as taught by Brechbill for the expected benefit of providing a simple and efficient method to release the lock and thus an improved latching system.

As concerns claim 16, Cho shows the case locking device of claim 15, further comprising a plurality of the locks and a plurality of the fasteners provided at spaced locations around the outer case, wherein the one or more second holes are formed at spaced locations corresponding to the spaced locations of the plurality of the fasteners (300, fig 1, shows plurality of locks and fasteners provided at spaced locations).

As concerns claim 18, Cho shows first protrusion (In fig 3, the vertical side of 320, on the left side), second protrusion (vertical side, left side, of 320 in fig 3), and fastener opening (depression of 220, fig 3).

Cho shows the claimed invention except for one or more second hole on the bottom wall, and protrusions inserted into these holes. Cho shows one protrusion (320, fig 2b) inserted into one hole (121, fig 2b). It would have been obvious to one having ordinary
skill in the art at the time the invention was made to have one or more second holes on
the bottom wall and protrusions inserted into those holes, since it has been held that
mere duplication of essential working parts of a device involve only routine skill in the

Having multiple holes and protrusions inserted in those holes would yield secured latch.

Cho fails to show a jig contacts the inclined surface and force is applied to separate
the case locking device.

Brechbill teaches a tool that is applied from outside to release a latch that holds two
parts together (col. 2, lines 30-35). The tool shown by Brechbill can be duplicated to
apply to multiple locking devices. It would have been obvious to one having skill in the
art at the time the invention was made to modify Cho, so that multiple fasteners that
holds the inner and outer cases can be separated by a set of jig tool, as taught by
Brechbill for the expected benefit of providing a simple and efficient method to release
the lock and thus an improved latching system.
Response to Arguments

Applicant's arguments filed on 2/9/2012 have been fully considered but they are not persuasive.

(a) Claim 1, page 8

Applicant's argument that Cho fails to show the limitations of claim 1, protrusions protruding in the same direction.

Cho, KR10-2006-0080005, shows a lock (fig 2b) comprising a plurality of protrusions, vertical protrusions, shown above, protruding in the same direction.

Cho shows the limitations of claim 1.

(b) Claims 11-14, 17, and 19-22, page 9

Applicant's argument that reference fails to show the limitations of independent claim 17, the protrusions protruding in the same direction.

Cho, KR10-2006-0080005, shows a hook (320, fig 2b) having a first protrusion (shown above or in fig 3, the vertical side of 320, on the left side) and at least one second protrusion (shown above or in fig 3, the vertical side of 320 on the right side), the first protrusion and at least one second protrusion protruding in a same direction (both protrusions are protruding in the same direction).

Cho shows the limitations of claim 17.
(c) **Claims 5-6, 15-16, and 18, page 10**

(i) for claims 5-6, Brechbill et al., US 6,347,872 teaches a tool that is applied from outside to release a latch that holds two parts together (col. 2, lines 30-35). Jig taught by Brechbill can be employed to Cho to separate the two parts. Cho modified with Brechbill shows the limitations of Claims 5-6, 15-16, and 18.

(ii) For claim 15, Cho shows one protrusion (320, fig 2b) inserted into one hole (121, fig 2b). By duplication of essential working parts, Cho shows plurality of holes on the bottom wall.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN CUMAR whose telephone number is (571)270-3112. The examiner can normally be reached on Mon to Fri from 8:00 to 5:00 est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Thomas Beach can be reached on 571-272-6988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/NATHAN CUMAR/
Examiner, Art Unit 3674

/KRISTINA R FULTON/
Primary Examiner, Art Unit 3674
**Notice of References Cited**

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**NON-PATENT DOCUMENTS**

Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)

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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)*

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**Search Notes**

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**PTO-1449**

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## OTHER ART (Including Author, Title, Date, Pertinent Pages, Publisher, Place of Publication, Etc.)


**EXAMINER:** /Nathan Cumar/ (03/10/2012)  
**DATE CONSIDERED:** 03/10/2012

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All references considered except where lined through: * N.C.
## EAST Search History

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Docket No.: RPL-0337

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Kyoungsu KIM and Hakryun KANG

Serial No.: 12/265,022

Filed: November 5, 2008

For: CASE LOCKING DEVICE

INFORMATION DISCLOSURE STATEMENT

U.S. Patent and Trademark Office
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

Pursuant to 37 C.F.R. §1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO-1449. One copy of each non-U.S. reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the “References Cited” on any patent to issue therefrom.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the indicated date. Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered. This statement should not be construed as a representation that a search has been made, that information cited in the statement is considered to be and/or is material to patentability, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith. It is further understood that the Examiner will consider information that was cited or submitted to the U.S. Patent and Trademark Office in a prior application relied on under 35 U.S.C. §120. 1138 OG 37, 38 (May 19, 1992).

☒ 1. This Information Disclosure Statement is being filed (i) within three months of the U.S. filing date of a U.S. application other than a CPA continued prosecution application under §1.53(d) OR (ii) within three months of the date of entry of the national stage as set forth in §1.491 in an international application OR (iii) before the mailing date of a first Office Action on the merits OR (iv) before the mailing of a first Office Action after the filing of a Request for continued examination under §1.114. No certification or fee is required. 37 C.F.R. §1.97(b).

☐ 2. This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection OR Notice of Allowance OR an action that otherwise closes prosecution in the application. 37 C.F.R. §1.97(e).

☐ a. I hereby state that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application or from the U.S. Patent Office in a related U.S. application, not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(1). No fee is required.

☐ b. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(2).

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /N.C./
Please charge our Credit Card in the amount of $180.00 in payment of the fee under 37 C.F.R. §1.17(p) per the attached PTO 2038 form. Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information.

3. This Information Disclosure Statement is being filed after the mailing date of a Final Rejection OR Notice of Allowance OR an action that otherwise closes prosecution in the application, but on or before payment of the Issue Fee. Please charge our Credit Card in the amount of $180.00 in payment of the fee under 37 C.F.R. §1.17(p) per the attached PTO 2038 form. Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. 37 C.F.R. §1.97(d).

a. I hereby state that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application or from the U.S. Patent Office in a related U.S. application, not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(1).

b. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(2).

4. The references were cited in a corresponding foreign application.

5. To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
KED & ASSOCIATES, LLP

Carol L. Druzbick
Registration No. 40,287

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
Telephone: (703) 766-3777
Date: February 9, 2012

Please direct all correspondence to Customer Number 34610

\Fk4\Documents\2028\2028-346\307499.doc
# LIST OF ART CITED BY APPLICANT
## (PTO-1449)

### U.S. PATENT DOCUMENTS

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### OTHER ART (Including Author, Title, Date, Pertinent Pages, Publisher, Place of Publication, Etc.)

Korean Notice of Allowance dated April 9, 2010.

EXAMINER: /Nathan Cumar/ (03/10/2012)
DATE CONSIDERED: 03/10/2012

**NOTICE:** Initial if reference has been considered, whether or not citation is in conformance with MPEP 809; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

\[/N.C./\]
# Index of Claims

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| N | Non-Elected |
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☐ Claims renumbered in the same order as presented by applicant

☐ CPA  ☐ T.D.  ☐ R.1.47

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REQUEST FOR CONTINUED EXAMINATION (RCE) 
TRANSMITTAL UNDER 37 C.F.R. §1.114

DOCKET NUMBER: RPL-0337
Prior Appln Serial No.: 12/265,022
Filed: November 5, 2008
Inventor(s): Kyoungsu KIM and Hakryun KANG
Confirmation No.: 1355
Group Art Unit: 3674
Examiner: Nathan CUMAR

U.S. Patent and Trademark Office
Customer Service Window, Mail Stop RCE
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:


1. Submission required under 37 C.F.R. §1.114
   a. ☐ Previously submitted
      i. ☐ Consider the amendment(s)/reply under 37 C.F.R. §1.116 previously filed on ______
         (Any unentered amendment(s) referred to above will be entered).
      ii. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on ______
      iii. ☐ Other: ______
   b. ☒ Enclosed
      i. ☒ Amendment/Reply
      ii. ☒ Affidavit(s)/Declaration(s)
      iii. ☒ Information Disclosure Statement (IDS)
      iv. ☐ Other. ______

2. Miscellaneous
   a. ☐ Suspension of action on the above-identified application is requested under 37 C.F.R. §1.103(c) for a period of ______ months. Fee amount $130.00 under 37 C.F.R. §1.17(f) enclosed. (Period of suspension shall not exceed 3 months; Fee under 37 C.F.R.§1.17(f) required).
   b. ☐ Other. ______

3. Fees ☒ RCE fee required under 37 C.F.R. §1.17(e); Small Entity $465.00, other than small entity $930.00. The RCE fee under 37 C.F.R. §1.17(e) is required by 37 C.F.R. §1.114 when the RCE is filed.
   ☐ Extension of time fee (37 C.F.R. §§1.136 and 1.17)

Payment by:
   a. ☐ Check in the amount of $______ (Check No. ______) enclosed.
   b. ☒ Please charge my Credit Card.
   c. ☐ Please charge my Deposit Account No. 16-0607 in the amount of $______. A duplicate copy of this sheet is enclosed.

The Commissioner is hereby authorized to charge payment of any deficiency in the above fees associated with this communication or credit any overpayment to Deposit Account No. 16-0607.

Respectfully submitted,
KED & ASSOCIATES, LLP

Carol L. Drumback
Registration No. 40,287

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
703 766-3777 CLD:tlg
Date: February 9, 2012
Please direct all correspondence to Customer Number 34610
In Re Application of: Kyoungsu KIM and Hakryun KANG

Serial No.: 12/265,022

Confirmation No.: 1355

Filed: November 5, 2008

For: CASE LOCKING DEVICE

REPLY AND/OR AMENDMENT
UNDER 37 C.F.R. §1.114

U.S. Patent and Trademark Office
Customer Window, Mail Stop RCE
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

In reply to the Final Office Action dated November 9, 2011, a Request for Continued Examination being filed herewith, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims.

Remarks/Arguments begin after the listing of the claims.
**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. **(Currently Amended)** A case locking device for securing an inner case of a housing to an outer case of the housing, the case locking device comprising:

   a lock that secures the inner case to the outer case with a pressing force, the lock comprising a plurality of protrusions, each protrusion having an inclined surface, the plurality of protrusions protruding in a same direction, and an elastic material that pushes the plurality of protrusions toward a wall of the outer case, wherein the inclined surface of at least one of the protrusions is at a different angle of inclination than an angle of inclination of the other protrusions.

2. **(Previously Presented)** The case locking device of claim 1, wherein an insertion hole is provided in a side wall of the inner case configured to receive the lock therein, and a fastener is provided in a side surface of the outer case to receive at least one of the plurality of protrusions of the lock inserted through the insertion hole.

3. **(Canceled).**
4. (Previously Presented) The case locking device of claim 1, wherein the plurality of the protrusions moves toward an inside of the inner case by a pressing force exerted by the outer case onto the inclined surface of the at least one protrusion, which locks the outer case to the inner case by a resilient force of the elastic material.

5. (Previously Presented) The case locking device of claim 1, wherein the plurality of the protrusions moves toward an inside of the inner case by a pressing force exerted by at least one protrusion of a jig applied to the inclined surface of the at least one protrusion having the differently angled inclined surface to separate the outer case and the inner case from each other.

6. (Previously Presented) The case locking device of claim 5, wherein the protrusion of the jig is provided near a location corresponding to a connection location of the lock in order to be inserted into a fastener exposed between the outer case and the inner case.

7. (Previously Presented) The case locking device of claim 1, wherein the lock is provided inside the housing and is not visible from outside the housing.

8. (Currently Amended) The case locking device of claim 1, wherein the lock further comprises a front cover, a hook having the plurality of protrusions, and the elastic material, which is located between the hook and a rear cover.
10. (Previously Presented) The case locking device of claim 2, wherein the insertion hole comprises a through hole having a narrow portion and a wider portion that are integrally formed to each other.

11. (Previously Presented) The case locking device of claim 2, wherein the fastener comprises at least one first hole that penetrates a side wall of the outer case and one or more second holes that penetrate the side wall and a bottom wall of the outer case.

12. (Previously Presented) The case locking device of claim 11, wherein the at least one protrusion is inserted into the at least one first hole, and the remaining protrusion or protrusions are inserted into the one or more second holes.

13. (Previously Presented) The case locking device of claim 12, wherein the at least one protrusion has a step which is hung on the at least one first hole.

14. (Previously Presented) The case locking device of claim 13, wherein the at least one protrusion has a step comprising a surface having a normal vector that extends in the same direction as a vertical component of the inclined surface of the at least one protrusion.
15. (Previously Presented) The case locking device of claim 12, wherein one or more protrusions of a jig is inserted into the one or more second holes from the bottom wall of the outer case to separate the outer case and the inner case from each other.

16. (Previously Presented) The case locking device of claim 15, further comprising a plurality of the locks and a plurality of the fasteners provided at spaced locations around the outer case, wherein the one or more second holes are formed at spaced locations corresponding to the spaced locations of the plurality of the fasteners.

17. (Currently Amended) A case locking device for securing an inner case of a housing to an outer case of the housing, the case locking device comprising:

   a hook having a first protrusion and at least one second protrusion, the first protrusion and the at least one second protrusion protruding in a same direction, the hook having an extended position and a retracted position, the hook being biased by a spring into the extended position, the first protrusion having an inclined surface on one side of the first protrusion, the at least one second protrusion having an inclined surface on one side of the at least one second protrusion, the one side of the first protrusion facing in a direction opposite to the one side of the at least one second protrusion, wherein the inclined surface of the first protrusion engages an edge of the outer case that forces the hook into a retracted position until the first protrusion is aligned with a first fastener opening formed in the outer case whereupon the spring forces the
hook into the extended position and the first protrusion enters the first fastener opening and the at least one second protrusion enters a corresponding second fastener opening formed in the outer case, securing the outer case to the inner case.

18. (Previously Presented) The case locking device of claim 17, wherein the hook is retractable into the retracted position in which the first protrusion and the at least one second protrusion are not engaged with the first fastener opening and second fastener opening, respectively, when a jig contacts the inclined surface of the at least one second protrusion through the second fastener opening, applying a force to the hook and permitting the outer case to be separated from the inner case.

19. (Previously Presented) The case locking device of claim 17, wherein the at least one second protrusion comprises a plurality of second protrusions each having an inclined surface.

20. (Previously Presented) The case locking device of claim 19, wherein the first protrusion further comprises a non-inclined side opposite to the one side of the first protrusion that engages with a complementary edge of the first fastener opening to prevent the outer casing from being removed from the inner case.
21. (Previously Presented) The case locking device of claim 20, wherein the case locking device is configured to be mountable in a mounting hole formed in the inner case and further comprises a locking device housing having a rear cover in which the hook is slidably mountable, the spring being interposed between the hook and the rear cover, and a front cover configured to contain the hook and spring within the rear cover.

22. (Previously Presented) A tamper resistant housing comprising the case locking device of claim 21, wherein the outer casing further comprises an outwardly turned flange and wherein a plurality of the second fastener openings are partially formed in the flange.
REMARKS/ARGUMENTS

Claims 1-2, 4-8, and 10-22 are pending. By this Amendment, claims 1, 8, and 17 are amended. No new matter is added. Support for the claims can be found throughout the specification, including the original claims, and the drawings. Reconsideration in view of the above amendments and following remarks is respectfully requested.


Independent claim 1 recites, inter alia, the lock comprising a plurality of protrusions, each protrusion having an inclined surface, the plurality of protrusions protruding in a same direction. Cho does not disclose or suggest at least such features of independent claim 1, or the claimed combination.

That is, the Examiner asserted that “Cho shows...[a] lock comprising a plurality of protrusions ([a] lock assembly in [Fig.] 2b has [a] plurality of protrusions), each protrusion having an inclined surface ([F]ig[.] 2b, 320 has inclined surfaces...” Further, in Response to Arguments at page 12 of the Office Action, the Examiner asserted that “Cho shows [that a] hook 320 ([F]ig. 2b) has plurality of protrusions at different angle of inclination.” The Examiner further asserted that “Fig. 3 shows [that] the hook 320 has protrusions in the horizontal, vertical, and inclined directions, as shown below.” The Examiner then annotated an inclined surface, a
vertical surface, and a horizontal surface of reference numeral 320 of Cho’s Fig 2a as Protrusion (inclined), Protrusion (vertical), and Protrusion (horizontal), respectively.

However, the element 320, disclosed by Cho as a joint, has a shape of an inverted “V.” One of ordinary skill in the art would not consider the different (horizontally extending, vertically extending, and inclined) portions of the joint to be individual protrusions. Rather, the joint 320 itself functions as a single protrusion. Further, the different (horizontally extending, vertically extending, and inclined) portions of the joint extend in different directions. Therefore, Cho does not disclose or suggest the features of the lock comprising a plurality of protrusions, each protrusion having an inclined surface, the plurality of protrusions protruding in a same direction, as recited in independent claim 1.

Accordingly, the rejection of independent claim 1 over Cho should be withdrawn. Dependent claims 2, 4, 7-8, and 10 are allowable over Cho at least for the reasons set forth above with respect to independent claim 1, from which they depend, as well as for their added features.

The Office Action rejected claims 11-14, 17, and 19-22 under 35 U.S.C. §103(a) as being unpatentable over Cho. The rejection is respectfully traversed.

Independent claim 17 recites, inter alia, a hook having a first protrusion and at least one second protrusion, the first protrusion and the at least one second protrusion protruding in a same direction. Cho does not disclose or suggest at least such features of independent claim 17, or the claimed combination.
That is, Cho does not disclose or suggest a hook having a first protrusion and at least one second protrusion, the first protrusion and the at least one second protrusion protruding in a same direction, or the claimed combination of independent claim 17.

Accordingly, the rejection of independent claim 17 over Cho should be withdrawn. Dependent claims 11-14, and 19-22 are allowable over Cho at least for the reasons set forth above with respect to independent claims 1 and 17, from which they respectively depend, as well as for their added features.

The Office Action rejected claims 5-6, 15-16, and 18 under 35 U.S.C. §103(a) as being unpatentable over Cho, in view of Brechbill et al. (hereinafter “Brechbill”), U.S. Patent No. 6,347,872. The rejection is respectfully traversed.

Dependent claims 5-6, 15-16, and 18 are allowable over Cho at least for the reasons set forth above with respect to independent claims 1 and 18, from which they respectively depend, as well as for their added features. Brechbill fails to overcome the deficiencies of Cho, as it is merely cited for allegedly teaching a jig used to separate inner and outer cases (claims 5-6); one or more second holes on a bottom wall of the outer case (claim 15); and a jig contacting the inclined surface and a force being applied to separate a case locking device (claim 18). Accordingly, the rejection of dependent claims 5-6, 15-16, and 18 over Cho and Brechbill should be withdrawn.
CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
KBD & ASSOCIATES, LLP

Carol L. Druzdick
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703 766-3777 CLDgs/pbxlg

Date: February 9, 2012
Please direct all correspondence to Customer Number 34610
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of  
Kyoungsu KIM and Hakryun KANG  
Serial No.: 12/265,022  
Filed: November 5, 2008  
For: CASE LOCKING DEVICE

Confirmation No.: 1355  
Group Art Unit: 3674  
Examiner: Nathan CUMAR  
Customer No.: 34610

INFORMATION DISCLOSURE STATEMENT

U.S. Patent and Trademark Office  
Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, Virginia 22314

Sir:

Pursuant to 37 C.F.R. §1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO-1449. One copy of each non-U.S. reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the “References Cited” on any patent to issue therefrom.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the indicated date. Applicants reserve the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered. This statement should not be construed as a representation that a search has been made, that information cited in the statement is considered to be and/or is material to patentability, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith. It is further understood that the Examiner will consider information that was cited or submitted to the U.S. Patent and Trademark Office in a prior application relied on under 35 U.S.C. §120. 1138 OG 37, 38 (May 19, 1992).

☒ 1. This Information Disclosure Statement is being filed (i) within three months of the U.S. filing date of a U.S. application other than a CPA continued prosecution application under §1.53(d) OR (ii) within three months of the date of entry of the national stage as set forth in §1.491 in an international application OR (iii) before the mailing date of a first Office Action on the merits OR (iv) before the mailing of a first Office Action after the filing of a Request for continued examination under §1.114. No certification or fee is required. 37 C.F.R. §1.97(b).

☐ 2. This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection OR Notice of Allowance OR an action that otherwise closes prosecution in the application. 37 C.F.R. §1.97(c).

☐ a. I hereby state that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application or from the U.S. Patent Office in a related U.S. application, not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(c)(1). No fee is required.

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c. Please charge our Credit Card in the amount of $180.00 in payment of the fee under 37 C.F.R. §1.17(p) per the attached PTO 2038 form. Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information.

☐ 3. This Information Disclosure Statement is being filed after the mailing date of a Final Rejection OR Notice of Allowance OR an action that otherwise closes prosecution in the application, but on or before payment of the Issue Fee. Please charge our Credit Card in the amount of $180.00 in payment of the fee under 37 C.F.R. §1.17(p) per the attached PTO 2038 form. Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. 37 C.F.R. §1.97(d).

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☒ 4. The references were cited in a corresponding foreign application.

☒ 5. To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,

KED & ASSOCIATES, LLP

Carol L. Druzbičk
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Date: February 9, 2012

Please direct all correspondence to Customer Number 34610

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**LIST OF ART CITED BY APPLICANT**  
**PTO-1449**

**ATTORNEY. DOCKET NO.**  
RPL-0337

**APPLICATION SERIAL NO.**  
12/265,022

**APPLICANT(S)**  
Kyoungsu KIM and Hakryun KANG

**FILING DATE**  
November 5, 2008

**GROUP**  
3674

### U.S. PATENT DOCUMENTS

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**OTHER ART (Including Author, Title, Date, Pertinent Pages, Publisher, Place of Publication, Etc.)**

Korean Notice of Allowance dated April 9, 2010.

**EXAMINER**  
**DATE CONSIDERED**
YOUR INVENTION PARTNER

특허청

특허결정서

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발명자 성명 김경수
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현대모닝사이드2차 아파트 104동 501호

출원번호 10-2008-0065420
발명의 명칭 케이스 채결 장치
청구항 7

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[참고문헌]
1. KR1020060080005 A
2. KR202000000005513 U
3. KR201998012015 U
4. KR201998013920 U
2010.04.09

특허청
정보통신심사국
디지털방송심사팀
심사관
허영한

<<특허료 납부, FD(플로피디스크재출) 및 특허기술상신청안내>>

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3. 법적 또는 학문, 연구용 등 소급한 등록료는 밝혀 본 고지서에 기재된 등록료에 반영되어 있는 고지서에 기재된 금액을 수신하였을 경우, 고지서 대신 '등록료납부서'를 작성하여 납부하여 주십시오. 등록료납부서 작성요령 및 제출에 관한 자세한 안내는 등록결정서 하단의 <등록료 납부안내>를 참고하시기 바랍니다.
4. 본 고지서를 체손 또는 분실하였을 때에는 특허청 또는 특허법 서울서무소에 문의하여 재발급 받으실 수 있습니다.
5. 그 밖에 문의사항은 특허청 특허고객 상담센터(☎ 1544-8080)로 문의하여 주시기 바랍니다.

※ 납부금액이 'W0원'인 경우에는 은행에 제출하지 마시고, 반드시 납부서(특허청 홈페이지 인원서식)를 작성하여 On-Line 이나 서면(우편, 직접 방문)으로 제출하셔야 합니다.

<table>
<thead>
<tr>
<th>세입경수판서</th>
<th>특허청</th>
</tr>
</thead>
<tbody>
<tr>
<td>계좌 번호</td>
<td>127996-6</td>
</tr>
<tr>
<td>납부자 번호</td>
<td>0131-9-5-2010-0149867-35</td>
</tr>
<tr>
<td>출원 번호</td>
<td>10-2008-0065420</td>
</tr>
<tr>
<td>등록료 및 수수료</td>
<td>W318,000원</td>
</tr>
<tr>
<td>등록세</td>
<td>W0원</td>
</tr>
<tr>
<td>지방 교육세</td>
<td>W0원</td>
</tr>
<tr>
<td>총 금액</td>
<td>W318,000원</td>
</tr>
<tr>
<td>정상납부기일</td>
<td>등록결정서를 받은 날부터 3일이내</td>
</tr>
</tbody>
</table>
* 금액기재 안전에 W 표기 후 금액을 기재함.

<table>
<thead>
<tr>
<th>납부자 성명</th>
<th>특허법인로양</th>
</tr>
</thead>
<tbody>
<tr>
<td>주민등록번호(법인번호)</td>
<td></td>
</tr>
<tr>
<td>주 소</td>
<td>서울 광교구 남현동 1059-11 도원회관빌딩 1층(특허법인로양)</td>
</tr>
</tbody>
</table>

정수결정전 납입 납부서 (수납통행 또는 한국은행용)

<table>
<thead>
<tr>
<th>세입경수판서</th>
<th>특허청</th>
</tr>
</thead>
<tbody>
<tr>
<td>계좌 번호</td>
<td>127996-6</td>
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<tr>
<td>납부자 번호</td>
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</tr>
<tr>
<td>출원 번호</td>
<td>10-2008-0065420</td>
</tr>
<tr>
<td>등록료 및 수수료</td>
<td>W318,000원</td>
</tr>
<tr>
<td>등록세</td>
<td>W0원</td>
</tr>
<tr>
<td>지방 교육세</td>
<td>W0원</td>
</tr>
<tr>
<td>총 금액</td>
<td>W318,000원</td>
</tr>
<tr>
<td>정상납부기일</td>
<td>등록결정서를 받은 날부터 3일이내</td>
</tr>
</tbody>
</table>
* 금액기재 안전에 W 표기 후 금액을 기재함.

※ 수납기관에서는 문의 신 안내 내용을 반드시 전산입력하여 주시기 바랍니다.
1. 특허료 납부예정금액(1-3년차분)

◎ 설정등록료 산출 예시(청구항이 5항인 경우)

<table>
<thead>
<tr>
<th>구분</th>
<th>기준액</th>
<th>설계등록료</th>
<th>일부청구항 포기시 설정등록료</th>
</tr>
</thead>
<tbody>
<tr>
<td>기본료</td>
<td>매년 15,000원</td>
<td>1-3년</td>
<td>3년 x 15,000원 = 45,000원</td>
</tr>
<tr>
<td>가산료(청구범위 1항이하)</td>
<td>매년 13,000원</td>
<td>5항</td>
<td>3년 x 5항 x 13,000원 = 195,000원</td>
</tr>
<tr>
<td>합계</td>
<td>정상</td>
<td>2행 포기</td>
<td>3년 x 3항 x 13,000원 = 117,000원</td>
</tr>
</tbody>
</table>

(*) 등록료 = 기본료 + (가산료 x 청구항 수)

2. 납부기한 : 특허결정서를 받은 날로부터 3월 이내에 최초 3년분의 특허료를 일시에 납부하여야 하며, 납부기한이 경과한 후에도 6개월 이내(추가납부기한)에 납부할 수 있습니다. 이 경우 1개월까지는 20%, 2~3개월까지는 30%, 4~6개월까지는 50%에 상당하는 금액을 가산하여 납부하여야 합니다. 추가납부기한도 경과 하면 출원포기로 간주되어 등록받을 수 없습니다.

3. 납부방법

① 「납입고지서 및 영수증」을 이용하는 방법 : 특허결정서와 함께 송달받은 「납입고지서 및 영수증」상의 정상납부일까지 은행, 우체국 등 국고수납기관 또는 인터넷 지로사이트(http://giro.or.kr)에서 특허료를 납부합니다.(납부서를 별도로 제출하지 않음)

② 「납부서」 (특허등록령시행규칙 별지 제16호 서식)을 이용하는 방법

③ 「납부서」를 직접 또는 온라인으로 제출하는 경우 : 특허청(특허청 서울사무소)에 직접 또는 온라인으로 제출한 후 접수번호를 납부자번호로 하여 제출일의 다음날까지 은행, 우체국 등 국고수납기관 또는 인터넷지로사이트(http://giro.or.kr)에서 특허료를 납부합니다.(단, 금융기관영업시간 이후에 납부서를 제출하는 경우에는 다음날까지 납부)

④ 「납부서」를 우편으로 제출하는 경우 : 「납부서」를 작성한 후 특허료에 해당하는 금액을 통상환원서로 바꾸어 「납부서」와 함께 특허청에 보내야 합니다.

* 보낼 곳 : 우)302-701 대전광역시 서구 선사로 139, 정부대전청사 특허청 등록서비스과

4. 등록료 연체 및 일부청구항을 포기하는 경우 : 국민기초생활보장법상 수급자, 학생, 소기업, 중기업 등이 특허료를 감면받고자 하는 경우에는 「납부서」와 함께 감면 또는 연체 대상일을 입력하는 서류를 제출한 후 특허료를 납부하여야 하고, 일부 청구항을 포기하고자 하는 경우에는 「납부서」와 함께 「포기서」 (특허법시행규칙 별지 제12호 서식, 일부청구항 포기)를 제출한 후 특허료를 납부하여야 합니다.
납부서

【납부구분】□실정 특허등록료 □연차 특허등록료
□존속기간갱신 등록료 □존속기간갱신분할 등록료
□지정상품 서비스업 업무추가 등록료 □특허등록료 보전

(【등록권리자】)
【성명(명칭)】
【출원인코드】)
【납부자】
【성명(명칭)】
(【출원인(대리인)코드】)
【주소】
【전화번호】
【납부대상의 표시】
【출원번호(특허번호, 등록번호)】
【청구항(디자인, 상품류, 서비스류)수】
(【포기대상】)
(【납부연차】)
(【감면사유】)
【특허(등록)료】
【특허(등록)료】
(【등록세】)
【합계】
(【제출원인이 된 서류의 접수번호】)
【회복신청】
【회복신청 원인】□ 실시중인 특허발명(등록교안, 등록디자인)의 특허(등록)
권 회복
□ 책임질 수 없는 사유로 소멸된 특허(등록)출원 및 특허
(등록)권 회복
(【특허(등록)증 수령방법】□ 방문수령(대전) □ 방문수령(서울) □ 우편수령
□ 방문수령(대전 송달함) □ 방문수령(서울 송달함)
(【특허(등록)증 수령인】)
(【성명】)
(【주소 및 우편번호】)
【특허(등록)료수수료 및 등록세 납부사항정정신청】

위와 같이 특허청장에게 제출합니다.

납부자 (인)

【첨부서류】법령에서 정한 서류 각 1통 (기재요령 제9호 참조)
210mm × 297mm (보존용지(1)종 70g/m²)
(19) 대한민국특허청(KR)
(12) 공개실용신안공보(U)

(11) 공개번호
실 1998-059618

(43) 공개일자
1998년 07월 26일

(51) Int.Cl.6
B67D 3/00(조기공개)

(21) 출원번호
실 1998-013920

(22) 출원일자
1998년 07월 26일

(71) 출원인
박용철
서울특별시 노원구 중계동 502-1 아파트 103-309 14/6

(72) 고안자
박용철
서울특별시 노원구 중계동 502-1 아파트 103-309 14/6

(74) 대리인
박희섭

상세항목: 있음

(54) 다중도 액체 디스펜서

요약
본 고안은 다중도 액체 디스펜서를 개시한다.

본 고안은 사용자의 의식에 따라 1회 인출률을 관리하면서 정확하게 섭취할 수 있도록 하기 위하여 가변저항형 자향기에 상응하는 길이의 펄스를 발생시키기 위한 펄스발생기에, 펄스발생기의 출력에 따라 설정된 시간동안 슬로노이드코일에 펄스를 흘려주어 슬로노이드코일의 자극으로 습기되면서 잠재(접착) 되는 펄브 및 밀브시트를 구성된 공지의 것에 있어서, 전기 가변저항의 갯수를 임하는 단계만큼 늘리고 이에 센서스위치를 연결하여 선택된 저항값에 상응하는 시간동안 슬로노이드코일이 동작함으로써 원하는 양의 액체를 인출할 수 있도록 한다.

이에 따라 센서스위치의 선택에 의하여 손사표시기로 표시되는 손사가 변화되도록 함으로써 원하는 액체 인출률을 손사로 확인하여 편리하고 정확하게 인출할 수 있게 되는 효과를 제공한다.

대표도

도 3

영세서

도면의 간단한 설명
도 1은 작동 대기중인 상태를 보인 액체 디스펜서의 구조를 보인 출단면도.
도 2는 액체디스펜서의 작동을 보인 출단면도.
도 3는 본 고안에 의한 다중도 액체 디스펜서의 구성을 보인 개략도.
도 4는 본 고안을 적용한 다중도 액체 디스펜서의 구체적인 구성을 보인 회로도.
도 5는 본 고안에 의한 다른 실시예를 보인 회로도.

* 도면의 주요 부분에 대한 부호의 설명
1 : 발브
2 : 백
3 : 적외선발광부
4 : 적외선수광부
5 : 단편분정회로
6 : 단안정발진기
9 : 슬로노이드코일
10 : 스위치수단
11 : 저항
12 : 센서스위치
13 : 엔코더
14 : 표시기
15 : 표시기구동회로
16 : 발광대오드
19 : , 19', 21 : 증폭기
20 : 트랜지스터
24 : 오동작방지회로

고안의 상세한 설명

8-1
고안의 목적

본 고안은 다음 도형 액체 디스펜서에 관한 것으로 더욱 상세히는 소독제나 로션, 세제 등의 액체를 적당 수온이나 낮 등에 바르기 위하여 인해하는 도형 액체 디스펜서에 관한 것이다.

정면에도 액체 디스펜서(Liquid Dispenser)가 미화중매트목록 4,921,131호(이하 인용방법이라 함)로 제안 된 바 있다. 이는 위생약제가 수용된 백의 하방에 손의 잎근을 감지하여 깨어지는 백을 구비함으로써 위생약제를 정량적 섭취하여 인해할 수 있도록 하였던 것이다. 이러한 인용방법에 의한 액체디스펜서는 사용자가 손을 접촉시키면 이를 적절한 수발관소에 의하여 감지하고 사용자가 미리 설정한 양에 해당 하는 시간동안 백자가 개방되어 백에 수용된 액체액제가 플레이팅으로써 정량적 인해되도록 하였던 것이 다.

이러한 인용방법은 특히 1회 인출량을 설정하기 위하여 기기 내부의 가변량을 적절히 돌려 백자가 개방되는 시간을 조절하도록 하는 방식으로 정량한 조절이 사실상 불가능한 것이었다. 따라서 액체가 과 가한 경우 불필요하게 많은 양을 인해하여 남비함으로써 경제적인 손실을 발생시키거나 인출량이 부족하여 액체사용효과가 저하되던 문제점이 있다.

또한 이러한 인용방법의 경우에는 바르는 부위가 달라지며 따라서 사용량을 수시로 증감시키려고 하는 경우 조절된 양이 얼마를 인하하기 어렵고 조절된 양이 적절하지 않은 경우 어려운 인출을 시도하여야 하는 불편이 있는 것이다.


이러한 설계는 사용자가 설정한 1회 인출량을 숫자로 표시하도록 원하는 양을 숫자로 설정할 수 있는 것임이 있어서 편리하고 경제적으로 사용할 수 있게 되었다.

반면에 이러한 설계는 인출량을 설정하기 위하여 가변량을 돌리는 것이어서 돌리는 각도에 따라 인
출량이 크게 변화할 수 있으므로 조절이 어려울 수 있으므로, 이는 구조가 어렵고 그 가격이 고가이므로 제조비용을 양심적으로 사용하든다는 것이다.

또한 이러한 설계는 가변량에 의한 조절값의 변화를 디지털 코드로 변환시키기 위한 A/D변환기 직접
회로 사용하여야 하며, 이는 구조가 어렵고 그 가격이 고가이므로 제조비용을 양심적으로 사용하든다는 것이다.

고안이 이루고자 하는 기술적 개요

상술한 장점의 문제점을 견고하여 본 고안은 사용자의 손이 적절히 정의한 것을 인해하여 설정된 양에 상응하는 양의 백을 발기시키기 위한 단안발전기라, 단안발전기의 출력에 따라 설정된 시간동안 슈
레이드코일에 플레스를 채어주며, 슈레이드코일의 출력으로 채어지면서 접리기(접착)되는 백 및 백시
트로 구성한 문제점을 결합한 것에 있어서, 백합값을 설정하기 위하여 다수의 설정과 연결한 설계위치, 단
선위치와 상호운의 디지털 코드를 발기시키기 위한 액코드, 액코드에 의하여 출력되는 디지털 코드에 따라 숫자표시기를 구동하도록 구동회로를 부합하하여 둘 다 도형 액체 디스펜서를 제공함에 있다.

고안의 구성 및 작용

상술한 목적을 달성하기 위하여 본 고안은 사용자의 손이 적절히 정의한 것을 인해하여 설정된 양에 상응하는 양의 백을 발기시키기 위한 단안발전기라, 단안발전기의 출력에 따라 설정된 시간동안 슈레이드코일에 플레스를 채어주며, 슈레이드코일의 출력으로 채어지면서 접리기(접착)되는 백 및 백시트로 구성한 문제점을 결합한 것에 있어서, 백합값을 설정하기 위하여 다수의 설정과 연결한 설계위치, 단선위치와 상호운의 디지털 코드를 발기시키기 위한 액코드, 액코드에 의하여 출력되는 디지털 코드에 따라 숫자표시기를 구동하도록 구동회로를 부합하하여 둘 다 도형 액체 디스펜서를 제공함에 있다.

상술한 구성의 의하여 본 고안은 사용자가 원하는 1회 인출량을 간편하고 정확하게 설정하여 경제적으로 사용할 수 있게 되는 제품을 제공한다.

이하 여기의 도면을 참조하여 본 고안의 바람직한 실시예를 설명한다.

본 고안은 도 1, 2 및 3으로 보이 바와 같이 위생약제가 수용되고 하방의 통신부위에 백(1)을 구비
하여 하방 백(1)의 상단과 사용자의 손을 접촉시킬 수 있도록 위생약제등록부(3) 및 적외선산광부(4)와, 적외선산광부(4)의 출력을 기판에 대비하여 접지부를 반전하는 점적산광회로(5)와, 점적산광회로(5)의 출력에 의해 이에 의한 점적산광에 상응하는 가속한 백을 출력시키기 위한 단안발전기라(8), 단안발전기라(8)의 출력을 급속발사 백(1)을 본인계기 위한 슈레이드코일(9)과 전류를 출력시키기 위한 스위치(10)로 구성된 과일 도형의 액체 디스펜서에 있어서, 단안발전기라(8)의 연결되어 변주위를 변화시켜 짜는지속시간을 결정하기 위한 다수의 자전(11)과 이들 과 적절한 연결된 선형위치(12)와, 다수의 선형위치(12)와 연결되어 상단에 따라 디지털 코드를 출력
시키는 액코드(13)과, 액코드(13)의 출력으로 구동되는 표시기(14)를 위한 표시기 구동 회로(15)를 구성
된 것이며, 마찰도부(16)은 발바닥시트이다.

이와 같이 본 고안은 사용자의 손에 수용된 액체를 사용하기 위하여 적외선산광부(3)와 적외선산광부(4)의 하방으로 손을 접촉시키면 적외선산광부(3)에서 발광되는 적외선이 사용자의 손에 부딪혀 후 적외선산광부(4)에 입사한다.
그러므로 적외선수광부(4)의 출력이 상대적 변화되고, 이는 기존의 광학 및 비교하여 집중편광장(5)의 출력을 반영시키는 결과가 있다.

그 결과 단안절반장(8)에 트리거 신호가 인가되어 단안절반장(8)은 설정된 유지시간을 갖는 팔측을 출력시키게 되고 이는 슬레이드드코일(9)과 설정한 시간당을 점주য를 줄여주게 되는 것이다.

이에 따라 슬레이드드코일(9)에 의하여 출력되는 빌트(1)가 상호하여 도로 보이는 바와 같이 팔(2)의 액체가 밸브 될 수 있는 것이고 그 시간이 경과하면 레이 슬레이드드코일(9)에 의한 기능이 정지되며 빌트(1)는 가볍게 빌트 시트(16)와 일치하여 도로 보이는 바와 같이 닫힘상태가 되는 것이다.

특히 본 고현은 다수의 센서위치(12) 중 어느 하나를 선택적으로 온/오프 조작하면 센서위치(12)에 의하여 온도(13)는 지정한 디지털 코드를 발생시키게 되며 이에 따라 온도(13)의 출력을 공급받은 표시기 구동부(15)가 표시기(14)로 해당코드를 표시하게 되는 것이다.

그러므로 사용자가 이러한 표시기(14)의 숫자를 보고 원하는 숫자가 나타나도록 하며, 선택된 센서위치(12)와 연결된 지향(11)이 단안절반장(8)의 시작을 정하는 것이며, 이에 따라 단안절반장(8)의 팔측 유지를가 설정하기 위하여 적외선광장(3)의 적외선광장(4)에 의하여 수의 적외신호가 감지되었을 때 슬레이드드코일(9)에 전류가 흐르는 시각이 조절되어 팔측(1)에서 슬레이드드코일(9)에 의한 액체가 상시가 되어 있는 것이며 이는 조절되는 것이다. 그러므로 빌트(1)가 상호되어 있는 시간당의 완전히 액체가 흐르는 내리므로 설정된 양의 액체가 인실될 수 있는 것이고, 사용자는 손으로 액체를 받아 넣고 원하는 부위에 밑어 사용할 수 있게 된다.

이와 같이 본 고현에서는 어느 하나의 센서위치(12)를 선택하여 표시기(14)로 표시된 숫자를 보고 1회 반응을 정확하게 조절할 수 있게 되는 것이며,

예를 들어 선택위치(12)와 지향(11)을 각각 8개 설치하여 8단계로써 10℃~80℃의 8단계로 간편하고 정확하게 조절할 수 있게 되는 것이다.

아울러 도 4에는 본 고현에 의하여 구현되는 구체적인 회로의 일례를 보이고 있다. 이러한 식제에서는 액체의 흐름도 디렉터시(20)에 있어서,

단안절반장(8)에 연결되어 시작을 변화시켜 팔측유지를 설정하기 위한 도수의 지향(11)과 등석 위치(17)의 일련을 적절히 조절하고 그 타단을 점집시켜서 센서위치(12)로 사용할 수 있도록 하였다. 이와 같이 되어 타단(17)과 품석(15)을 의하여 동작시켜서 선택서위치(12)로 동작할 수 있게 되는 것이다. 이러한 단안절반장(8)의 특성에 의하여 해당 센서위치(12)가 보이면 적절한 등석 위치(17)를 선택하여 본선장의 타단(17)과 접속된 출력단자를 접촉상태로 하고 나머지 출력단자가 하이페임상태로 되므로써 설정된 디지털 코드의 출력을 하게 되는 것이다.

그러므로 표시기 구동부(15)는 센서위치(12)의 출력을 받아 표시기(14)에 해당 숫자를 표시하게 되는 것이며, 아울러 선택위치(12)와 지향(11)을 설정된 단안절반장(8)의 출력을 감지하여 음이 8단계로써 10℃~80℃의 8단계로 간편하고 정확하게 조절할 수 있게 되는 것이다.

또한 액체 인실량을 조절하기 위하여 등석 위치(17)의 센서위치(12)를 조절함으로써 인실량을 가감할 수 있게 하는 회로이며, 이와 같이 본 고현에서는 선택위치(12)를 조절함에 의하여 간편하고 정확하게 인실량을 설정할 수 있다.

그리고 본 고현에서는 도로 보이는 바와 같이 도수곡방장부(24)를 추가 설치함으로써 단안절반장(8)의 작동과정에서 1회 적절한 1회 인실량이 일어나도록 하고 1회 인실량이 완료되기 전에 다시 신호가 전달되어 액체가 추가되지 않도록함으로써 오동작을 방지할 수 있게 된다.

즉, 익숙하지 않은 사용자들은 손을 접촉시켜 액체의 인실량이 개시되고 완료되기 전에 손을 때려가지 않고 손을 접촉시켜야 한다는 것으로도 이러한 경우에도 액체가 1회만 인실량되도록 하였다. 이를 위하여 본 고현에서는 접촉점장화장(5)에 내장된 2개의 측량기(19, 19') 연결부위와 접촉시켜서 트리거서(20)의 측량기의 예시를 연결하였고, 단안절반장(8)의 출력을 측량하는 측량기(21)의 출력이 전기 트리거서(20)의 베이스에 연결하므로 한 오동작방장부(24)를 설치하였다.

그러므로 이러한 설치에서는 단안절반장(8)에서 출력되는 신호가 있는 경우에는 측량기(21)를 거쳐 트리거서(20)의 베이스에 하이페임의 신호가 공급되므로 트리거서(20)가 터진으면서 접촉점장화장(5)의 측량기(19, 19')사이의 접촉지로 되어 단안절반장(8)의 입력단지에는 트리거신호가 인가될 수 없는 것이다. 그러므로 입력이 인실량이 되면 다시 손을 접촉시킬 경우에는 손의 접근 통작이 유지되는 시점에서 인실 인실량이 방지되므로 오동작을 방지할 수 있게 된다.

또한 본 고현에서는 이러한 오동작 방지를 위하여 대한 위치가 설치되는 경우 추가 설치한 트리거서(22)에 의하여 밸트에이아이(23)가 점전극상으로써 작동상태를 표시하도록 할 수 있고 아울러 액체 인실량이 시전되는 시간당 추가설치된 트리거서(26)에 의하여 밸트에이아이(7)가 점전극상으로써 작동상황을 표시할 수 있게 되는 것이다.

고현의 효과

이와 같이 하는 본 고현은 액체의 1회 인실량을 단계별로 세분하여 정확하게 조절할 수 있게 되는 것이어서 사용자의 반응시기를 제공하는 것이며도 고가의 A/B변환기가 불필요하게 되어 제조비용의 절감을 도모할 수 있게 되는데 경제적인 효과를 얻게 되는 것이다.

또한 본 고현은 수리로 액체 인실량을 변화시키는 경우에도 선택위치(12)를 조작하여 표시기(14)의 숫자를 옮기면 보면서 1회 인실량을 조절하면 되므로 간편하게 복합인실량을 설정할 수 있게 되어 더욱
사용이 편리한 임점이 있다.

(57) 청구의 범위

청구항 1

발브(1)를 구비하여 된다 백(2)과 사용자 손의 접근을 막기 위한 적외선발광부(3) 및 적외선수광부(4)와, 적외선수광부(4)의 출력광을 가중값과 대비하여 접근여부를 판단하는 접근판정회로(5)와, 접근판정회로(5)의 출력이 있는 경우 이에 의한 지함검에 상응하는 길이의 필스를 출력시키기 위한 단안경발진기(8)와, 단안경발진기(8)의 출력을 공급받아 슬레노이드코일(9)에 전류를 출력하기 위한 스위치장치(10)와, 스위치장치(10)의 출력으로 설정된 지속시간을 갖는 전류가 공급되며, 백(2)의 하방 돌출부위에 설치된 발브(1)를 승강시키기 위한 슬레노이드코일(9)로 구성된 공지의 것에 있어서.

단안경발진기(8)에 연결되어 지정수를 변화시켜 움직지속시간을 결정하기 위한 다수의 지함(11) 및 이들과 직접 연결된 선택스위치(12)와, 다수의 선택스위치(12)와 연결되어 상태에 따라 디지털 코드를 출력시키는 엔코더(13)와, 엔코더(13)의 출력으로 구동되는 표시기(14)를 위한 표시기구동회로(15)로 구성됨을 특징으로 하는 다공도 역제 디스펜서.

청구항 2

제 1항에 있어서,

접근판정회로(5)에 내장된 2개의 쟁목기(19, 19') 연결부위와 접지사이에 클릭터와 애너터가 연결되고, 단안경발진기의 출력을 중복시키는 쟁목기의 출력이 베이스에 연결되는 트랜지스터(20)를 갖는 오토작동

지부(24)를 구비함을 특징으로 하는 다공도 역제 디스펜서.
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(54) 차량용 브레이크 빠락장치의 진공 연결파이프

요약
본 고안은 차량용 브레이크 빠락장치의 진공 연결파이프에 관한 것으로, 그 목적은 조립이 완료된 상태에서 진공 연결파이프의 옮직임을 방지하여 정압실의 진공을 항상 유지시키는 것이다.

본 고안에 따른 차량용 브레이크 빠락장치의 진공 연결파이프 (60)는 진공호스 (80) 와 빠락장치 정압실 (20) 을 연통시키도록 설립부재 (70) 를 이용하여 케이싱 (10) 전방렬 (11) 에 결합되는데, 진공 연결파이프 (60) 의 의향플랜지부 (63) 와 설립부재 (70) 후단부 (72) 를 아울러결합함으로써 진공 연결파이프 (60) 의 회전 및 틀어짐을 방지하였다.

따라서 진공 연결파이프 (60) 에 의력이나 엔진 (미도시스템) 구동으로 인한 진동이 전달되어도 움직이지 않고 설립부재 (70) 와 진공 연결파이프 (60) 일반부 (61) 사이가 완전히 설립되어 정압실 (20) 진공도가 정확하게 유지됨으로써, 빠락장치의 전체적인 신뢰성이 향상되는 이점이 있다.

대표도
도 2

명세서

도면의 간단한 설명

도 1은 종래 진공 연결파이프의 체결구조를 보인 단면도이다.

도 2는 본 고안에 따른 진공 연결파이프가 장착된 차량용 배액장치의 단면도이다.

도 3은 본 고안에 따른 진공 연결파이프의 분해사진도이다.

*도면의 주요부분에 대한 부호의 설명*

11. 전방성 13. 결합공 20. 결합실

60. 진공 연결파이프 63. 외항플랜지부 63a. 요즘

63b. 툴기 70. 셀링부재 71. 채결봉

80. 진공호스

고안의 상세한 설명

고안의 목적

고안이 속하는 기술 및 그 분야의 종래기술

본 고안은 차량용 브레이크 배액장치에 관한 것으로, 더욱 상세하게는 엔진 좁임부의 진공호스와 배액장치 정압실을 연 통시키는 배액장치의 진공 연결파이프에 관한 것이다.

차량용 브레이크의 배액장치 (BOOSTER)는 진공과 대기와의 가압차이를 이용하여 작은 힘으로 큰 제동력을 발생시키는 장치를 말한다. 이러한 기능을 하는 배액장치는 전방성과 후방성으로 이루어진 캐이싱, 브레이크페달에 의해 연동하는 입력축, 입력축의 작동에 따라 변위의 힘을 전달받는 출력축 등으로 크게 이루어져 있다.

캐이싱의 내부는 다이아프램과 동력피스톤에 의해서 정압실과 변압실로 구획되어 있는데, 이들은 후속하는 밀브본체에 형성된 정압통로를 통해 연동되어 있다. 정압실의 밀출 역할에는 내부에 루인 좁임부와 연동시키는 진공 연결파이프가 결합되어 있고, 정압실 내부에는 복원스프링이 설치되어 배액장치가 비작동 상태에 있을 때에 이와 탄성 복원력에 의해 다이아프램과 동력피스톤이 후향 움직이도록 유지된다.

그리고 공기의 흐름을 제어하는 밀브본체는 캐이싱에 결합되어 있는데, 이것은 일반부가 다이아프램과 동력피스톤에 고 정되어 공기흡입구가 형성된 타단부가 캐이싱의 후단부로부터 외측으로 돌출되어 대기와 연동되어 있으며, 입력축의 전 움직임에 따라 같이 연동된다.

이와 같이 구성된 차량용 브레이크의 배액장치는 초기 상태에 엔진 좁임부에 의해 정압실과 변압실은 진공상태로 되어 있는데, 운전자가 브레이크페달을 밟게 되면 입력축이 전진하여 밀브본체를 통해 외부공기가 변압실로 유입된다. 이 때, 외부공기는 차량에 의해 순간적으로 유입되어 작동가능한 다이아프램과 동력피스톤이 정압실 축으로 밀리게 되므로써, 입력보다 증폭된 출력이 출력축을 통하여 마스터 실린더 어셈블리로 전달되어 제동유압을 발생시킨다.
그리고 브레이크패달에서 발을 때면 브레이크프리그와 동력피스톤의 탄성부림력에 의해 일력축(3)이 복원된다. 아울러 변
압실의 공기는 정압통로를 통해 진공상태의 정압실로 빠져나가게 되고, 정압실의 공기는 진공 연결파이프와 진공호스를
빠져나가, 정압실이 진공상태로 되어 브레이크 패달장치의 초기상태로 된다.

따라서 정압실은 항상 진공상태로 일정하게 유지되어야만 패달장치가 보سفر할 수 있는데, 정압실의 공기가 엔진의 환기액에
며 빠져나가도록 진공호스와 연결되는 진공 연결파이프가 케이싱에 마련된다. 즉, 진공 연결파이프는 정압실 내부와 진공호스를
연동시키는 기능을 하는데, 이의 상세한 구조는 도 1에 도시한 바와 같다.

진공 연결파이프(3)는 90도 철근된 엘보(elbow)타입으로 구성되어 있는데, 일반부(3a)는 셀링부재(4)를 이용하여
패달장치의 케이싱(1)에 설치되고, 타단부는 진공호스(5) 단부와 연결된다. 진공 연결파이프(3)의 일반부에는 외주면에
다단으로 이탈방지턱(3c)이 각각 마련되어 셀링부재(4) 및 진공호스(5)의 결합된 상태를 유지하도록 구성되어 있
다.

따라서 케이싱(1)에 형성된 결합공(1a)에 탄성제질로 구성된 셀링부재(4)를 먼저 고정하고 결합한 후, 진공 연결파이프(3)
의 일반부(3a)를 셀링부재(4) 중심부에 기우는다. 따라서 셀링부재(4)가 압착되면서 진공 연결파이프(3) 일반부(3a)
가 압착되기 때문에 정압실(2)은 외부와 기밀이 유지된다. 그리고 진공 연결파이프(3) 타단부(3b)는 진공호스(5)
와 결합된다.

따라서 엔진(보도시) 작동중에는 엔진 출입부(미도시)와 진공호스(5) 및 진공 연결파이프(3)에 의해 정압실(2) 공기
가 외부로 배출되므로써, 정압실(2)은 항상 진공상태로 유지된다.

그러나 본론 진공 연결파이프(3)는 이의 일반부(3a)가 고무로 된 셀링부재(4)에 압착결합되기 때문에 정지 상태에서
는 기밀이 유지되지만, 진공 연결파이프(3)가 본래의 위치가 아닌 돌출된 위치에 놓이게 되면 정압실(2)로 외부공기가
유입될 소지가 있어 진공도를 상실하는 경우가 발생된다.

즉, 엔진 출입부(미도시)와 연결된 진공호스(5) 단부가 진공 연결파이프(3) 타단부(3b)와 연결되어 있는데, 엔진 작
동중 발생되는 진동이 진공 연결파이프(3)로 전달되어 이것이 흔들리기 쉽다. 또한 주변 기타 부품들의 진동과
혼동일 또는 정비작업 중 진공호스(5)에 가해지는 외력으로 인해 진공 연결파이프(3)도 같이 진동하거나 회전하게 되
면, 본체 설치위치에서 돌어진 위치로 놓이게 된다.

이와 같은 진공 연결파이프(3)의 위치변화가 자주 발생되면 셀링부재(4)의 결합공(1a) 사이 및 진공 연결파이프(3)의
일단부(3a) 외주면과 셀링부재(4) 사이에 틈새가 발생하며, 이러한 틈새를 통해 정압실(2)로 외부공기가 직접 유입되
여 정압실(2)의 진공도를 유지하기가 어렵게 되며, 정유에 따라서는 진공호스가 상실된다. 또한 셀링부재(4)와 진공
연결파이프(3)의 일단부(3a) 사이 틈새로 오일과 같은 유체가 유입되면 진공 연결파이프(3)의 돌어짐이 발생될 위험
은 더욱 커진다.

고안이 이루고자 하는 기술적 과제

본 고안은 이러한 문제점을 해결하기 위한 것으로, 본 고안의 목적은 진공호스와 패달장치 정압실을 연동시키도록 설링
부재를 이용하여 진공 연결파이프가 케이싱 진관설계에 적합하게 되고, 진공 연결파이프의 외연플랜지부와 셀링부재 타단부
를 이물䗛결합함으로써, 진공 연결파이프에 외력이나 엔진 구동으로 인한 진동이 전달되어도 회전 및 돌어짐을 방지하
여 패달장치의 신뢰성을 항상시키는 차량용 브레이크 패달장치의 진공 연결파이프를 제공하는 것이다.

고안의 구성 및 작용

이와 같은 목적을 달성하기 위한 본 고안은, 전방향과 후방향이 빠져내가 되어진 케이싱, 케이싱 내부를 정압실과
변압실로 구획하는 다이아프램과 동력피스톤, 정압실을 진공상태로 유지시키기 위해 일반부는 진관설계 형성된 결합공

- 3 -
에 기꺼이 결합되고 타단부는 애긴 흐름부의 진공호스 단부와 결합되는 진공 연결파이프, 결합공과 진공 연결파이프 일
단부 사이에 압력 개폐되어 결합공과 진공 연결파이프 일단부 사이를 빌딩하는 탄성제철의 볼링부재. 진공 연결파이프
의 일단부에 일체로 형성되며 외부로 노출된 설치부재의 후단부와 접촉되는 외형풀랜지부를 갖춘 차량용 브레이크의
배열장치에 있어서.

설정부재의 후단부에는 오도하게 배인 요호와 볼록한 돌기가 교호적으로 형성되어 있으며, 진공 연결파이프의 외형풀랜지부에는 진공 연결파이프가 결합된 상태에서 움직이는 것이 방지되도록 요호 및 돌기와
이를 연결하는 요호와 돌기가 교호적으로 마련되는 것을 특징으로 한다.

이하, 본 고안에 따른 하나의 바람직한 실시예를 참조하여 상세히 설명한다. 도 2는 본 고안에 따른 진공 연
결파이프가 장착된 차량용 브레이크 배열장치의 단면도이고, 도 3은 본 고안에 따른 진공 연결파이프의 분해사시도이다.

본 고안에 따른 브레이크 배열장치는 이돌에 도시한 바와 같이, 전방설(11)과 후방설(12)이 밀폐 결합된 케이싱(10)
내부가 동력식(41)과 다이아프램(40)에 의해 정압실(20)과 변압실(30)로 구획되어 있으며, 변압실(30) 및 정압
실(20)로의 공기 유로를 제어하는 밸브본체(50), 밸브본체(50)를 작동시키는 일작용(53)과 배기작용을 전달받는 출
력축(54)으로 크게 구성되어 있다. 밸브본체(50)에는 정압실(20)과 변압실(30)을 연통시키는 정압통로(52), 외기와
변압실(30)을 연통시키는 변압통로(51)가 형성되어 있다. 전방설(11)의 일측 외벽에는 정압실(20)과 전진 흐름부(미도시)를 연통시키는 진공 연결파이프(60)가 결합되어 있으며, 정압실(20)내부에는 다이아프램(40)과 동력식(41) 및 밸브본체(50)를 원래의 위치로 복원시키는 복원스프링(21)이 설치되어 있다.

진공 연결파이프(60)는 90도 칠록된 엽바리일로 이루어진 일단부(61)는 정압실(20)과 연통되며, 타단부(62)는 전
진 흐름부(미도시)와 연결된 진공호스(80) 단부가 결합되는데, 이의 상세한 구조는 다음과 같다.

먼저, 정압실(20)을 이루는 케이싱(10) 전방설(11)에는 원형의 결합공(13)이 결합되어 있고 여기에 탄성제철의 설링
부재(70)가 결합된다. 설링부재(70)는 외주면에 원주방향으로 오목하게 배열된 체결홈(71)이 형성되며 중심부가 중공
되어 있다. 그리고 진공 연결파이프(60)의 일단부(61)는 설링부재(70)의 중공부에 양각결합되어 정압실(20)과 연통
되며 타단부(62)에는 진공호스(80) 단부가 양각결합되는데, 결합된 상태에서 이탈되는 것을 방지하기 위한 이탈방
지막(64)이 양단부(61,62) 외주면에 각각 마련되어 있다.

진공 연결파이프(60) 일단부(61)에는 설링부재(70)의 후단부(72)와 연접촉하는 외형풀랜지부(63)가 일체로 마련되
어 있는데, 여기에는 본 고안의 특성을 가진 요호와 진공 연결파이프(60) 조립이 완료된 상태에서 외력에 의해 움직이는
것을 방지하기 위한 수단이 마련되어 있다.

이러한 수단은 외형풀랜지부(63)와 설링부재(70)의 후단부(72)가 요철결합시키는 것인데, 이를 위해 외형풀랜지부(63)
일단부에 오목하게 배인 요호(63a)가 볼록하게 돌출된 돌기(63b)가 교호적으로 형성되어 있다. 요호(63a)와 돌기
(63b)는 원주방향으로 반복형성되어 있다. 이슬리 이의 대응하는 설링부재(70)의 후단부(72)에도 역시 요호(72a)과
돌기(72b)가 원주방향으로 반복적어면서 형성되어 있다. 이 때, 외형풀랜지부(63)와 설링부재(70)에 형성된 요호(6
2a,72a)와 돌기(63b,72b)의 크기가 간격은 동일하게 구성하여 적(過)결합을 정확하게 하는 것이 바람직하다.

따라서 전방설(11) 결합공(13)에 체결홈(71)이 삽입될 때까지 설립부재(70)를 역지로 뺏은 후, 진공 연결파이프(60)
의 일단부(61)를 설립부재(70)의 중공부에 깔한다. 설립부재(70)는 탄성제질로 구조되어 있기 때문에, 진공 연결

- 4 -
파이프 (60) 일단부 (61)가 셀링부재 (70)를 압착시키면서 삽입된다. 외장플랜지부 (63)와 셀링부재 (70)의 후단부 (72)가 접촉할 때까지 진공 연결파이프 (60) 일단부 (61)를 삽입하면, 진공 연결파이프 (60) 일단부 (61)와 결합공 (13) 사이에서 셀링부재 (70)가 압착 개체되어 정압실 (20)이 외기와 차단되며, 외장플랜지부 (63)와 셀링부재 (70)가 이물함 결합된다.

즉, 외장플랜지부 (63)에 마련된 돌기 (63b)가 셀링부재 (70) 후단부 (72)에 형성된 요공 (72a)에 삽입되도록 결합하면, 반대로 셀링부재 (70)의 돌기 (72b)가 외장플랜지부 (63)의 요공 (63a)에 기워져 외장플랜지부 (63)와 셀링부재 (70) 후단부 (72)가 이물럽렬므로써, 외기에 의해 진공 연결파이프 (60)가 들어지거나 혼들리지 않는다. 그리고 진공 연결파이프 (60)가 결합된 배락장치를 차량에 장착한 후, 진공 연결파이프 (60)의 타단부 (62)에 진공호스 (80) 단부를 채결하면 배락장치의 조립이 완료된다.

다음에는 이와 같이 구성된 차량용 배락장치의 작동 및 효과를 설명한다.

먼저, 차량이 주행중인 상태에서 운전자가 브레이크패달을 놓게 되면, 입력축 (53)이 전천하고 이와 동시에 외기와 범부문체 (50)의 변압통로 (51)를 통해 진공상태의 변압실 (30)로 유입된다. 이 차량에 의해 동작 가능한 다이아프램 (40)과 동력피스톤 (41)이 정압실 (20) 쪽으로 밀려게 되고, 출력축 (54)이 입력보다 중폭된 힘으로 마스터실린더의 피스톤을 전천시킴으로써 제동유압을 발생시킨다.

그리고 운전자가 브레이크패달을 놓게 되면, 변압실 (30)의 공기는 정압통로 (52)를 통해 진공상태의 정압실 (20)로 빠져나가고, 엔진 휘입부 (60)가 당상 구동함에 따라 정압실 (20) 공기는 진공 연결파이프 (60)와 진공호스 (80)를 통해 진공상태로 되어 브레이크 배락장치의 초기상태로 된다.

따라서 정압실 (20)은 항상 진공상태로 유지되어야 배락장치가 본 기능을 원활하게 수행할 수 있는데, 진공호스 (80) 단부가 결합되는 진공 연결파이프 (60)가 배락장치의 전방침 (11)에 고정하게 결합되어 대기 유입현상이 발생되지 않는 다.

즉, 진공 연결파이프 (60)는 외장플랜지부 (63)와 셀링부재 (70)에 형성된 요공 (63a, 72a)과 돌기 (63b, 72b)가 이물럼 결합되기 때문에, 결합이 완료된 상태에서는 외력이나 기타부품의 진동이 전달되어도 흐름되어나 들어지지 않는다. 따라서 초기 결합된 상태가 그대로 유지되어 셀링부재 (70)와 진공 연결파이프 (60) 일단부 (61) 사이에서 흐름 발생은 일어나지 않는다.

또한, 진공 연결파이프 (60)는 셀링부재 (70)에 삽입하는 단계에서 각도 조절이 360도 가능하기 때문에, 진공 연결파이프 (60)의 타단부 (62) 방향에 상관없이 외장플랜지부 (63)의 요공 (63a)과 돌기 (63b)가 셀링부재 (70)에 고착적으로 이루어진 요공 (72a)과 돌기 (72b)와 이물함되어 진공 연결파이프 (60)가 고정된다.

고안의 효과

이상에서 상세히 설명한 바와 같이, 본 고안에 따른 차량용 브레이크 배락장치의 진공 연결파이프는 진공호스와 배락장치 정압실을 연동시키도록 셀링부재를 이용하여 케이싱 전방침에 결합되는데, 진공 연결파이프와 외장플랜지부의 셀링부재 후단부를 이물함결합함으로써 진공 연결파이프의 회전 및 몰이짐을 방지하였다.

따라서 진공 연결파이프에 외력이나 엔진 구동으로 인한 진동이 전달되어도 움직이지 않고 셀링부재와 진공 연결파이프 일단부 사이가 완전히 결합되어 정압실 진공도가 정확하게 유지됨으로써, 배락장치의 전체적인 신뢰성이 향상되는 이점이 있다.

(57) 조규의 범위
청구항 1.

전방성 (11)과 후방성 (12)이 밀폐결합되어 이루어진 케이싱 (10). 상기 케이싱 (10) 내부를 정압실 (20)과 변압실 (30)로 구획하는 다이아프램 (40)과 동력파스 (41). 상기 정압실 (20)은 진공상태로 유지시키기 위해 일단부 (61)와 상기 전방성 (11)에서 형성된 결합구 (13)에 걸쳐져 결합되며 타단부 (62)는 에너 공급구 (80) 단부와 결합되는 진공 연결파이프 (60). 상기 결합구 (13)와 상기 진공 연결파이프 (60) 일단부 (61) 사이에 압착 개재되어 상기 결합구 (13)와 상기 진공 연결파이프 (60) 일단부 (61) 사이를 연결하는 탄성재질의 설립부재 (70), 상기 진공 연결파이프 (60)의 일단부 (61)에 일체로 형성되며 외부로 노출된 상기 설립부재 (70)의 후단부 (72)와 접촉되는 외형플랜지부 (63)를 갖춘 차량용 브레이크의 배력장치에 있어서.

상기 설립부재 (70)의 후단부 (72)에는 오목하게 평인 요즘 (72a)과 볼록한 돌기 (72b)가 교호적으로 형성되어 있으며, 상기 진공 연결파이프 (60)의 상기 외형플랜지부 (63)에는 상기 진공 연결파이프 (60)가 결합된 상태에서 움직이는 것 이 방지되도록 상기 요즘 (72a) 및 돌기 (72b)와 이동함결합되는 요즘 (63a)과 돌기 (63b)가 교호적으로 마련되는 것을 특징으로 하는 차량용 브레이크 배력장치의 진공 연결파이프.

도면

![도면 1](image-url)
(19) 대한민국특허청 (KR)
(12) 등록실용신안공보 (Y1)

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**실사관:** 이민형

(54) 진공흡수기의 브라쉬

**요약**
본 고안은 지역에 회전가능한 탈출을 구비함으로써 청소물에 부착된 먼지와 오물을 용이하게 청소할 수 있도록 한 진공청소기의 브라쉬에 관한 것이다. 이 브라쉬는, 청소기의 흡입구에 연결되며 하부가 개방되는 브라쉬 커버와, 브라쉬커버의 안쪽에 청소용으로 형성되며 중앙에 상입공을 구비한 린브를 가지는 브라쉬커버 및 브라쉬 본체 하부에 배치되며, 브라쉬 플랩의 상입공에 회전가능하게 부착되는 회전축 결합부와, 회전축 결합부를 중심으로 하는 방향으로 연결된 린브와, 이 린브에 연결되어 회전축결합부와 일체로 회전가능한 태두리부가 있으며, 이 태두리부의 자태에 형성된 탈출을 가지는 회전축을 포함한다. 또한, 이 회전축부는, 청소기의 흡입구로 통하는 통과의 흐름을 회전운동으로 전환하여 회전축을 회전시켜도 앞으로 방향으로 형성된 흡입구를 구비한다. 따라서, 청소기의 구동부 회전축부가 고속으로 회전되어 그 자태에 설치된 브라치가 일체로 고속으로 회전하게 되어 청소하고자 하는 면에 부착된 먼지를 용이하게 청소할 수 있게 된다.

**대표도**

도 3

**색인어**
진공청소기, 브라쉬, 회전축, 멀티러

**영세서**

**도면의 간단한 설명**

도 1은 본 고안의 회전축을 간략하게 나타낸 사시도,
도 2는 본 고안의 브라쉬를 도시한 사시도,
도 3은 도 2의 브라쉬의 축 단면도,
도 4는 도 2의 브라쉬에서 회전축이 제거된 상태에서의 자부 단면도,
도 5는 도 2의 브라쉬에서 회전축이 제거된 상태에서의 자부 단면도,
도 6은 도 5에서 A-A'선을 절단한 경우 회전축의 축 단면도이다.

* 도면의 주요 부분에 대한 부호의 설명 *

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고안의 설계

고안의 목적

고안이 속하는 기술분야 및 그 분야의 쓰용기술

본 고안은 청소기에 관한 것으로, 보다 상쾌하게는 카페트 등과 같은 피침소물에 부착된 먼지와 오물을 효과적으로 청소하기 위하여 자연에 휘발을 구비한 진공청소기의 브러쉬에 관한 것이다.

일반적으로, 진공청소기(Vacuum cleaner)는 그 내부에 마련된 펜을 강하게 회전시켜 청소기 내부를 진공 상태로 만들어 공기가 청소기 내부로 흡입되며, 그때 공기에 포함된 먼지와 쓰레기를 필터에서 클러내어 비탁을 청소한다는 것이다.

이런 청소기는 도 1에 도시한 바와 같이, 그 내부에 도시하지 않은 집전장결과 구동실을 가지고, 손잡이 부(5)가 마련된 매인관(3)이 연결되는 본체(1)와, 본체(1)의 매인관(3)에 연결된 연장관(7)의 단부에 물続く기능하게 연결되어 비탁의 먼지를 휘발하기 위한 일반 브러쉬(9)를 포함하고 있다.

이러한 일반 브러شير(9)는 보통 자연에 일치형의 휘발부(도시 안됨)를 구비하고 있으며, 이 휘발부는 자연에 대하여 수도적으로 배치되거나 또는 수평으로 배치되도록 설계된다.

보통, 카페트 등과 같이 먼지가 깊숙히 부착되는 청소물을 청소하고자 하는 경우에는 휘발의 방향을 자연에 대하여 수도적으로 배치시킴으로써, 휘발을 이용하여 먼지를 효과적으로 이동시키면 후 먼지를 휘발시킬 수 있도록 하고, 미루 등과 같이 매끄러운 면을 청소하고자 하는 경우에는 휘발의 방향을 자연에 대하여 수평으로 배치시켜 휘발이 노출되지 않은 상태에서 청소할 수 있도록 하고 있다.

그러나, 이러한 종류의 기술에 따른 일반 브러시를 구비한 청소기에 따르면, 청소기 사용자는 필을 전후 장소로 옮기면서 청소면으로부터 먼지를 가능한 한 많이 덜어내면서 덜어진 먼지를 진공청소기 내부로 휘발하여 청소등작을 수행한다.

이러한 먼지를 덜어내는 동작은 사용자에게 불편함을 느끼게 하고 청소작업에 쉽게 피로하게 하는 문제점이 있었다.

고안이 이루어진 기술적 결과

따라서, 본 고안은 상기한 제한 문제점들을 해결하기 위하여, 청소기의 면에 청소기능형 휘발을 구비함으로써 청소물에 부착된 먼지와 오물을 용이하게 청소할 수 있도록 한 진공청소기의 브러쳐에 관한 것이다.

고안의 구성을 및 작동

상기한 바와 같은 목적을 달성하기 위한 본 고안에 의한 진공청소기의 브러셔는,

청소기의 휘발부에 연결되어 하부가 개방되는 브러셔 커버와, 상기 브러셔커버의 자연에 배치함으로 형성되며, 상기의 상체부에 구비한 브러셔를 가진 브러셔모체 및

상기 브러셔 모체 하부에 배치되어, 상기 브러셔 모체의 상체부에 회전 가능하게 부착되는 회전축 결합부와, 상기 브러셔 모체의 상체부에 결합된 브러셔와, 상기 브러셔 모체에 연결되어 상기 브러셔에 연결된 회전축결합부와 일체로 회전가능한 데두리부와, 상기 데두리부의 자연에 형성된 휘발을 가진 회전축결합부를 포함하고 있다.

상기 회전축결합부는, 청소기의 휘발부를 통한 공기의 휘발시 공기의 흐름을 회전운동으로 전환하여 강기 회전축결합부를 회전시켜주도록 밸스상으로 형성된 밸스상률을 구비한다.

따라서, 청소기의 구동부에 회전축결합부에 접속하여 회전부의 자연에 설치된 태두리가 일체로 고속으로 회전하면서, 청소하고자 하는 면에 부착된 먼지를 용이하게 덜어낼 수 있게 한다.

이하, 밸스부의 도면을 참조하여 본 고안에 따른 바람직한 설계를 설명한다.

형태상 도 2는 본 고안에 따른 청소기의 브러셔를 도시한 사시도이고, 도 3은 도 2의 브러셔의 측 단면도이다. 도 4는 도 2의 브러셔에서 휘발부가 제거된 상태에서의 자부 단면도이다. 도 5는 도 2의 브러셔에서 회전부가 부착된 상대에서의 자부 단면도이고, 도 6은 도 5에서 가-가'선을 절단한 경우 회전부의 측 단면도이다.

도 2 및 도 3을 참조하면, 본 고안에 의한 진공청소기의 브러셔는, 청소기의 휘발부에 연결된 변형 브러셔 물체(10)와 상기 브러셔 물체(10) 하부에 고정가능하게 연결된 회전축부(20)를 포함한다.

도 4를 참조하면, 상기 브러셔 물체(10)의 원형의 브러셔 커버(11)는 청소기의 휘발부, 에를 들면 연장관(7)(도 1 참조)에 연결되어 하부가 변형으로 개방된다. 상기 브러셔 커버(10)의 자연에는 중량으로부터
발사상으로 복수계의 브라쉬 리브(13)가 형성된다. 예를 들면, 도 4에 도시된 바와 같이 브라쉬 리브(13)가 브라쉬 커버(10)의 저면에 중앙으로부터 싸(4)지형으로 형성되며, 그 중심부에는 단일장(10)을 구비한다.

도 5를 참조하면, 상기 회전속도(20)의 중앙에 형성된 회전속도 격판(27)은 상방으로 돌출형성되고, 상측 단부에 결합력이 형성되어 있다. 상기 회전속도(20)의 회전속도 격판(27)은 상기 브라쉬 몸체(10)의 결합

상기 회전속도 격판(27)을 중심으로 하여 복수계의 회전속도(20)가 발사상으로 연장 형성된다. 예를 들면, 도 5에 도시된 바와 같이 회전속도(20)가 회전속도 격판(27)을 중심으로 하여 싸(4)지형으로 형성

상기 회전속도(29)의 원형 태두리부(21)는 상기 복수계의 브라쉬(29)의 발사상 단부를 중심으로 연결시키는 태두리를 형성하여, 상기 회전속도(29)의 중앙에 상부를 향하여 돌출형성된 회전속도 격판(27)과 상

도 6을 참조하면, 상기 회전속도(20)는 상기 회전속도 격판(27)로부터 상 기 원형 태두리부(21)를 향하여 발사상으로 복수계의 림블렌(28)이 설치된다. 이 림블렌(28)들은 도 3 또는 도 6에 도시된 바와 같

따라서, 청소기의 구동시 공기가 외부로부터 청소기의 흡입구로 통하여 청소기의 흡입관 내로 흡입될 때, 공기의 흡입방향(1로 표시)에 대하여 45° 각도로 청지게 배치된 림블렌(28)에 의하여 상기 회전속도(29)를 통하여 흡입되는 공기의 흐름이 회전운동으로 전환되고 이에 따라 상기 회전속도(29)가 고속으로 회전하게 된다.

물론 이 범위에서 면적은 상기 림블렌(29)들을 통하여 공기의 흡입구로 전환하여 상기 청소기의 흡입관을 통하여 청소기의 내부로 빠져 들어가게 된다.

고안의 효과

여기서 설명한 바와 같이, 상기의 같은 본 고안의에 의한 정공형소거에 의하여, 상기 회전속도(20)는 상기 로 회전속도(29)들의 중앙에 상부를 향하여 돌출형성된 회전속도 격판(27)과 상기 간선부의 상단(17)에 상담함으로써, 상기 브라쉬 몸체(10)의 하부에 상기 브라쉬 몸체(10)와 약간의 간격을 둔 위치에 배치되어, 상기 브라쉬 몸체(10)의 하부에 회전가능한 상태로 배치되어 있다. 또한, 상기 회전속도(20)의 상

따라서, 청소기의 구동시 공기가 외부로부터 청소기의 흡입구로 통하여 청소기의 흡입관 내로 흡입될 때, 상기 림블렌(29)에 의하여 회전속도(20)를 통하여 흡입되는 공기의 흐름이 회전운동으로 전환되고 이에 따라 상기 회전속도(20)가 고속으로 회전하게 된다.

청소기의 구동시 공기가 외부로부터 청소기의 흡입구로 통하여 청소기의 흡입관 내로 흡입될 때, 상기 림블렌(29)에 의하여 회전속도(20)를 통하여 흡입되는 공기의 흐름이 회전운동으로 전환되고 이에 따라 상기 회전속도(20)가 고속으로 회전하게 된다.

물론 이 범위에서 면적은 상기의 같은 본 고안의에 의한 정공형소거에 의하여, 상기 회전속도(20)는 상기

以此에서는 본 기술의 발명적 개념에 대하여 도시하고 또한 설명하고 있으나, 본 기술은 상기의 설명에 한정되지 않고, 이기체의 개발에 있어서 청소기의 효율적 사용에 있어 많은 필요성이 있으며, 그와 같은 방법은 청소기의 발명에 있어 중요하다.
연결된 회전축결합부와 일체로 회전가능한 테두리부와, 상기 테두리부의 저면에 형성된 탐출부 가지는 회전능력을 포함함을 특징으로 하는 진공청소기용 브러쉬.

참고사항 2
제 1 항에 있어서, 상기 회전능부는, 청소기의 총알관을 통한 공기의 흐름시 공기의 흐름을 회전운동으로 전환하여 상기 회전능부를 회전시켜줄 수 있도록 방사선으로 형성된 임플처를 포함함을 특징으로 하는 진공청소기용 브러쉬.

도면

도면1
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of
Kyoungsu KIM and Hakryun KANG

Confirmation No.: 1355

Group Art Unit: 3674

Serial No: 12/265,022

Examiner: Nathan CUMAR

Filed: November 5, 2008

Customer No.: 34610

For: CASE LOCKING DEVICE

U.S. Patent and Trademark Office
Customer Window, MAIL STOP AMENDMENT
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Dear Sir:

Transmitted herewith is an Amendment and/or Reply in the above identified application.
☐ No additional fee is required.
☒ Also attached: Request for Continued Examination; Information Disclosure Statement

The fee has been calculated as shown below:

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Request for Continued Examination $930.00
Fee for extension of time $0.00

TOTAL FEE DUE $930.00

☐ Please charge my Deposit Account No. 16-0607 in the amount of $______.
☐ Please charge my Credit Card.
☒ The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment, to Deposit Account No. 16-0607, including any filing fees under 37 C.F.R.§1.16 for presentation of extra claims and any patent application processing fees under 37 C.F.R. §1.17.

Respectfully submitted,
KED & ASSOCIATES, LLP

Carol L. Druzhak
Registration No. 40,287

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
(703) 766-3777 CLD:alg
Date: February 9, 2012

Please direct all correspondence to Customer Number 34610

\\files\\Documents\2028\2028-346\314834.doc
**PATENT APPLICATION FEE DETERMINATION RECORD**

**APPLICATION AS FILED – PART I**

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**APPLICATION AS AMENDED – PART II**

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Legal Instrument Examiner: WANDA ANTHONY

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS: SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" in THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" in THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.
Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.
Office Action Summary

Application No. 12/265,022
Applicant(s) KIM ET AL.
Examiner NATHAN CUMAR
Art Unit 3674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☑ Responsive to communication(s) filed on 02 October 2011.
2a) ☑ This action is FINAL.
2b) □ This action is non-final.
3) □ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
4) □ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5) ☑ Claim(s) 1-22 is/are pending in the application.
   5a) Of the above claim(s) 3 and 9 is/are withdrawn from consideration.
6) □ Claim(s) _____ is/are allowed.
7) ☑ Claim(s) 1, 2, 4-8 and 10-22 is/are rejected.
8) □ Claim(s) _____ is/are objected to.
9) □ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10) □ The specification is objected to by the Examiner.
11) ☑ The drawing(s) filed on 02 October 2009 is/are: a) ☑ accepted or b) □ objected to by the Examiner.
      Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
      Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
12) □ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13) ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☑ All
    b) □ Some * c) □ None of:
       1. ☐ Certified copies of the priority documents have been received.
       2. ☑ Certified copies of the priority documents have been received in Application No. _____.
       3. ☑ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)
2) □ Notice of Draftsman’s Patent Drawing Review (PTO-948)
3) □ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.
4) □ Interview Summary (PTO-413)
   Paper No(s)/Mail Date _____.
5) □ Notice of Informal Patent Application
6) □ Other: _____.
DETAILED ACTION

Response to Amendment

1. Amendment to claims submitted on 9/30/2011 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 7, 8, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Cho, Publication # KR10-2006-0080005.

As concerns claim 1, Cho shows a case locking device for securing an inner case of a housing to an outer case of the housing, the case locking device comprising:

a lock (fig 3) shows the components of lock assembly) that secures the inner case (220, fig 3) to the outer case (120, fig 3) by with a pressing force,

the lock comprising a plurality of protrusions (the lock assembly in 2b has plurality of protrusions),

each protrusion having an inclined surface (fig 2b, 320 has inclined surfaces),
an elastic material (fig 2b, 330) that pushes the plurality of protrusions toward a wall of the outer case,

wherein the inclined surface of at least one of the protrusions is at a different angle of inclination than an angle of inclination of the other protrusions (in fig 2b, 320 has vertical and inclined protrusions at different angles).

As concerns claim 2, Cho shows the case locking device of claim 1, wherein

an insertion hole (the depression formed by 220, fig 3) is provided in a side wall of the inner case configured to receive the lock therein, and a fastener (300, fig 3) is provided in a side surface of the outer case to receive at least one of the plurality of protrusions of the lock inserted through the insertion hole.

As concerns claim 4, Cho shows the case locking device of claim 1, wherein the plurality of the protrusions moves toward the an inside of the inner case by a pressing force exerted by the outer case onto the inclined surface of the at least one protrusion, which locks the outer case to the inner case by a resilient force of the elastic material (fig 3, the lock locks the outer case with the inner case when a force is exerted by either the outer or inner case).

As concerns claim 7, Cho shows the case locking device of claim 1, wherein the lock is provided inside the housing and is not visible from the outside housing (fig 3).
As concerns claim 8, Cho shows the case locking device of claim 1, wherein the lock comprises a front cover (312, fig 2b), a hook (320) having the plurality of protrusions and the elastic material (330), which is located between the hook and a rear cover (bottom of 310).

As concerns claim 10, Cho shows the case locking device of claim 2, wherein the insertion hole (121, fig 2b) comprises a through hole having a narrow portion area and a wider portion that are integrally formed to each other (the hole 121 accepts the hook 320 which resides in 311 that has narrow and wide sides, therefore the hole is considered to have a narrow and wide portions).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

As concerns claims 11 and 12 Cho shows the case locking device of claim 2, wherein the fastener comprises at least one first hole (121, fig 2b) that penetrates a side wall of the outer case,

   one protrusion is inserted into one hole (320 into 121, fig 2b),

   one or more second holes that penetrate the side wall (fig. 1 shows multiple fasteners with holes on the side wall)

Cho shows the claimed invention except that,

   one or more second holes that penetrate the bottom wall of the outer case,

   other protrusions are inserted in to one or more second holes.

Cho shows the fastener (300, fig 3) holds two cases together having one protrusion (320) inserted into one hole (the depression of 220). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have one or more second holes on the bottom walls, and one or more protrusions inserted into these holes, since it was known in the art that two parts are fastened with one hole and one protrusion as shown by Cho, and it would perform equally well.

As concerns claim 13, Cho shows the case locking device of claim 12, wherein the at least one protrusion (the protrusion of 320, fig 2b) has a step which is hung on the at least one first hole (when the fastener is use, the step protrusion of 320 will have a hung
position depending upon the position of the side of the case).

As concerns claim 14, Cho shows the case locking device of claim 13, wherein the at least one protrusion has a step comprising a surface having a normal vector that extends in the same direction as a vertical component of the inclined surface of the at least one protrusion (fig 2b, the side protrusion of 320 is vertical to a portion of the inclined surface).

As concerns claim 17, Cho shows a case locking device for securing an inner case of a housing to an outer case of the housing, the case locking device comprising:

a hook (320, fig 2b) having a first protrusion (in fig 3, the vertical side of 320, on the left side) and at least one second protrusion (in fig 3, the horizontal protrusion, on the left side), the hook having an extended position and a retracted position (fig 3 shows the extended position, when 220 is forced in the hook 320 takes a retracted position to allow 220),

the hook being biased by a spring (330, fig 3) into the extended position,

the first protrusion (vertical side, left side, of 320 in fig 3) having an inclined surface (the inclined side protrusion, left side, of 320) on one side of the first protrusion,

the at least one second protrusion (vertical side, left side, of 320 in fig 3) having an inclined surface (the inclined side protrusion, left side, of 320) on one side of the at least
one second protrusion (fig 1 shows multiple fasteners; the second protrusion refers to the second fastener),

the one side of the first protrusion facing in a direction opposite to the one side of the at least one second protrusion (fig 1, shows provisions for multiple fasteners, 300)

wherein the inclined surface of the first protrusion (fig 1, one of the fasteners) engages an edge of the outer case, whereupon the spring (330) forces the hook into the extended position and the first protrusion enters the first fastener opening and the at least second protrusion (fig. 1, another fastener) enters a corresponding second fastener opening formed in the outer case, securing the outer case to the inner case.

Cho shows the invention except the outer case forces the hook into a retracted position until the first protrusion is aligned with a first fastener opening formed in the outer case. However, Cho shows the fastening of two cases where the inner case forces the hook into retracted position until the first protrusion is aligned with a first fastener opening formed in the inner case and thus fastening the two parts. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the hook on the inner case and engaging the fastener opening on the outer case, since it has been held that mere reversal of the essential working parts, such as the hook on the outer case engaging the fastener opening on the inner case, of a device involves only routine skill in the art.
As concerns claim 19, Cho shows the case locking device of claim 17, wherein the at least one second protrusion comprises a plurality of second protrusions each having an inclined surface (fig. 1 shows provisions for multiple fastening; each fastener hook has a protrusion and an inclined surfaces as shown in 320 of fig 2b).

As concerns claim 20, Cho shows the case locking device of claim 19, wherein the first protrusion further comprises a non-inclined side (vertical side, right side, of 320, fig 3) opposite to the one side of the first protrusion that engages with a complementary edge of the first fastener opening to prevent the outer casing from being removed from the inner case.

As concerns claim 21, Cho shows the case locking device of claim 20, wherein the case locking device comprises a locking device housing (310, fig. 2b),

the hook is slidably mountable (the hook slides inside the housing; fig 3),

the spring (330).

Cho shows the invention except,

case locking device mounted on the inner case, and

cocking device housing has a front cover and rear cover

Cho shows the case locking device shown in fig. 3 has a locking device housing mounted on the outer case latches with the inner case and serves the purpose.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the hook on the inner case and engaging the fastener
opening on the outer case, since it has been held that mere reversal of the essential working parts, such as the hook on the outer case engaging the fastener opening on the inner case, of a device involves only routine skill in the art.

As concerns claim 22, Cho shows a tamper resistant housing comprising the case locking device of claim 21, wherein the outer casing further comprises an outwardly turned flange (130, fig. 1) and wherein a plurality of the second fastener openings are partially formed in the flange (fig. 1).

6. Claims 5, 6, 15, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho, Publication # KR10-2006-0080005 in view of Brechbill et al., 6,347,872.

As concerns claims 5 and 6, Cho shows the case locking device of claim 1, wherein the plurality of the protrusions moves toward an inside of the inner case (220, fig 3) by a pressing force exerted by at least one protrusion of a jig applied to the inclined surface of the at least one protrusion having the differently angled inclined surface to separate the outer case (120, fig 3) and the inner case from each other.

Cho fails to show a jig that is used to separate the inner and outer cases. Brechbill teaches a tool that is applied from outside to release a latch that holds two parts together (col. 2, lines 30-35). It would have been obvious to one having skill in the art at the time the invention was made to modify Cho, so that the inner and outer cases can
be separated by a jig tool, as taught by Brechbill for the expected benefit of providing a simple and efficient method to release the lock and thus an improved latching system.

As concerns claim 15, Cho shows the invention except one or more second holes on the bottom wall of the outer case. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have one or more second holes on the bottom walls, since it was known in the art that two parts are fastened with one hole and one protrusion as shown by Cho, and it would perform equally well with one hole. Cho fails to show one or more protrusions of a jig is inserted to separate the cases. Brechbill teaches a tool that is applied from outside to release a latch that holds two parts together (col. 2, lines 30-35; Brechbill shows a single tool which can be duplicated depending on the situation). It would have been obvious to one having skill in the art at the time the invention was made to modify Cho, so that the inner and outer cases can be separated by a jig tool, as taught by Brechbill for the expected benefit of providing a simple and efficient method to release the lock and thus an improved latching system.

As concerns claim 16, Cho shows the case locking device of claim 15, further comprising a plurality of the locks and a plurality of the fasteners provided at spaced locations around the outer case, wherein the one or more second holes are formed at spaced locations corresponding to the spaced locations of the plurality of the fasteners
(fig 2a shows plurality of fasteners provided at spaced locations).

As concerns claim 18, Cho shows first protrusion (in fig 3, the vertical side of 320, on the left side), second protrusion (vertical side, left side, of 320 in fig 3), and fastener opening (depression of 220, fig 3).

Cho shows the invention except one or more second holes on the bottom wall of the outer case. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have one or more second holes on the bottom walls, since it was known in the art that two parts are fastened with one hole and one protrusion as shown by Cho, and it would perform equally well with one hole.

Cho fails to show a jig contacts the inclined surface and force is applied to separate the case locking device.

Brechbill teaches a tool that is applied from outside to release a latch that holds two parts together (col. 2, lines 30-35). The tool shown by Brechbill can be duplicated to apply to multiple locking devices. It would have been obvious to one having skill in the art at the time the invention was made to modify Cho, so that multiple fasteners that holds the inner and outer cases can be separated by a set of jig tool, as taught by Brechbill for the expected benefit of providing a simple and efficient method to release the lock and thus an improved latching system.
Response to Arguments

7. Applicant’s arguments filed on 9/30/2011 have been fully considered but they are not persuasive.

Applicant argues that Cho fails to show plurality of protrusions of the lock. Cho shows the hook 320 (fig. 2b) has plurality of protrusions at different angle of inclination. Fig. 3 shows the hook 320 has protrusions in the horizontal, vertical, and inclined directions, as shown below.
Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

   A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

   Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN CUMAR whose telephone number is (571)270-3112. The examiner can normally be reached on Mon to Fri from 8:00 to 5:00 est.

   If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Thomas Beach can be reached on 571-272-6988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas A Beach/
Supervisory Patent Examiner,
Art Unit 3674

/NATHAN CUMAR/
Examiner, Art Unit 3674
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### NON-PATENT DOCUMENTS

Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages

| * |                  |              |         |               |                |

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* A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).) Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.
# Index of Claims

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In reply to the Non-Final Office Action of June 3, 2011, the date for reply having been extended by a Petition for Extension of Time filed herewith, please amend the above-identified application as follows:

**Amendments to the Abstract** are reflected in this paper beginning on page 2.

**Amendments to the Claims** begin after the Amendments to the Abstract beginning on page 3.

**Remarks/Arguments** begin after the Amendments to the Claims beginning on page 8.
AMENDMENTS TO THE ABSTRACT

Please replace the Abstract filed with the original application with the substitute Abstract filed herewith. No new matter is added.
AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A case locking device for securing an inner case of a housing to an outer case of the housing, the case locking device comprising:
   
an inner case;

   an outer case; and

   a locking means that connects or disconnects lock that secures the inner case and to the outer case by with a pressing force, the lock comprising a plurality of protrusions, each protrusion having an inclined surface, an elastic material that pushes the plurality of protrusions toward a wall of the outer case, wherein the inclined surface of at least one of the protrusions is at a different angle of inclination than an angle of inclination of the other protrusions.

2. (Currently Amended) The case locking device of claim 1, wherein an insertion hole is provided at in a side surface wall of the inner case configured to insert receive the locking means therein, and a fastener is provided at in a side surface of the outer case to connect to receive at least one of the plurality of protrusions of the locking means lock inserted in through the insertion hole.
3. (Canceled).

4. (Currently Amended) The case locking device of claim 3, wherein the locking means the plurality of the protrusions moves toward the inside of the inner case by a pressing force exerted from by the outer case in a vertical or horizontal direction and then onto the inclined surface of the at least one protrusion, which locks the outer case and to the inner case to each other by a resilient force of the elastic material.

5. (Currently Amended) The case locking device of claim 1, wherein the locking means the plurality of the protrusions moves toward the inside of the inner case by a pressing force exerted from by at least one protrusion of a jig in a vertical or horizontal direction applied to the inclined surface of the at least one protrusion having the differently angled inclined surface to separate the outer case and the inner case from each other.

6. (Currently Amended) The case locking device of claim 5, wherein the protrusion of the jig is provided near a location corresponding to a connection location of the locking means lock in order to be inserted into a fastener exposed between the outer case and the inner case.

7. (Currently Amended) The case locking device of claim 1, wherein the locking
means lock is provided inside the case not to be seen housing and is not visible from the outside the housing.

8. (Currently Amended) The case locking device of claim 1, wherein the locking means lock comprises a cover front cover, a hook having the plurality of protrusions, and an the elastic material, which is located between the hook; and a cover rear cover.

9. (Canceled).

10. (Currently Amended) The case locking device of claim 2, wherein the insert insertion hole comprises a through hole with having a narrow portion area and a through hole with a broad-area a wider portion that are integrally formed to each other.

11. (Currently Amended) The case locking device of claim 2, wherein the fastener comprises at least one first hole that penetrates a side surface wall of the outer case and two one or more second holes that penetrate the side surface wall and the a bottom surface wall of the outer case.

12. (New) The case locking device of claim 11, wherein the at least one protrusion is inserted into the at least one first hole, and the remaining protrusion or protrusions are inserted
into the one or more second holes.

13. (New) The case locking device of claim 12, wherein the at least one protrusion has a step which is hung on the at least one first hole.

14. (New) The case locking device of claim 13, wherein the at least one protrusion has a step comprising a surface having a normal vector that extends in the same direction as a vertical component of the inclined surface of the at least one protrusion.

15. (New) The case locking device of claim 12, wherein one or more protrusions of a jig is inserted into the one or more second holes from the bottom wall of the outer case to separate the outer case and the inner case from each other.

16. (New) The case locking device of claim 15, further comprising a plurality of the locks and a plurality of the fasteners provided at spaced locations around the outer case, wherein the one or more second holes are formed at spaced locations corresponding to the spaced locations of the plurality of the fasteners.

17. (New) A case locking device for securing an inner case of a housing to an outer case of the housing, the case locking device comprising:
a hook having a first protrusion and at least one second protrusion, the hook having an extended position and a retracted position, the hook being biased by a spring into the extended position, the first protrusion having an inclined surface on one side of the first protrusion, the at least one second protrusion having an inclined surface on one side of the at least one second protrusion, the one side of the first protrusion facing in a direction opposite to the one side of the at least one second protrusion, wherein the inclined surface of the first protrusion engages an edge of the outer case that forces the hook into a retracted position until the first protrusion is aligned with a first fastener opening formed in the outer case whereupon the spring forces the hook into the extended position and the first protrusion enters the first fastener opening and the at least second protrusion enters a corresponding second fastener opening formed in the outer case, securing the outer case to the inner case.

18. (New) The case locking device of claim 17, wherein the hook is retractable into the retracted position in which the first protrusion and the at least one second protrusion are not engaged with the first fastener opening and second fastener opening, respectively, when a jig contacts the inclined surface of the at least one second protrusion through the second fastener opening, applying a force to the hook and permitting the outer case to be separated from the inner case.

19. (New) The case locking device of claim 17, wherein the at least one second
protrusion comprises a plurality of second protrusions each having an inclined surface.

20. (New) The case locking device of claim 19, wherein the first protrusion further comprises a non-inclined side opposite to the one side of the first protrusion that engages with a complementary edge of the first fastener opening to prevent the outer casing from being removed from the inner case.

21. (New) The case locking device of claim 20, wherein the case locking device is configured to be mountable in a mounting hole formed in the inner case and further comprises a locking device housing having a rear cover in which the hook is slidably mountable, the spring being interposed between the hook and the rear cover, and a front cover configured to contain the hook and spring within the rear cover.

22. (New) A tamper resistant housing comprising the case locking device of claim 21, wherein the outer casing further comprises an outwardly turned flange and wherein a plurality of the second fastener openings are partially formed in the flange.
REMARKS/ARGUMENTS

Claims 1-2, 4-8, and 10-22 are pending. By this Amendment, claims 1-2, 4-8, and 10-11 are amended, claims 3 and 9 are canceled without prejudice or disclaimer, and claims 12-22 are added. No new matter is added. Support for the claims can be found throughout the specification, including the original claims, and the drawings. Reconsideration in view of the above amendments and following remarks is respectfully requested.

The Office Action rejected claim 11 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. Claim 11 now reads "the fastener comprises at least one first hole that penetrates the side wall of the outer case." The Examiner's attention is drawn to Figs. 3-6 in which fasteners 300 are shown in a side wall of outer case 30. As such, it is respectfully requested that this rejection be withdrawn.

The Office Action rejected claims 1-4 and 7-9 under 35 U.S.C. §102(b) as being anticipated by Korean Pat. Publication KR10-2006-0080005 to Gyu. As indicated above, claims 3 and 9 have been canceled. This rejection is respectfully traversed insofar as it applies to claims 1-2, 4, and 7-8.

Independent claim 1 recites, *inter alia*, that the lock comprises a plurality of protrusions, each protrusion having an inclined surface, wherein the inclined surface of at least one of the protrusions is at a different angle of inclination than an angle of inclination of the other protrusions. Gyu fails to disclose or suggest such features, or the claimed combination of independent claim 1.
That is, Gyu discloses a wall tapestry assembly for a video display including a fixing means 300 that secures a bottom bracket 120 of a main body frame 10 to a bottom bracket 220 of a supporting bracket, as shown in Fig. 1. Referring to Figs 2a and 2b, the fixing means 300 includes a slidable joint 320 having a gabled top end protrusion having two oppositely directed inclined walls, a case 310, and an elastic member 330. The case 310 is attached to the bottom bracket 120. The joint 320 is configured to extend through a hole 121 in the bottom bracket 120 where the protrusion engages a complementarily shaped formation formed in the bracket 220, as shown in Fig. 2b. The symmetrical inclined surfaces of the protrusion of the joint 320 engage the inclined surfaces formed in the bracket 220 to fix the bracket 220 to the bracket 120. Each of the fixing means 300 are identically formed. As such, Gyu teaches a fixing means having a single protrusion. Further, as each fixing means of Gyu is identical, each protrusion is also identical. Thus, Gyu fails to teach or suggest a lock having a plurality of protrusions, each protrusion having an inclined surface, wherein the inclined surface of at least one of the protrusions is at a different angle of inclination than an angle of inclination of the other protrusions, as recited in independent claim 1.

Accordingly, the rejection of independent claim 1 over Gyu should be withdrawn. Dependent claims 2, 4, and 7-8, as well as added claims 12-16, are allowable over Gyu for at least the reasons set forth above with respect to independent claim 1, from which they depend, as well as for their added features.
The Office Action rejected claims 5, 6, 10, and 11 under 35 U.S.C. §103(a) as being unpatentable over Gyu in view of U.S. Pat. No. 6,347,872 to Brechbill. This rejection is respectfully traversed.

Dependent claims 5-6 and 10-11 are allowable over Gyu for at least the reasons set forth above with respect to independent claim 1, from which they depend, as well as for their added features. Brechbill fails to overcome the deficiencies of Gyu, as it is merely cited for allegedly teaching the specific recited features of the dependent claims 5-6 and 10-11. Accordingly, the rejection of dependent claims 5-6 and 10-11 over Gyu and Brechbill should be withdrawn.

Added claims 17-22 also define over the applied prior art and meet the requirements of 35 U.S.C. §112.

**CONCLUSION**

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney the telephone number listed below.
To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
KED & ASSOCIATES, LLP

Carol L. Druzbick
Registration No. 40,287

Kenneth R. DeRosa
Registration No. 39,549

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
703 766-3777 CLD:tlg

Date: September 30, 2011
Please direct all correspondence to Customer Number 34610
ABSTRACT OF THE DISCLOSURE

A case locking device is provided. For example, an outer case and an inner case used for various types of electronic devices, such as set-top boxes (STB), are connected by a lock using a resilient force from an elastic material, such as a spring, so that the outer case and the inner case may be separated from each other using only a separately provided jig. Accordingly, the outer case and the inner case may be connected to each other more easily and any general user may be prevented from separating the case arbitrarily, thus making it possible to effectively prevent catastrophic failures from occurring at the electronic device due to a user’s arbitrary manipulation.
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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of
Kyoungsu KIM and Hakryun KANG

Confirmation No.: 1355
Serial No.: 12/265,022
Examiner: Nathan CUMAR
Filed: November 5, 2008
Customer No.: 34610

For: CASE LOCKING DEVICE

U.S. Patent and Trademark Office
Customer Window, MAIL STOP AMENDMENT
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Dear Sir:

Transmitted herewith is an Amendment and/or Reply in the above identified application.
☐ No additional fee is required.
☒ Also attached: Petition for Extension of Time

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☐ Please charge my Deposit Account No. 16-0607 in the amount of $______. An additional copy of this transmittal sheet is submitted herewith.
☒ Please charge my Credit Card.
☒ The Commissioner is hereby authorized to charge payment of any fees associated with this communication or credit any overpayment, to Deposit Account No. 16-0607, including any filing fees under 37 C.F.R.§1.16 for presentation of extra claims and any patent application processing fees under 37 C.F.R. §1.17.

Respectfully submitted,
KED & ASSOCIATES, LLP
Carol L. Drapick
Registration No. 40,287

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
(703) 766-3777 CLD:bg
Date: September 30, 2011

Please direct all correspondence to Customer Number 34610
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Kyoungsu KIM and Hakryun KANG

Confirmation No.: 1355
Group Art Unit: 4187
Examiner: Nathan CUMAR

Serial No.: 12/265,022
Customer No.: 34610

Filed: November 5, 2008

For: CASE LOCKING DEVICE

PETITION FOR EXTENSION OF TIME UNDER 37 C.F.R. §1.136(a)(1)

U.S. Patent and Trademark Office
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

Applicant petitions the Commissioner of Patents and Trademarks to extend the time for response to the Office Action dated June 3, 2011 for one month from September 3, 2011 to October 3, 2011.

Please charge our credit card in the amount of $150.00 for the extension of time under 37 C.F.R. §1.17(a). Any deficiency or overpayment should be charged or credited to Deposit Account No. 16-0607.

Respectfully submitted,
KED & ASSOCIATES, LLP

Carol L. Druzbiak
Registration No. 40,287

Correspondence Address:
P.O. Box 8638
Reston, VA 20195
703 766-3777 CLD

Date: September 30, 2011
Please direct all correspondence to Customer Number 34610
**PATENT APPLICATION FEE DETERMINATION RECORD**

Substitute for Form PTO-875

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| TOTAL ADD'L FEE                  |              |                         |
| OR                               |              |                         |

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" in THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" in THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:

/DEBRA SAVOY/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
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KED & ASSOCIATES, LLP  
P.O. Box 8638  
Reston, VA 20195

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.
OFFICE ACTION SUMMARY

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☑ Responsive to communication(s) filed on 05 November 2008.
2a) ☐ This action is FINAL.
2b) ☑ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☑ Claim(s) 1-11 is/are pending in the application.
   4a) Of the above claim(s) ______ is/are withdrawn from consideration.
5) ☐ Claim(s) ______ is/are allowed.
6) ☑ Claim(s) 1-11 is/are rejected.
7) ☐ Claim(s) ______ is/are objected to.
8) ☐ Claim(s) ______ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☑ The drawing(s) filed on ______ is/are: a) ☐ accepted or b) ☑ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☑ All b) ☐ Some * c) ☐ None of:
   1. ☑ Certified copies of the priority documents have been received.
   2. ☑ Certified copies of the priority documents have been received in Application No. ______.
   3. ☑ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413)
2) ☐ Notice of Draftperson’s Patent Drawing Review (PTO-948) Paper No(s)/Mail Date ______.
3) ☑ Information Disclosure Statement(s) (PTO/SB/08) 5) ☐ Notice of Informal Patent Application
   Paper No(s)/Mail Date 3/08/2010 6) ☐ Other: ______.
DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claim 11** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 11** recites, “the fastener comprises one hole that penetrates a side surface …”. The meaning of “fastener hole penetrates the side surface” is not clear. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-4, and 7 - 9** are rejected under 35 U.S.C. 102(b) as being anticipated by **Yeol Cho Gyu**, Publication # KR10-2006-0080005, hereinafter referred to as Gyu.
With regard to claim 1, Gyu discloses an inner case (220); an outer case (120); and a locking means (300) that connects or disconnects the inner case and the outer case by a pressing force.

With regard to claim 2, an insertion hole (Fig. 2b) is provided at a side surface of the inner case to insert the locking means, and a fastener (Fig. 3) is provided at a side surface of the outer case to connect to the locking means inserted in the insertion hole.

With regard to claim 3, the locking means (300) comprises an elastic material (330) for connecting the inner case and the outer case to each other.

With regard to claim 4, locking means (300) moves toward the inside of the inner case (220) by a pressing force exerted from the outer case in a vertical or horizontal direction (Fig. 3) and then locks the outer case (120) and the inner case (220) to each other by a resilient force of the elastic material (330).

With regard to claim 7, the locking means is provided inside the case not to be seen from the outside (Fig. 3).

With regard to claim 8, the locking means (300) comprises a cover front (120), a hook (320), an elastic material (330), and a cover rear (310).

With regard to claim 9, the hook (320) has a plurality of protrusions having inclined angles formed in different direction (Fig. 2b).
Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 6, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gyu, Publication # KR10-2006-0080005, hereinafter referred to as Gyu, in view of Brechbill et al., (6,347,872), hereinafter referred to as Brechbill.

With regard to claim 5, Gyu discloses the claimed invention except claim 5. Gyu didn't disclose the locking means moves toward the inside of the inner case by a pressing force exerted from a protrusion of a jig in a vertical or horizontal direction to separate the outer case and the inner case from each other.

But, Brechbill (US 6,347,872) teaches the locking means moves toward the inside of the inner case by a pressing force exerted from a protrusion of a jig in a vertical or horizontal direction to separate the outer case and the inner case from each other (col. 2, lines 33-36).

The prior art (Brechbill) shows a tool inserted from outside along the edge releases the mounting plate was known at the time of invention.

It would have been obvious to one having skill in the art at the time the invention was made to modify the device (tool used to separate the parts) taught by Brechbill to
incorporate in the device of Kim to achieve the predictable result of separating the inner and outer cases.

One of ordinary skill in the art would have recognized that applying the known technique of Berchbill would have yielded predictable results and ease of operation. Thus, producing a jig with multiple tools and each tool similar to that of Berchbill to use with the invention will result in reliable means of separating the outer and inner cases simultaneously.

With regard to claim 6, Gyu discloses the claimed invention except claim 6. Gyu didn’t disclose the protrusion of the jig is provided near a location corresponding to connection location of the locking means in order to be inserted into a fastener exposed between the outer case and the inner case.

But Brechbill teaches the protrusion of the jig is provided near a location corresponding to connection location of the locking means in order to be inserted into a fastener exposed between the outer case and the inner case (col. 2, lines 33-36). Brechbill shows a tool inserted from outside along the edge releases the mounting plate was known in the prior art at the time of invention.

It would have been obvious to one having skill in the art at the time the invention was made to modify the device (tool used to separate the parts) taught by Brechbill to incorporate in the device of Kim near the location corresponding to the location of the locking means to achieve the predictable result of separating the inner and outer cases.
Applying the known technique would have been recognized by those of ordinary skill in the art as resulting in ease of operation to separate the parts. A jig with eight tools and each tool similar to that of Berchbill to separate the two cases will result in separating the cases and saves time compared to using one tool at a time.

With regard to claim 10, Gyu discloses the insert hole (121) comprises a through hole with a narrow area and a through hole with a broad area that are integrally formed to each other. Gyu discloses the claimed invention except for a through hole with a narrow area and a through hole with a broad area that are integrally formed to each other.

It would have been obvious matter of design to have insertion holes of varying cross-sectional areas, since the invention has not disclosed that narrow/broad hole areas solve any stated problems, and it appears that the invention would perform equally well with any hole size area to achieve the predictable result of fastening the two cases..

With regard to claim 11, Gyu discloses the fastener (Fig. 3) comprises one hole that penetrates a side surface of the outer case (120) and two holes that penetrate the side surface and the bottom surface of the outer case (120). Gyu discloses the claimed invention except for one of the two holes that penetrate the side surface of the outer case (120).

It would have been obvious matter of design to have insertion holes at various locations to achieve the desired result, since the invention has not disclosed that having one hole
on the side surface solves any stated problems, and it appears that the invention would perform equally well with holes located on any side of the cases.

**Conclusion**

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. *Derman, Jay S.*, US P.N. 6,588,809, Push to release cabinet door latch, discloses a locking mechanism. .

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN CUMAR whose telephone number is (571)270-3112. The examiner can normally be reached on Mon to Fri from 8:00 to 5:00 est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Beach can be reached on 571-272-6988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas A Beach/
Supervisory Patent Examiner
Art Unit 3674

/NATHAN CUMAR/
Examiner, Art Unit 4187
# Notice of References Cited

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| **FOREIGN PATENT DOCUMENTS** | | | | |
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| **NON-PATENT DOCUMENTS** | | | |
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*Include as applicable: Author, Title, Date, Publisher, Edition or Volume, Pertinent Pages*

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a)).

Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.*
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U.S. Patent and Trademark Office

Part of Paper No.: 20110510
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### INTERFERENCE SEARCH

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**LIST OF ART CITED BY APPLICANT**  
(PTO-1449)

**U.S. PATENT DOCUMENTS**

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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

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BIB DATA SHEET

** CONTINUING DATA ***********************

** FOREIGN APPLICATIONS *********************
REPUBLIC OF KOREA 10-2008-0065420 07/07/2008

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The present invention is to provide the wall tapestry assembly of the video display which the problem as described above is solved, and therefore, it strongs and it convenient, the object of the present invention unites the main body of the video display with the wall. The present invention is to provide the wall tapestry assembly of the main body bracket: fixing means, which elastically moves with the external force it is combined in hole and the video display it is fixed to the wall, and the third bracket combined with the first bracket is formed in the top, and for being included including the supporter bracket in which the fourth bracket fixed and coupled in the lower part with the fixing means is formed. The second bracket having the hole in the lower part the first bracket of hook–shaped is formed in the top it is combined in the back side indicating image of the main body is formed.
Brief Explanation of the Drawing(s)

Figure 1 is a perspective view of the wall tapestry assembly of the video display according to the first working example of the present invention.

Figure 2a is an exploded view of the fixing means according to the invention.

Figure 2b is a lateral cross sectional view of the fixing means according to the invention.

Figure 3 is a perspective view of the wall tapestry assembly of the video display according to the second preferred embodiment of the present invention.

Figure 4 is an exploded view of the hinge assembly of the invention.

Figure 5 is a perspective view of the wall tapestry assembly of the video display according to the third preferred embodiment of the present invention.

- Description of the symbol of the main part of the drawing*.

10: main body 100: main body bracket.
200: supporter bracket 300: fixing means.
400: tilt-bracket 430: hinge assembly.
440: link assembly 500: swivel assembly.
600: month bracket.

Details of the Invention

Purpose of the Invention

The Technical Field to which the Invention belongs and the Prior Art in that Field

The invention relates to the video display. And more specifically, it is about the wall tapestry assembly clinching the main body of the video display on the wall.

As a kind of the display including the video display is the television, the computer monitor etc, it presently widely prevails for each home and office etc. In the video display of prior, most adopted the cathode-ray tube but the volume suitables due to the need space in which the electronic beam is advanced. Even though it thins, it is developed like the liquid crystal display device (LCD), the plasma display panel (PDP) etc. the flat type monitor and volume littles it is recently widely used. And the trend that moreover gradually increases the demand.

And the various supporter is in order to since effectively utilizing and convenieting, suspend the video display on the wall the residential space than the case the plane type display device as described above more and more becomes large size in the of late, and where the thickness thins and it suspends on the wall and this video display uses developed.
But the disadvantage that the task in which the wall hanging device of the video display coming out in the present market mounts the video display in the wall or gotten rid of complicateds or it troublesomes and many times and effort are required to the deferment or the stripping work has.

In short, there is a problem that many working factories and time are consumed in order to couple screw in a plurality of base apertures to use the screw connection method in order to interconnect the wall bracket installed at the wall and main body bracket installed at the main body of the video display.

Of course, there is a problem that the video display can be mounted through the simple laxial which is not the screw connection method in the wall. But it is eradicated due to impact etc. and the high price display body is added from outside it is in this case damaged, or the concern of the etc. in which screen is not fixed and which becomes easily away hights. It marries the structure of supporter is not simple and it is complicated and in case of being taken into account this supporter is manufactured but the cost and the high long time are required.

Particularly, if the existing wall hanging device first of all hangs on the wall, the structure in which it does not easy to take off the display body from the wall tapestry is large minutes. Many defect exists to disuniting from the wall tapestry while operator eats trouble through the process of troublesoming.

- The Technical Challenges of the Invention

The present invention is to provide the wall tapestry assembly of the video display which the problem as described above is solved, and therefore, it strongs and it convenient, the object of the present invention unites the main body of the video display with the wall.

- Structure & Operation of the Invention

To accomplish the above objects, one type of the present invention provides the wall tapestry assembly of the main body bracket: fixing means, which elastically moves with the external force it is combined in hole and the video display it is fixed to the wall, and the third bracket combined with the first bracket is formed in the top, and for being included including the supporter bracket in which the fourth bracket fixed and coupled in the lower part with the fixing means is formed. The second bracket having the hole in the lower part the first bracket of hook-shaped is formed in the top it is combined in the back side indicating image of the main body is formed.

In the meantime, the other one type of the present invention provides the wall tapestry assembly of the video display it is combined in the main body bracket: hole while the second bracket having the hole in the lower part the first bracket of hook-shaped is formed in the top it is combined in the back side indicating image of the main body is formed and the third bracket combined with the first bracket is formed at the upper part of the fixing means which elastically moves with the external force, and being fixed to the supporter bracket, in which the fourth bracket fixed and coupled in the lower part with the fixing means is formed and wall, and for being included including the tilt-bracket (tilt bracket) in which the fifth bracket in which it is possible to rotate the pulse tilt, the supporter bracket is combined with the link assembly length-controlled in both sides with the hinge assembly is formed.

In the meantime, and, the other one type of the present invention provides the wall tapestry assembly of the video display in which the second bracket having the hole in the lower part the first bracket of hook-shaped is formed in the top it is combined in the back side indicating image of the main body comprises by including the swivel assembly capable of the length adjustment the third bracket combined with the first bracket is formed at the upper part of the fixing means which is combined in the main body bracket: hole while being formed and elastically moves with the external force, and it is possible to rotate, it is combined in the supporter bracket, in which the fourth bracket fixed and coupled in the lower part with the fixing means is formed and the month bracket in which one side is fixed to the wall.
Hereinafter, it is referring to the figure explained. These working examples are explained. The same title and denotation are used about the same composition. And the additional description according to the above is labor-saved.

In fig. 1, the wall tapestry assembly of the video display according to the first working example of the present invention is illustrated.

Referring to Figure 1, the wall tapestry assembly of the video display according to the first working example includes the main body bracket (100), and the fixing means (300) and supporter bracket (200).

The second bracket (120) having the hole (121) in the lower part the first bracket (110) of hook-shaped is formed in the top the main body bracket (100) is combined in the back side indicating image of the main body (10) is formed.

If described in more detail, it adheres closely to the main body (10) and the center area of the main body bracket (100) is combined. And it perpendiculars, the top of the main body bracket (100) is bent in the center area of the main body bracket (100). The end of the bent part is again bent to downward and the first bracket (110) of hook-shaped is formed.

And the lower part of the main body bracket (100) forms the second bracket (120) perpendicularly, is bent in the center area of the main body bracket (100) and has a plurality of holes (121). In the hole (121), the fixing means (300) is combined. And the shape of square is had.

The fixing means (300) is as described above combined in the hole (121). And the fixing means (300) elastically moves with the external force. The fixing means (300) next specifically explains.

The supporter bracket (200) is fixed to the wall. The third bracket (210) combined with the first bracket (110) is formed in the top. And the fourth bracket (220) fixed and coupled with the fixing means (300) is formed in the lower part.

If described in more detail, it adheres closely to the wall and the center area of the supporter bracket (200) is combined. And it perpendiculars, the top of the supporter bracket (200) is bent in the center area of the supporter bracket (200). The bent part as described above is again bent to the upward and the third bracket (210) is formed. That is, inserted inside the first bracket (110) and the third bracket (210) is combined with the first bracket (110).

And it perpendiculars, it is bent in the center area of the supporter bracket (200) and the lower part of the supporter bracket (200) forms the fourth bracket (220). The fourth bracket (220) is located on the top of said the second bracket (120). And it is fixed and coupled with the fixing means (300). For this, the fourth bracket (220) is bent and groove or the hole in which the fixing means (300) is inserted is formed.

In the meantime, in the drawing 2a, the disassembled perspective view of the fixing means (300) is illustrated. Referring to Figure 2a, if the fixing means (300) is explained, it is fixed and coupled with the fourth bracket (220) and the fixing means (300) prevents from the main body bracket (100) being eradicated in the supporter bracket (200). This fixing means (300) comprises by including the joint (320), and the case (310) and elastic member (330).

Here, in the joint (320), the center area is inserted into the hole of said the second bracket (120). It is formed so that both ends hang of said the second bracket (120). The case (310) is combined in said the second bracket (120). The opening (311) in which the joint (320) is inserted is formed. And it is inserted into the case (310) and the elastic member (330) elastically transfers the joint (320).
If described in more detail, it is inserted into the fourth bracket (220) and the joint (320) is combined among the fixing means (300). For this, in the joint (320), the center area passes through the hole (121). At this time, in order to prevent from being eradicated in the hole (121), the joint (320) is formed so that both ends hang on said the second bracket (120). That is, the center area of the joint (320) locates on the top of said the second bracket (120) while passing through the hole (121). The both ends of the joint (320) locates in the lower part of said the second bracket (120). Therefore, the joint (320) is not eradicated in the hole (121).

And the joint (320) is combined in the lower-part of the center area with the elastic member (330). The joint (320) is elastically carried with the elastic member (330) with the external force. That is, when in the joint (320), the external force actuated, it was not projected in the hole (121). And when the external force was removed, it is projected in the hole (121).

Here, when the main body bracket (100) is combined in the supporter bracket (200), the joint (320) and fourth bracket (220) each other raise interference. If described in more detail, the third bracket (210) is inserted into the first bracket (110). The main body bracket (100) revolves based on the first bracket (110) and said the second bracket (120) locates in the lower part of the fourth bracket (220). At this time, the fourth bracket (220) and joint (320) are each other interfered.

Therefore, the external force actuating on the joint (320) is created in the fourth bracket (220). That is, the joint (320) is carried with the fourth bracket (220) to downward. And it is again carried in the elastic member (330) to the top and it is inserted into the groove of the fourth bracket (220).

At this time, in order that in the joint (320), the fourth bracket (220) smoothly moves, it is formed so that the central part slope to the backward and forward so that height over the time down. Therefore, it is burned the inclined upper side of the extrusion fire and the fourth bracket (220) is carried. Moreover, when the main body bracket (100) separates from the supporter bracket (200), the inclined upper side of the joint (320) is burned and the fourth bracket (220) is smoothly carried.

Here, it is included of the shape corresponding to the center area of the joint (320) in groove, the joint (320) is inserted in order to reduce the frictional force when the fourth bracket (220) moving the upper side of the joint (320), in order to smoothly move, it is bent as shown in the drawing 2b and groove is in other words formed.

In the meantime, the case (310) is combined in said the second bracket (120). As described above, when the fourth bracket (220) locates on the top of said the second bracket (120), the case (310) is combined in the lower-part of said the second bracket (120). In the case (310), the opening (311) in which the joint (320) is inserted is formed. The opening (311) is a lot formed than the hole (121) of said the second bracket (120).

In the meantime, in the case (310), the upper side can be combined with said the second bracket (120). However, in the case (310), the case bracket (312) is formed in the top both sides in order to be more adamantly combined. The case bracket (312) is combined with said the second bracket (120). Here, the case (310) bracket can be combined with rivet or welding in said the second bracket (120). But in order that it eases that the fixing means (300) separates for the repair of the fixing means (300) etc. from the hole (121), the case bracket (312) is combined in said the second bracket (120) with a plurality of screws (340).

Moreover, the case bracket (312) is formed into the longitudinal direction of said the second bracket (120). When the case bracket (312) is formed into the backward and forward in the case (310), the length of said the second bracket (120) increases. Therefore the case bracket (312) is formed into the longitudinal direction of said the second bracket (120) in both sides of the case (310).

In the meantime, it is inserted into the case (310) and the elastic member (330) as described above elastically transfers the joint (320). And in the lower-part of the case (310) and joint (320), the boss guiding the binding position of the elastic member (330) can be formed. It is preferable that this elastic member (330) it is among them included the spring of the coil spring.
Moreover, the first side bracket (130) is formed in the side of the main body bracket (100) right and left binding position of the supporter bracket (200) and main body bracket (100) are guided and the second side bracket (230) are formed in the side of the supporter bracket (200). It perpendiculars, it is bent in both sides of the supporter bracket (200) and main body bracket (100) and the first side bracket (130) and the second side bracket (230) are formed. And the first side bracket (130) is inserted into the second side bracket (230), or the second side bracket (230) is inserted into the first side bracket (130) and right and left binding position of the supporter bracket (220) and main body bracket (100) are guided.

Hereinafter, the operation of the wall tapestry assembly according to the first working example as described above is explained.

In the back side of the main body (10), the main body bracket (100) is combined. The supporter bracket (200) is combined in the wall. And the main body (10) is carried so that the third bracket (210) be inserted into the first bracket (110). After it is inserted, the main body (10) revolves and said the second bracket (120) is located in the lower part of the fourth bracket (220). At this time, it is elastically carried and the fixing means (300) is fixed and coupled with the fourth bracket (220). Therefore, the fixing means (300) prevents from the fourth bracket (220) being carried or eradicated. Here, right and left binding position of the supporter bracket (200) and main body bracket (100) are taken to the first side bracket (130) and the second side bracket (230).

In fig. 3, the wall tapestry assembly of the video display according to the second preferred embodiment of the present invention is illustrated.

Referring to Figure 3, the wall tapestry assembly includes the main body bracket (100), the fixing means (300), and the supporter bracket (200) and tilt-bracket (400). Here, the main body (10) and main body bracket (100) referring to Figure 1 explain.

In the meantime, in the second preferred embodiment of the present invention, the main body bracket (100), and the fixing means (300) have the same configuration as the first working example of the present invention. Therefore, in the second preferred embodiment of the present invention, the repeated comment toward the content of the same composition stating before in the first working example of the present invention decides to shirk.

Moreover, the supporter bracket (200) according to the second preferred embodiment is included of the same configuration as the supporter bracket (200) according to the first working example. But it is not fixed to the wall. Therefore, the third bracket (210) of the supporter bracket (200) and detailed explanation of the fourth bracket (220) omit.

The second bracket (120) having the hole (121) in the lower part the first bracket (110) of hook-shaped is formed in the top the main body bracket (100) is combined in the back side of the main body (10) is formed. It is combined in the hole (121) and the fixing means (300) elastically moves. In the supporter bracket (200), the third bracket (210) combined in the top with said the first bracket (110) is formed. And the fourth bracket (220) fixed and coupled with the fixing means (300) is formed in the lower part. And the fifth bracket (410) is fixed to the wall. The second bracket (210) of supporter bracket (200) is combined with the hinge assembly (430) and the length-controlled link assembly (440) is formed in the side. Here, the pulse tilt says to rotate the main body (10) at the top and bottom.

If described in more detail, it adheres closely to the wall and the center area of the tilt-bracket (400) is combined. And it perpendiculars, it is bent in the center area of the tilt-bracket (400) and both sides of the tilt-bracket (400) forms the fifth bracket (410).

In the fifth bracket (410), the top is combined with the link assembly (440) with the top of the supporter bracket (200). The lower part is combined with the hinge assembly (430) with the lower part of the supporter bracket (200). Here, the hinge assembly (430) the role of preventing by using the frictional force that the main body (10) revolves with the weight. The hinge assembly (430) next in detail explains.
And the second side bracket (230) is in order to do easy the bond with the link assembly (440) in the supporter bracket (200) and hinge assembly (430) formed. The second side bracket (230) is formed in as described above, both sides of the supporter bracket (200). And it perpendiculars, it is bent in the center area of the supporter bracket (200).

Therefore, in the second side bracket (230), the top is combined with the hinge assembly (430) with the top of the fifth bracket (410). The lower part is combined with the hinge assembly (430) with the lower part of the fifth bracket (410). Here, as to the second side bracket (230), the role it is similar in the first working example, of guiding right and left binding position of the supporter bracket (200) and main body bracket (100). For this, the first side bracket (130) is formed in the side of the main body bracket (100).

In the meantime, when in the fifth bracket (410), the main body (10) tilt rotates, in order that it is rotated based on the front side of the main body (10) to the phase /, the lower part is longer formed as the complement part. Therefore, in the main body (10) is the wall, since gap being spaced and installed, it can be freely tilted and rotated the phase /. Moreover, the fifth bracket (410) can be formed for the strength reinforcement into the shape in which the length over the time lengthens to downward of triangle.

Moreover, in order that the main body (10) is rotated the pulse tilt, the length is controled and the link assembly (440) controls interval between the wall and the main body (10). That is, it interlinks the lower part of the fifth bracket (410) and said the second bracket (120) and the hinge assembly (430) serves as the rotary shaft. And the link assembly (440) controls the headspace of the fifth bracket (410) and said the second bracket (120). The main body (10) is rotated the pulse tilt.

In the meantime, the link assembly (440) comprises by including two or more links. Hereinafter, it comprises by including two links, the link assembly (440) explains.

The link assembly (440) comprises by including the first link (441) which is possible to rotate, is connected to the fifth bracket (410) and the second link (442) in which it is possible to rotate, one side is connected to the first link (441) and it is possible to rotate, the other side is particularly connected than the supporter bracket (200) to the second side bracket (230).

Therefore, the first link (441) and the second link (442) get folded or the link assembly (440) gets unfolded and the length is controled. That is, the link assembly (440) controls the top length between the tilt-bracket (400) and the supporter bracket (200).

Moreover, the link assembly (440) is the maximum length is formed with length shorter than the minimum dimension is the fifth bracket (410) it longs than the fifth bracket (410). That is, the first link (441) and the second link (442) are formed with length shorter than the length the length when getting unfolded to maximum being in a long queue formed than the lower part length of the fifth bracket (410), and when getting folded in maximum. Is the lower part length of formulation 5 the bracket (410).

And one is at least combined among the fifth bracket (410) and the first link (441), and the first link (441), the second link (442) and the second side bracket (230) with the hinge assembly (430). But it is preferable that the hinge assembly (430) in the connection of connection between links (441, 442) and the link assembly (440) and fifth bracket (410) and the second side bracket (230) it is altogether used.

In the meantime, referring to Figure 4, the hinge assembly (430) is explained particularly. Here, the bond of the fifth bracket (410) and the second side bracket (230) is explained for example. The linker assembly, and the bond of the fifth bracket (410) and the second side bracket (230) are identically included.
When in the hinge assembly (430), the external force does not generate in the main body (10) in other words, the supporter bracket (200), it is included of the friction hinge which prevents that the main body (10), in other words, the supporter bracket (200) revolves by using the frictional force.

The hinge assembly (430) includes the bolt (431), the screwnut (432), the flat washer (433), the fixed washer (434) and spring (435). Here, one side of the flat washer (433) is projected and the fixed washer (434) is formed.

In the second side bracket (230), the penetration hole (232) in which the bolt (431) is inserted is formed. The insertion hole (231) in which the projected part of the fixed washer (434) is inserted is formed in the penetration hole (232) surrounding. And in the fifth bracket (410), the penetration hole (437) in which the bolt (431) is inserted is formed. The insertion hole (436) in which the projected part of the fixed washer (434) is inserted is formed in the penetration hole (437) surrounding.

Therefore, the fixed washer (434) is respectively included in both sides of the fifth bracket (410) and the second side bracket (230). It is inserted into insertion holes (231, 436) and it is combined. And the flat washer (433) is included for the second side bracket (230) and fifth side bracket between in other words, the fixed washer (434).

The spring (435) is included of the disk spring. And in order to be included between the head of the bolt (431) and the fixed washer (434) combined in the outside of the fifth bracket (410) and the frictional force of the constant about above is created in the hinge assembly (430) the power is offered. At this time, the flat washer (433) can be more included between the head of the bolt (431) and spring (435).

And the bolt (431) is combined through the flat washer (433), the fixed washer (434), and the second side bracket (230) fifth bracket (410) with the screw nut (432).

Therefore, when the external force did not generate in the main body (10), the hinge assembly (430) prevents with the fixed washer (434) and the frictional force created in the flat washer (433) from the main body (10) revolving with the weight. And the hinge assembly (430) connects the bracket (230) and fifth bracket (410) for the second. In addition, the link assembly (440), the fifth bracket (410) and the second side bracket (230) interlink. Therefore it efficiently prevents from the main body (10) revolving with the weight.

In fig. 5, the wall tapestry assembly of the video display according to the third preferred embodiment of the present invention is illustrated.

Referring to Figure 5, the wall tapestry assembly comprises by including the main body bracket (100), fixing means (300), supporter bracket (200), month bracket (600) and swivel assembly (500). Here, the main body (10) and main body bracket (100) referring to Figure 1 explain.

In the meantime, in the third preferred embodiment of the present invention, the main body bracket (100), and the fixing means (300) have the same configuration as the first working example of the present invention. Therefore, in the third preferred embodiment of the present invention, the repeated comment toward the content of the same composition stating before in the first working example of the present invention decides to shirk.

Moreover, the supporter bracket (200) according to the third preferred embodiment is included of the same configuration as the supporter bracket (200) according to the first working example. But it is not fixed to the wall. Therefore, the third bracket (210) of the supporter bracket (200) and detailed explanation of the fourth bracket (220) omit.

The second bracket (120) having the hole in the lower part the first bracket (110) of hook-shaped is formed in the top the main body bracket (100) is combined in the back side of the main body (10) is formed. It is combined in hole and the fixing means (300) elastically moves. In the supporter bracket (200), the third bracket
(210) combined in the top with said the first bracket (110) is formed. And the fourth bracket (220) fixed and coupled with the fixing means (300) is formed in the lower part. And it is possible to rotate, the swivel assembly (500) is combined in the month bracket (600) (wall bracket) in which one side is fixed to the wall. It is possible to rotate, the other side is combined in the supporter bracket (200). Moreover, in the swivel assembly (500), the length adjustment possibilities. Here, swivel says to rotate the main body (10) the right and left.

In the meantime, the wall tapestry assembly according to the third preferred embodiment more comprises by including the tilt-bracket (400). The tilt-bracket (400) is included between the supporter bracket (200) and swivel assembly (500). The fifth bracket (410) in which it is possible to rotate the pulse tilt, the supporter bracket (200) is combined with the hinge assembly (430) and link assembly (440) is formed in both sides. It is possible to rotate, the swivel assembly (500) is combined in the back side. Here, the tilt-bracket (400) is included of the same configuration as the tilt-bracket (400) according to the second preferred embodiment. But it is not fixed to the wall. Therefore, the tilt-bracket (400), the link assembly (440), and the detailed explanation of the combining relation between the hinge assembly (430) and the supporter bracket (200) and configuration decide to omit.

In the swivel assembly (500) is the wall the main body (10), in order to make the left right panning, two or more bars which is each other possible to rotate, is connected is by including comprised.

Therefore, the swivel assembly (500) comprises by including the first engaging bracket (510) fixed to the month bracket (600), the first bar (520), and the second bar (530). The first bar (520) is possible to rotate, is combined in the first engaging bracket (510). The second bar (530) is possible to rotate, is combined in the second engaging bracket (550) and the second engaging bracket (550) fixed to the tilt-bracket (400). Here, it is each other possible to rotate, the first bar (520) and the second bar (530) are combined.

Moreover, the third bar (540) in which it is possible to rotate with the first bar (520), one end is combined and it is possible to rotate with the second bar (530), the other end is combined is by including comprised in order to smoothly move the swivel assembly (500) is the main body (10).

If described in more detail, the first engaging bracket (510) is fixed to the month bracket (600). It is possible to rotate, one end of the first bar (520) is combined in the upper side. It is possible to rotate, one end of the third bar (540) is combined in the other end upper side of the first bar (520). It is possible to rotate, one end of the second bar (530) is combined in the other end upper side of the third bar (540). It is inserted into the second engaging bracket (550) and it is possible to rotate, the other end of the second bar (530) is combined. And the second engaging bracket (550) rivets. It is combined with the joint like screw with the tilt-bracket (400).

Here, when the swivel assembly (500) got folded, when in other words, the upper side and lower-part of bars each other touched, said the second bracket (120) and the third bar (540) can raise interference. Therefore, it is similar in lower-part of the thickness of the end part of the second engaging bracket (550) or the other end of said the second bracket (120) highs, the level difference. And the end part of the second engaging bracket (550) is inserted into the level difference proper of the second bar (530). It prevents from the second engaging bracket (550) and the third bar (540) raising interference.

And it is possible to rotate, the swivel assembly (500) is combined with the bolt (560) and screwnut (570). That is, each other possible to rotate, the first engaging bracket (510), second engaging bracket (550), first bar (520), second bar (530) and the third bar (540) are combined with the bolt (560) and screwnut (570). Here, in order that rotation is more smoothly included, the swivel assembly (500) more comprises by including the washer (580).

In the meantime, in order that the main body (10) is supported steadily than the swivel assembly (500), it is included over two. Here, it is preferable that the space of the month bracket (600) the swivel assembly (500) is included of two because of being insufficient. Moreover, it thes same, the length of the swivel assembly (500) is controlled and the main body (10) can be transferred from side to side. And the length of the swivel assembly (500) is controlled differently and the main body (10) can be rotated swivel.
And when the swivel assembly (500) is included of two, in the second engaging bracket (550), two is. Here, it is each other connected and two second engaging brackets (550) is combined with the tilt-bracket (400). In this case, the second engaging bracket (550) widens the contact area of the tilt-bracket (400). And because of being combined to the more combining member, it is more adamantly combined.

Effects of the Invention
As illustrated in the above, the wall tapestry assembly of the video display according to the present invention conveniently mounts the main body in the wall, or it can get rid of.

Moreover, the wall tapestry assembly moves right and lefts. It revolves the pulse tilt rotation, and swivel and the valid audio visual wideing than user is offered.

In this specification, the several working example was explained. In spite of that it self–evidents to the person skilled in the art that it can be elaborated into the other specific figure without escaping from the purport and category. Therefore, with being illustrative the above–described working example has to be regarded. And range of the present invention is equipped with all specific figures changed in category and range of equivalency of attached claim.

Scope of Claims

Claim 1:
The wall tapestry assembly of the main body bracket: fixing means, which elastically moves with the external force it is combined in hole and the video display it is fixed to the wall, and the third bracket combined with the first bracket is formed in the top, and for being included including the supporter bracket in which the fourth bracket fixed and coupled in the lower part with the fixing means is formed. The second bracket having the hole in the lower part the first bracket of hook–shaped is formed in the top it is combined in the back side indicating image of the main body is formed.

Claim 2:
The wall tapestry assembly of the video display, wherein: the fixing means as to the first claim the center area is inserted into hole; and the formed joint, the case, and the elastic member is by including comprised so that both ends hang on the second bracket; as to the case, it is combined in said the second bracket; and the opening in which the joint is inserted is formed; and the elastic member is included between the case and joint; and elastically transfers the joint.

Claim 3:
The wall tapestry assembly of the video display, wherein the case as to claim 2 the case bracket combined with said the second bracket is formed in the top both sides.

Claim 4:
The wall tapestry assembly of the video display, wherein the case bracket as to claim 3 it is combined with said the second bracket by screw.

Claim 5:
The wall tapestry assembly of the video display, wherein the central part of the joint as to claim 2 it is formed into the backward and forward to slope so that height over the time down.

Claim 6:
The wall tapestry assembly of the video display included as to claim 5 of the shape corresponding to the fourth bracket is the center area of the joint.

Claim 7:
The assembly of the video display which the elastic member is included as to claim 2 of the spring.

Claim 8:
The wall tapestry assembly of the video display the first side bracket guiding right and left binding position of the supporter bracket and main body bracket being formed as to the first claim in the side of the main body bracket, and for characterizing thing. The second side bracket guiding right and left binding position of the supporter bracket and main body bracket in the side of the supporter bracket is formed.

Claim 9:
The wall tapestry assembly of the video display it is combined in the main body bracket: hole while the second bracket having the hole in the lower part the first bracket of hook-shaped is formed in the top it is combined in the back side indicating image of the main body is formed and the third bracket combined with the first bracket is formed at the upper part of the fixing means which elastically moves with the external force, and being fixed to the supporter bracket, in which the fourth bracket fixed and coupled in the lower part with the fixing means is formed and wall, and for being included including the tilt-bracket (tilt bracket) in which the fifth bracket in which it is possible to rotate the pulse tilt, the supporter bracket is combined with the link assembly length-controlled in both sides with the hinge assembly is formed.

Claim 10:
The wall tapestry assembly of the video display, wherein the fifth bracket as to claim 9 the top is connected to the link assembly to the top of the supporter bracket; and the lower part is connected to the hinge assembly to the lower part of the supporter bracket.

Claim 11:
The wall tapestry assembly of the video display wherein as to claim 10, the top is connected in both sides of the supporter bracket with the link assembly to the top of the fifth bracket; and the second side bracket in which the lower part is connected to the hinge assembly to the lower part of the fifth bracket is formed.
Claim 12:
The wall tapestry assembly of the video display, wherein the fifth bracket as to claim 11 the lower part is longer formed than the top.

Claim 13:
As to claim 12.

The wall tapestry assembly of the video display, wherein the link assembly it is possible to rotate, the connected first link, and *** is the second link the other side is possible to rotate in the supporter bracket it is possible to rotate, one side is connected to the first link is by including comprised in the fifth bracket.

Claim 14:
The wall tapestry assembly of the video display, wherein the fifth bracket as to claim 13, and the first link, and the first link, the second link, the second link and supporter bracket, at least, one it is combined with the hinge assembly.

Claim 15:
The wall tapestry assembly of the video display, wherein the maximum length of the link assembly as to claim 13 it longs than the lower part length of the fifth bracket; and the minimum dimension shorts than the lower part length of formulation 5 bracket.

Claim 16:
The wall tapestry assembly of the video display of claims 9 through 14, wherein the hinge assembly the external force does not generate in the supporter bracket; and it is included of the friction hinge which prevents that the supporter bracket revolves by using the frictional force.

Claim 17:
The wall tapestry assembly of the video display in which the second bracket having the hole in the lower part the first bracket of hook-shaped is formed in the top it is combined in the back side indicating image of the main body comprises by including the swivel assembly capable of the length adjustment the third bracket combined with the first bracket is formed at the upper part of the fixing means which is combined in the main body bracket: hole while being formed and elastically moves with the external force, and it is possible to rotate, it is combined in the supporter bracket, in which the fourth bracket fixed and coupled in the lower part with the fixing means is formed and the month bracket in which one side is fixed to the wall.

Claim 18:
The wall tapestry assembly of the supporter bracket as to claim 17, and the video display being included between the month bracket, and the fifth bracket in which it is possible to rotate the pulse tilt, the supporter
bracket is combined with the link assembly length-controlled in both sides with the hinge assembly being formed, and for being included including the tilt-bracket (tilt bracket) combined in the back side with the swivel assembly.

Claim 19:
The wall tapestry assembly of the video display of claim 17 or 18, wherein the swivel assembly two or more bars which is each other possible to rotate, is connected is by including comprised.

Claim 20:
The swivel assembly as to claim 19.

The wall tapestry assembly of the video display wherein: the first engaging bracket fixed to the month bracket, the first bar, the second engaging bracket fixed to tilt-bracket, the second bar, and the third bar is by including comprised: the first bar is possible to rotate, is combined in the first engaging bracket: the second bar is possible to rotate, is combined in the second engaging bracket: and as to the third bar, it is possible to rotate, one end is combined in the first bar: and it is possible to rotate, the other end is combined in the second bar.

Claim 21:
The wall tapestry assembly of the video display, wherein the first engaging bracket, the second engaging bracket, the first f, the second f as to claim 20, and the third bar it is possible to rotate, it is each other combined with the bolt and nut.

Claim 22:
As to the claims 17 through 21.

The wall tapestry assembly of the video display wherein two or more swivel assemblies is combined in the month bracket and supporter bracket.

Claim 23:
The wall tapestry assembly of the video display, wherein two second engaging brackets the swivel assembly is included as to claim 22 two it is each other connected.

Claim 24:
The wall tapestry assembly of the video display wherein as to claim 18, it is formed in both sides of the supporter bracket: the top is connected to the link assembly to the top of the fifth bracket: and the second side bracket in which the lower part is connected to the hinge assembly to the lower part of the supporter bracket is formed.

Claim 25:
The wall tapestry assembly of the video display, wherein the fifth bracket as to claim 24 the lower part is longer formed than the top.

Claim 26:
The wall tapestry assembly of the video display, wherein the link assembly as to claim 24 it is possible to rotate, the connected first link, and *** is the second link the other side is possible to rotate in the supporter bracket it is possible to rotate, one side is connected to the first link is by including comprised in the fifth bracket.

Claim 27:
The wall tapestry assembly of the video display, wherein the fifth bracket as to claim 26, and the first link, and the first link, the second link, the second link and supporter bracket, at least, one it is combined with the hinge assembly.

Claim 28:
The wall tapestry assembly of the video display of claims 24 through 27, wherein the hinge assembly the external force does not generate in the supporter bracket; and it is included of the friction hinge which prevents that the supporter bracket revolves by using the frictional force.

Claim 29:
The wall tapestry assembly of the video display of claim 9 or 17, wherein: the fixing means the central part which is formed into the backward and forward to slope so that height over the time down is inserted into hole; and the formed joint, the case, and the elastic member is by including comprised so that both ends hang on the second bracket; as to the case, the case bracket combined with said the second bracket is formed in the top both sides; and opening is formed in the upper side and the joint is inserted; and the elastic member is included between the case and joint; and elastically transfers the joint.

Claim 30:
The wall tapestry assembly of the video display of claim 9 or 17, wherein the fourth bracket it is included of the shape corresponding to the center area of the joint.

Claim 31:
The wall tapestry assembly of the video display in which the first side bracket is formed of claim 9 or 17, wherein in the side of the main body bracket, right and left binding position of the supporter bracket and main body bracket are guided.
Fig. 3
LIST OF ART CITED BY APPLICANT

**PTO-1449**

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KOREAN PATENT ABSTRACTS

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(21)Application number: 1020050000450
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(30)Priority:

(51)Int. Cl

H04N 5/655

(54) WALL-MOUNTING ASSEMBLY OF A VIDEO DISPLAY DEVICE FOR FIRMLY AND CONVENIENTLY COMBINING A MAIN BODY OF THE VIDEO DISPLAY DEVICE WITH A WALL

(57) Abstract:

PURPOSE: A wall-mounting assembly of a video display device is provided to simply hold a main body of the video display device at a wall or remove the main body of the video display device from the wall, and realize a wider valid viewing angle by using left and right moving, tilt rotation, and swivel rotation.

CONSTITUTION: A main body bracket(100) is combined with a rear side of a main body(10) displaying an image and has a hook-shaped first bracket(110) formed at an upper part and a second bracket(120) which has holes and is formed at a lower part. Fixing elements(300) are combined with the holes for being elastically moved by external force. A supporter bracket (200) is fixed on a wall and has a third bracket(210) formed at an upper part for being combined with the first bracket and a fourth bracket(220) formed at a lower part for being coupled with the fixing elements.

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Legal Status
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Notification date of refusal decision (00000000)
Final disposal of an application (registration)
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Patent registration number (1006723290000)
Date of registration (20070116)
Number of opposition against the grant of a patent ( )
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Number of trial against decision to refuse ( )
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Date of extinction of right ( )
1. WALL-MOUNTING ASSEMBLY OF A VIDEO DISPLAY DEVICE FOR FIRMLY AND CONVENIENTLY COMBINING A MAIN BODY OF THE VIDEO DISPLAY DEVICE WITH A WALL

Abstract:
PURPOSE: A wall-mounting assembly of a video display device is provided to simply hold a main body of the video display device at a wall or remove the main body of the video display device from the wall, and realize a wider valid viewing angle by using left and right moving, tilt rotation, and swivel rotation.

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심사청구: 있음

(54) 영상 표시 장치의 벽걸이 어셈블리

요약

본 발명은 상기와 같은 문제점을 해결하기 위한 것으로써, 본 발명의 목적은 전고하고 관리하게 영상 표시 장치의 본체를 벽에 결합하는 영상 표시 장치의 벽걸이 어셈블리를 제공함으로써, 본 발명은 영상을 표시하는 본체의 후면에 결합하고, 상부에는 후크 형상의 제 1 브라켓이 형성되어, 하부에는 홀을 가지는 제 2 브라켓이 형성되는 본체 브라켓; 상기 홀에 결합되어 외력에 의하여 탄성적으로 이동하는 고정 수단; 그리고, 벽에 고정되고, 상부에는 상기 제 1 브라켓과 결합되는 제 3 브라켓이 형성되며, 하부에는 상기 고정 수단과 결합되는 제 4 브라켓이 형성되는 서포터 브라켓을 포함하여 이루어지는 영상 표시 장치의 벽걸이 어셈블리를 제공한다.

대표도

도 1

세인어

영상표시장치, 벽걸이, 틸트, 스위블

명세서

도면의 간단한 설명

도 1은 본 발명의 제 1 실시에 따른 영상 표시 장치의 벽걸이 어셈블리의 사시도;

도 2a는 본 발명에 따른 고정 수단의 본체도;

도 2b는 본 발명에 따른 고정 수단의 측면 단면도;
도 3은 본 발명의 제 2 설시례에 따른 영상 표시 장치의 벽걸이 어셈블리의 사시도;

도 4는 본 발명의 한지 어셈블리의 분해도;

도 5는 본 발명의 제 3 설시례에 따른 영상 표시 장치의 벽걸이 어셈블리의 사시도.

*도면의 주요 부분에 대한 부호의 설명*

10: 본체 100: 본체 브라켓
200: 서포터 브라켓 300: 고정 수단
400: 밸트 브라켓 430: 한지 어셈블리
440: 핑크 어셈블리 500: 스위블 어셈블리
600: 월 브라켓

발명의 상세한 설명

발명의 목적

발명이 속하는 기술 및 그 분야의 존재기술

본 발명은 영상 표시 장치에 관한 것으로, 보다 상세하게는 영상 표시 장치의 본체를 벽에 고정시키는 벽걸이 어셈블리에 관한 것이다.

영상 표시 장치는 데크비전, 컴퓨터 모니터 등과 같은 화면출력장치의 일종으로서, 현재 각 가정 및 사무실 등에 널리 보급되어 있다. 화면의 영상표시장치는 대부분이 음극선관을 채용하였으나 전자관이 진행되기 위한 필요공간으로 인해 그 부피가 상당하여, 최근에는 액정표시소자(LCD). 플라즈마 디스플레이 패널(PDP)등과 같이 적고도 부피가 적은 청량형 모니터들이 개발되어 널리 사용되고 있으며, 그 수요 또한 점점 증가하고 있는 추세이다.

그리고, 근래에는 상기와 같은 평판형 영상 표시 장치가 점점 대형화되고 있고, 이러한 영상 표시 장치는 두께가 얇아 벽면에 걸어두고 사용할 경우보다 주거공간을 보다 효과적으로 활용할 수 있고 전처리므로 영상표시장치물 벽에 걸어두기 위해, 다양한 거치장치가 개발되고 있는 실정이다.

그러나, 현재 시장에 나와 있는 영상표시장치의 벽걸이 장치는 상기 영상표시장치물 벽에 거치시키거나 달거시키는 작업이 까다롭거나 번거러워 거치 또는 달거 작업에 많은 시간과 노력이 소요되는 단점이 있다.

요컨대, 벽에 설치되는 브라켓과 영상표시장치의 본체에 설치되는 본체브라켓을 상호 결합하기 위해서는 스크류 제결방식을 이용하는데 다수개의 제결구에 스크류를 제결하기 위해서는 많은 작업공간과 시간이 소비되는 문제점이 있었다.

물론, 상기 영상표시장치를 스크류 제결방식이 아닌 단순한 결합형으로도 벽에 거치 시킬 수 있으나, 이 경우 고가(高價)인 디스플레이 본체가 의무로 부터 가해지는 충격등으로 인해 품질어하 파손되거나, 화면이 고정되지 않고 쉽게 비뚤어지게 되는 등의 우려가 높고, 이를 감안할 경우에는 거치 장치의 구조가 단순하지 않고 복잡하게 거치 장치를 제작하는데 높은 비용 및 장시간 소요되는등 많은 문제점이 있었다.

특히, 기존의 벽걸이 장치는 일단 벽에 걸리고 나면, 디스플레이 본체를 벽걸이로부터 떼어 내기가 쉽지 않은 구조가 대부분이어서, 반거러운 과정을 통해 작업자가 애를 먹으면서 벽걸이로부터 분리시키며 하지 않은 경우가 발생하는데 위기로써 단점이 존재하는 실정이다.

발명이 이루고자 하는 기술적 과제
본 발명은 상기와 같은 문제점을 해결하기 위한 것으로서, 본 발명의 목적은 건고하고 반리하게 영상 표시 장치의 본체를 벽에 결합하는 영상 표시 장치의 벽걸이 어셈블리를 제공함으로써 발명의 구성 및 작용

상기 목록을 달성하기 위하여, 본 발명의 일 형태는 영상을 표시하는 본체의 후면에 결합되고, 상부에는 후크 형상의 제 1 브라켓이 형성되며, 하부에는 홀을 가지는 제 2 브라켓이 형성되며 본체 브라켓; 상기 홀에 결합되어 외력에 의하여 탄성적으로 이동하는 고정 수단; 그리고, 벽에 고정되고, 상부에는 상기 제 1 브라켓과 결합되는 제 3 브라켓이 형성되며, 하부에는 상기 고정 수단과 결합되는 제 4 브라켓이 형성되는 서포터 브라켓; 그리고, 벽에 고정되고, 양 측면에는 휠 또는 어셈블리와 같이 조립되는 릴트 어셈블리에 의하여 상기 서포터 브라켓이 보호 되어 가능하게 결합되는 제 5 브라켓이 형성되는 릴트 브라켓(tilt bracket)을 포함하여 이루어지는 영상 표시 장치의 벽걸이 어셈블리를 제공한다.

한편, 본 발명의 다른 일 형태는 영상을 표시하는 본체의 후면에 결합되고, 상부에는 후크 형상의 제 1 브라켓이 형성되며, 하부에는 홀을 가지는 제 2 브라켓이 형성되며 본체 브라켓; 상기 홀에 결합되어 외력에 의하여 탄성적으로 이동하는 고정 수단; 상부에는 상기 제 1 브라켓과 결합되는 제 3 브라켓이 형성되며, 하부에는 상기 고정 수단과 결합되는 제 4 브라켓이 형성되는 서포터 브라켓; 그리고, 압축이 벽에 고정되는 일 브라켓에 회전 가능하게 결합되고, 타축이 상기 서포터 브라켓에 회전 가능하게 결합되며, 슬라이드 조립이 가능한 스위프 어셈블리(swivel assembly)를 포함하여 이루어지는 영상 표시 장치의 벽걸이 어셈블리를 제공한다.

이하에서는, 상기 목록이 구체적으로 설명될 수 있는 본 발명의 실시예들이 첨부된 도면을 참조하여 설명된다. 본 실시예 들을 설명함에 있어서, 동일 구성에 대해서는 동일 명칭 및 부호가 사용되며, 이에 따른 부가적인 설명은 생략한다.

도 1에는 본 발명의 제 1 실시예에 따른 영상 표시 장치의 벽걸이 어셈블리를 도시하여 있다.

도 1은 참조하면, 제 1 실시예에 따른 영상 표시 장치의 벽걸이 어셈블리는 본체 브라켓(100), 고정 수단(300) 그리고 서포터 브라켓(200)을 포함하여 이루어진다.

상기 본체 브라켓(100)은 영상을 표시하는 본체(10)의 후면에 결합되고, 상부에 후크 형상의 제 1 브라켓(110)이 형성되며, 하부에 홀(121)을 가지는 제 2 브라켓(120)이 형성된다.

보다 상세히 설명하면, 상기 본체 브라켓(100)의 중앙 부분은 상기 본체(10)과 밀착되어 결합된다. 그리고, 상기 본체 브라켓(100)의 상부는 상기 본체 브라켓(100)의 중앙 부분에서 수직하게 접주되고, 접주된 부분의 끝이 다시 하방으로 접주되어 후크 형상의 제 1 브라켓(110)을 형성한다.

그리고, 상기 본체 브라켓(100)의 하부는 상기 본체 브라켓(100)의 중앙 부분에서 수직하게 접주되고 복수개의 홀(121)을 가지는 제 2 브라켓(120)을 형성한다. 상기 홀(121)은 상기 고정 수단(300)이 결합되며, 각각의 형상을 가진다.

상기 고정 수단(300)은 삼각형 바와 같이 상기 홀(121)에 결합된다. 그리고, 상기 고정 수단(300)은 외력에 의하여 탄성적으로 이동한다. 상기 고정 수단(300)은 다음과 상세하게 설명한다.

상기 서포터 브라켓(200)은 벽에 고정되고, 상부에는 상기 제 1 브라켓(110)과 결합되는 제 3 브라켓(210)이 형성되며, 하부에는 상기 고정 수단(300)과 결합되는 제 4 브라켓(220)이 형성된다.

보다 상세히 설명하면, 상기 서포터 브라켓(200)의 중앙 부분은 벽에 밀착되어 결합된다. 그리고, 상기 서포터 브라켓(200)의 상부는 상기 서포터 브라켓(200)의 중앙 부분에서 수직하게 접주되고, 상기 접속된 부분이 다시 상방으로 접주되어 제 3 브라켓(210)을 형성한다. 즉, 상기 제 3 브라켓(210)은 상기 제 1 브라켓(110)의 내부에 삽입되어 상기 제 1 브라켓(110)과 결합한다.
그리고, 상기 서포터 브라켓(200)의 하부는 상기 서포터 브라켓(200)의 중앙 부분에서 수직하게 절단되어 상기 제 4 브라켓(220)을 형성한다. 상기 제 4 브라켓(220)은 상기 제 2 브라켓(120)의 상부에 위치되며, 상기 고정 수단(300)과 체결된다. 이를 위하여 상기 제 4 브라켓(220)은 절단되어 고정 수단(300)과 삽입되는 품은 흙이 형성된다.

한편, 도 2a에는 상기 고정 수단(300)의 뒷면 시각도가 도시되어 있다. 도 2a를 참조하여 상기 고정 수단(300)을 설명하 면, 상기 고정 수단(300)은 상기 제 4 브라켓(220)과 절단되어 상기 본체 브라켓(100)이 상기 서포터 브라켓(200)에서 달 거되는 것을 방지한다. 이러한 상기 고정 수단(300)은 결합부(320), 케이스(310) 그리고 탄성 부재(330)를 포함하여 이루어진다.

여기서, 상기 결합부(320)는 중앙 부분이 상기 제 2 브라켓(120)의 홈에 삽입되고, 양 단이 상기 제 2 브라켓(120)의 길이 도로 형성된다. 상기 케이스(310)는 상기 제 2 브라켓(120)에 결합되고, 상기 결합부(320)가 삽입되는 개구부(311)가 형 성된다. 그리고, 상기 탄성 부재(330)는 상기 케이스(310)에 삽입되어 상기 결합부(320)를 탄성적으로 이동시킨다.

보다 상세히 설명하면, 상기 고정 수단(300) 중 상기 결합부(320)는 상기 제 4 브라켓(220)에 삽입되어 결합된다. 이를 위하여, 상기 결합부(320)는 중앙 부분이 상기 홈(121)을 형성한다. 이 때, 상기 결합부(320)는 상기 홈(121)에서 탈거되는 것을 방지하기 위하여 양 단이 상기 제 2 브라켓(120)의 길이 도로 형성된다. 즉, 상기 결합부(320)의 중앙 부분은 상기 홈(121)을 형성하여 상기 제 2 브라켓(120)의 상부에 위치하고, 상기 결합부(320)의 양 단은 상기 제 2 브라켓(120)의 하부에 위치한다. 따라서, 상기 결합부(320)는 상기 홈(121)에서 달거지 않는다.

그리고, 상기 결합부(320)는 중앙 부분의 하면에 상기 탄성 부재(330)가 결합된다. 상기 탄성 부재(330)는 외력에 의하여 상기 결합부(320)의 외력에 의하여 탄성적으로 이동한다. 즉, 상기 결합부(320)는 외력이 작용했을 때, 상기 홈(121)에서 돌출되 지 않으며, 외력이 제거되었을 때, 상기 홈(121)에서 돌출된다.

여기서, 상기 본체 브라켓(100)이 상기 서포터 브라켓(200)에 결합될 때, 상기 결합부(320)와 제 4 브라켓(220)은 서로 간 섬을 일으킨다. 보다 상세히 설명하면, 상기 제 1 브라켓(110)에 상기 제 3 브라켓(210)이 삽입되고, 상기 제 1 브라켓(110)을 기준으로 상기 본체 브라켓(100)이 회전하여 상기 제 2 브라켓(120)이 상기 제 4 브라켓(220)의 하부에 위치하게 된다. 이 때, 상기 제 4 브라켓(220)과 상기 결합부(320)는 서로 간섭된다.

따라서, 상기 결합부(320)에 작용하는 외력은 상기 제 4 브라켓(220)에서 발생된다. 즉, 상기 결합부(320)는 상기 제 4 브라켓(220)에 의하여 하량으로 이동된다. 그리고, 상기 탄성 부재(330)에 다시 상부로 이동되어 상기 제 4 브라켓(220)의 홈에 삽입된다.

이 때, 상기 결합부(320)는 상기 제 4 브라켓(220)이 원활히 이동하기 위하여, 그 중심부가 전후 방향으로 갈수록 높이가 낮아지도록 형사져게 형성된다. 따라서, 상기 제 4 브라켓(220)은 상기 돌출부의 정사진 상면을 타고 이동된다. 또한, 상기 본체 브라켓(100)이 상기 서포터 브라켓(200)에서 분리될 때, 상기 제 4 브라켓(220)이 상기 결합부(320)의 정사진 상면 을 타고 원활히 이동된다.

여기서, 상기 제 4 브라켓(220)는 상기 결합부(320)의 상면을 이동할 때 마찰력을 줄이기 위하여 또는 원활히 이동하기 위 하여 도 2b에 도시된 바와 같이 절단되어 홈이 형성되며, 상기 홈은 상기 결합부(320)가 삽입되며, 상기 결합부(320)의 중 양 부분과 총응되는 형상으로 이루어진다.

한편, 상기 케이스(310)는 상기 제 2 브라켓(120)에 결합된다. 삼각형 바와 같이 상기 제 4 브라켓(220)이 상기 제 2 브라 카트(120)의 상부에 위치할 경우, 상기 케이스(310)는 상기 제 2 브라켓(120)의 하면에 결합된다. 상기 케이스(310)는 상기 결합부(320)가 삽입되는 개구부(311)가 형성되고, 상기 개구부(311)는 상기 제 2 브라켓(120)의 홈(121)보다 크게 형성 된다.

한편, 상기 케이스(310)는 그 상면이 상기 제 2 브라켓(120)과 결합될 수 있지만, 보다 건고하고 결합되게 위하여 상기 케이 스(310)는 상부 양 측면에 케이스 브라켓(312)이 형성되고, 상기 케이스 브라켓(312)이 상기 제 2 브라켓(120)과 결합된 다. 여기서, 상기 케이스(310) 브라켓은 라면 또는 측면에 의하여 상기 제 2 브라켓(120)에 결합될 수 있다. 그러나, 상기 고정 수단(300)의 수리등을 위하여 상기 고정 수단(300)이 상기 홈(121)에서 분리되기 쉽도록, 상기 케이스 브라켓(312)은 상기 제 2 브라켓(120)에 복수개의 나사(340)에 의하여 결합된다.
또한, 상기 케이스 브라켓(312)은 상기 제 2 브라켓(120)의 길이 방향으로 형성된다. 상기 케이스 브라켓(312)이 전후 방향으로 상기 케이스(310)에 형성될 경우, 상기 제 2 브라켓(120)의 길이가 증가하기 때문에, 상기 케이스 브라켓(312)은 상기 제 2 브라켓(120)의 길이 방향으로 상기 케이스(310)의 양 측면에 형성된다.

한편, 상기 탄성 부재(330)는 상기 케이스(310)에 삽입되어 상술한 바와 같이 상기 결함부(320)를 탄산적으로 이동시킨다. 그리고, 상기 결함부(320)와 상기 케이스(310)의 허먼에는 상기 탄성 부재(330)의 결함 위치를 안내하는 보스가 형성될 수 있다. 이러한 상기 탄성 부재(330)는 스포팅 고무에 코일 스포팅으로 이루어지는 것이 바람직하다.

또한, 상기 본체 브라켓(100)과 상기 서포터 브라켓(200)의 좌우 결합 위치를 안내하기 위하여, 상기 본체 브라켓(100)의 측면에는 제 1 사이드 브라켓(130)이 형성되고, 상기 서포터 브라켓(200)의 측면에는 제 2 사이드 브라켓(230)이 형성된다. 상기 제 1 사이드 브라켓(130)과 제 2 사이드 브라켓(230)은 상기 본체 브라켓(100)과 상기 서포터 브라켓(200)의 양 측면에서 수직하게 결합되어 형성된다. 그리고, 상기 제 1 사이드 브라켓(130)이 상기 제 2 사이드 브라켓(230)에 삽입되거나, 상기 제 2 사이드 브라켓(230)이 상기 제 1 사이드 브라켓(130)에 삽입되어 상기 본체 브라켓(100)과 상기 서포터 브라켓(220)의 좌우 결합 위치를 안내한다.

이하에서는 상기의 같은 제 1 실시예에 따른 병결이 어셈블리를의 작동을 설명한다.

상기 본체(10)의 후면에는 상기 본체 브라켓(100)이 형성되고, 밖에는 상기 서포터 브라켓(200)이 형성된다. 그리고, 상기 본체(10)는 상기 제 1 브라켓(110)에 상기 제 3 브라켓(210)이 삽입되도록 이동된다. 삽입된 후, 상기 본체(10)는 회전하여 상기 제 2 브라켓(120)이 상기 제 4 브라켓(220)의 하부에 위치한다. 이 때, 상기 고정 수단(300)은 탄성적으로 이동되어 상기 제 4 브라켓(220)과 결합된다. 따라서, 상기 고정 수단(300)은 상기 제 4 브라켓(220)이 이동되거나, 밖에 공기 를 방지한다. 여기서 상기 본체 브라켓(100)과 상기 서포터 브라켓(200)의 좌우 결합 위치는 상기 제 1 사이드 브라켓(130)과 상기 제 3 사이드 브라켓(230)에 의해 안내된다.

도 3에는 본 발명의 제 2 실시예에 따른 영상 표시 장치의 병결이 어셈블리가 도시되어 있다.

도 3은 참조하되, 병결이 어셈블리의 본체 브라켓(100), 고정 수단(300), 서포터 브라켓(200) 그리고 팀 브라켓(400)을 포함하여 이루어진다. 여기서, 상기 본체(10)와 본체 브라켓(100)은 도 1을 참조하여 설명한다.

한편, 본 발명의 제 2 실시예에서 상기 본체 브라켓(100), 상기 고정 수단(300)은 본 발명의 제 1 실시예와 동일한 구성의 사용한다. 따라서, 본 발명의 제 2 실시예에선 상기 본 발명의 제 1 실시예에서 전술한 동일 구성의 내용에 대한 반복 설명은 피하기로 한다.

또한, 제 2 실시예에 따른 상기 서포터 브라켓(200)은 제 1 실시예에 따른 상기 서포터 브라켓(200)과 동일한 구성으로 이루어지며, 밖에 고정되지 않는다. 따라서, 상기 서포터 브라켓(200)의 상기 제 3 브라켓(210)과 제 4 브라켓(220)의 상세한 설명은 생략한다.
그리고, 상기 서포터 브라켓(200)에는 상기 링크 어셈블리(440)와 하지 어셈블리(430)의 결합을 보다 쉽게 하기 위하여 제2 사이드 브라켓(230)이 형성된다. 상기 제2 사이드 브라켓(230)은 상술한 바와 같이 상기 서포터 브라켓(200)의 양 측면에 형성되며, 상기 서포터 브라켓(200)의 중앙 부분에 수직하게 결합된다.

따라서, 상기 제2 사이드 브라켓(230)은 상부가 상기 하지 어셈블리(430)에 의하여 상기 제5 브라켓(410)의 상부와 결합되고, 하부가 상기 하지 어셈블리(430)에 의하여 상기 제5 브라켓(410)의 하부와 결합된다. 여기서, 상기 제2 사이드 브라켓(230)은 제1 실시예에서와 동일하게 상기 본체 브라켓(100)과 상기 서포터 브라켓(200)의 하부 결합 위치를 안내하는 역할도 한다. 이를 위하여, 상기 본체 브라켓(100)의 측면에는 제1 사이드 브라켓(130)이 형성된다.

한편, 상기 제5 브라켓(410)은 상기 본체(10)가 털드 회전할 때, 상기 본체(10)의 전면을 기준으로하여 상하로 회전되기 위하여, 하부가 상보부다 더 격렬하게 형성된다. 따라서, 상기 본체(10)는 벽에서 일정 간격이어져 설계되므로 상하 방향으로 자유롭게 털드 회전될 수 있다. 또한, 상기 제5 브라켓(410)은 강도 보강을 위하여 하방으로 간격하여 간격이 갈려지는 상각형의 형상으로 형성될 수 있다.

또한, 상기 본체(10)가 털드 회전시켜기 위하여, 상기 링크 어셈블리(440)는 갈려가 조절되어 상기 본체(10)와 벽 사이의 간격을 조절한다. 즉, 상기 하지 어셈블리(430)는 상기 제2 브라켓(120)과 제5 브라켓(410)의 하부를 연결하여 회전축 역할을 하며, 상기 링크 어셈블리(440)는 상기 제2 브라켓(120)과 제5 브라켓(410)의 상부 간격을 조절하여, 상기 본체(10)를 털드 회전시킨다.

한편, 상기 링크 어셈블리(440)는 적절도 두개의 링크를 포함하여 이루어진다. 이하에서는 상기 링크 어셈블리(440)는 두 개의 링크를 포함하여 이루어지는 것으로 설명한다.

상기 링크 어셈블리(440)는 상기 제5 브라켓(410)에 회전 가능하게 연결되는 제1 링크(441) 그리고 일족이 상기 제1 링크(441)에 회전 가능하게 연결되고 타측이 상기 서포터 브라켓(200)과 상세히 상기 제2 사이드 브라켓(230)에 회전 가능하게 연결되는 제2 링크(442)를 포함하여 이루어진다.

따라서, 상기 링크 어셈블리(440)는 상기 제1 링크(441)와 제2 링크(442)가 접하거나 털드시 갈려가 조절된다. 즉, 상기 링크 어셈블리(440)는 상기 서포터 브라켓(200)과 상기 털드 브라켓(400) 간의 상부 간격을 조절한다.

또한, 상기 링크 어셈블리(440)는 최대 갈려가 상기 제5 브라켓(410)보다 깊고, 최소 갈려가 상기 제5 브라켓(410)보다 깊게 형성된다. 즉, 상기 제1 링크(441)와 상기 제2 링크(442)가 최대로 털드를 때의 갈려가 상기 제5 브라켓(410)의 하부 깊이보다 깊게 형성되고, 최대로 접혀있을 때의 갈려는 상기 제5 브라켓(410)의 하부 깊이보다 깊게 형성된다.

그리고, 상기 제5 브라켓(410)과 상기 제1 링크(441), 상기 제1 링크(441)와 상기 제2 링크(442) 그리고 상기 제2 사이드 브라켓(230) 중 적어도 어느 하나는 상기 하지 어셈블리(430)에 의하여 형성된다. 그러나, 상기 링크(441, 442)는 단의 연결 및 상기 링크 어셈블리(440)와 상기 제5 브라켓(410)과 제2 사이드 브라켓(230)의 연결에 상기 하지 어셈블리(430)가 모두 사용되는 것이 바람직하다.

한편, 도 4를 참조하여 상기 하지 어셈블리(430)를 상세히 설명한다. 여기서, 상기 제2 사이드 브라켓(230)과 상기 제5 브라켓(410)의 결합을 예를 들어 설명한다. 상기 링크 어셈블리, 상기 제2 사이드 브라켓(230) 그리고 상기 제5 브라켓(410)의 결합도 동일하게 이루어진다.

상기 하지 어셈블리(430)는 상기 본체(10)에 부착되어 상기 서포터 브라켓(200)에 의하여 발생하지 않을 때, 마찰력을 이용하여 상기 본체(10)에 부착되어 상기 서포터 브라켓(200)이 회전하는 것을 방지하는 프록션 히inge(friction hinge)로 이루어진다.

상기 하지 어셈블리(430)는 볼드(431), 너트(432), 평 왜셔(433), 고정 왜셔(434) 그리고 스프링(435)을 포함하여 이루어진다. 여기서 고정 왜셔(434)는 평 왜셔(433)의 임직을 드러나며 형성된다.

상기 제2 사이드 브라켓(230)은 상기 볼드(431)가 삽입되는 관통공(232)이 형성되고, 상기 관통공(232) 주위에 상기 고정 왜셔(434)의 드러나는 부분이 삽입되는 삽입공(231)이 형성된다. 그리고, 상기 제5 브라켓(410)은 상기 볼드(431)가 삽입되는 관통공(437)이 형성되고, 상기 관통공(437) 주위에 상기 고정 왜셔(434)의 드러나는 부분이 삽입되는 삽입공(436)이 형성된다.
따라서, 상기 고정 와서(434)는 상기 제 2 사이드 브라켓(230)과 제 5 브라켓(410)의 양면에 각각 구비되고, 상기 삽입공 (231, 436)에 삽입되어 결합된다. 그리고, 삽기 평 와서(433)는 상기 제 2 사이드 브라켓(230)과 제 5 사이드 브라켓 사이 즉, 상기 고정 와서(434) 사이에 구비된다.

상기 스프링(435)은 디스크 스프링으로 이루어지며, 상기 제 5 브라켓(410)의 외측에 결합되는 상기 고정 와서(434)와 상기 몰트(431)의 머리 사이에 구비되어 상기 원주 이어 bodyParser(430)에 임정 정도 이상의 마찰력을 발생하도록 함을 제공한다. 이 때, 상기 스프링(435)과 상기 몰트(431)의 머리 사이에 평 와서(433)가 더 구비될 수 있다.

그리고, 상기 몰트(431)는 상기 평 와서(433), 고정 와서(434), 제 2 사이드 브라켓(230) 제 5 브라켓(410)을 관통하여 상기 너트(432)와 결합된다.

따라서, 상기 본체(10)에 의력이 발생하지 않을 때, 상기 허리 이어 bodyParser(430)는 고정 와서(434)와 평 와서(433)에서 발생되는 마찰력에 의하여 상기 본체(10)가 자동에 의하여 회전하는 것을 방지한다. 그리고, 상기 허리 이어 bodyParser(430)가 상기 제 2 사이드 브라켓(230)과 상기 제 5 브라켓(410)을 연결시킬 뿐만 아니라, 상기 틀목 이어 bodyParser(440)와 상기 제 5 브 라켓(410)과 상기 제 2 사이드 브라켓(230)도 연결하기 때문에, 상기 본체(10)가 자동에 의하여 회전하는 것을 효율적으 로 방지한다.

도 5에는 본 발명의 제 3 실시예에 따른 영상 표시 장치의 빅걸이 이어 bodyParser가 도시되어 있다.

도 5를 참조하면, 빅걸이 이어 bodyParser는 본체 브라켓(100), 고정 수단(300), 서포터 브라켓(200), 웨일 브라켓(600) 그리고 스 위블 이어 bodyParser(500)를 포함하여 이루어진다. 여기서, 상기 본체(10)와 본체 브라켓(100)은 도 1을 참조하여 설명한다.

한편, 본 발명의 제 3 실시예에서 상기 본체 브라켓(100), 상기 고정 수단(300)은 본 발명의 제 1 실시예와 동일한 구성을 가진다. 따라서, 본 발명의 제 3 실시예에서는 상기 본 체 브라켓(10) 실시예에서 전술한 동일 구성의 내용에 대한 반복 설명 은 피하기로 한다.

또한, 제 3 실시예에 따른 상기 서포터 브라켓(200)은 제 1 실시예에 따른 상기 서포터 브라켓(200)과 동일한 구성으로 이루어지거나, 백에 고정되지 않는다. 따라서, 상기 서포터 브라켓(200)의 상기 제 3 브라켓(210)과 제 4 브라켓(220)의 상세한 설명은 생략한다.

상기 본체 브라켓(100)은 상기 본체(10)의 후면에 결합되고, 상부에는 후크 형상의 제 1 브라켓(110)이 형성되며, 하부에는 환을 가지는 제 2 브라켓(120)이 형성된다. 상기 고정 수단(300)은 상기 환을 결합되어 탈착적으로 이동한다. 상기 서포터 브라켓(200)은 상부에 상기 제 3 브라켓(110)과 결합되는 제 3 브라켓(210)이 형성되며, 하부에는 상기 고정 수단(300)과 결합되는 제 4 브라켓(220)이 형성된다. 그리고, 상기 스위블 이어 bodyParser(500)는 환을 되는 둥근 브라켓(600)은 별도의 결합을 필요로 하지 않으며, 달이 상기 서포터 브라켓(200)에 결합 가능하게 결합된다. 또한, 상기 스위블 이어 bodyParser(500)는 릴과 조합이 가능하다. 여기서, 상기 스위블은 본체(10) 좌우 방향으로 회전 시키는 것을 말한다.

한편, 제 3 실시예에 따른 백각이 이어 bodyParser(400)는 제 1 실시예에 따라 백각이 이어 bodyParser(400)를 포함하여 이루어진다. 상기 틀목 브라켓(400)은 상기 서포터 브라켓(200)과 상기 스위블 이어 bodyParser(500) 사이에 구비되어, 양 측면에는 상기 허리 이어 bodyParser(430)와 상기 틀목 이어 bodyParser(440)에 의하여 상기 서포터 브라켓(200)이 틀목 회전 가능하게 결합되는 제 5 브라켓(410)이 형성되고, 후면에는 상기 스위블 이어 bodyParser(500)가 릴과 결합 가능하게 결합된다. 여기서, 상기 틀목 브라켓(400)은 제 2 실시예에 따른 틀목 브라켓(400)과 동일한 구성으로 이루어지거나, 백에 고정되지 않는다. 따라서, 상기 틀목 브라켓(400)과 상기 틀목 이어 bodyParser(440)는 상기 본체 이어 bodyParser(430)와 상기 서포터 브라켓(200) 간의 결합 관계 및 구성의 상세한 설명은 생략하기로 한다.

상기 스위블 이어 bodyParser(500)는 상기 본체(10)를 백에서 자유 회전시키기 위하여 서로 회전 가능하게 결합되는 적어도 두개 이상의 바(bar)를 포함하여 이루어진다.

따라서, 상기 스위블 이어 bodyParser(500)는 상기 웨일 브라켓(600)에 고정되는 상기 제 1 결합 브라켓(510), 상기 제 1 결합 브라켓(510)에 회전 가능하게 결합되는 제 1 바(520), 상기 틀목 브라켓(400)에 고정되는 제 2 결합 브라켓(530) 그리고 상기 제 2 결합 브라켓(550)에 회전 가능하게 결합되는 제 2 바(530)를 포함하여 이루어진다. 여기서 상기 제 1 바(520)와 제 2 바(530)는 서로 회전 가능하게 결합된다.
또한, 상기 스위블 어셈블리(500)는 상기 본체(10)를 보다 원활히 움직이기 위하여, 일단이 제 1 바(520)와 회전 가능하게 결합되고 타단이 제 2 바(530)와 회전 가능하게 결합되는 제 3 바(540)를 포함하여 이루어진다.

보다 상세히 설명하면, 상기 제 1 결합 브라켓(510)은 상기 일 브라켓(600)에 고정되고, 상면에 상기 제 1 바(520)의 일단이 회전 가능하게 결합되고, 상기 제 1 바(520)의 타단 상면에 상기 제 3 바(540)의 일단이 회전 가능하게 결합된다. 상기 제 3 바(540)의 타단 상면에 상기 제 2 바(530)의 일단이 회전 가능하게 결합되고, 상기 제 2 바(530)의 타단은 상기 제 2 결합 브라켓(550)에 삽입되어 회전 가능하게 결합된다. 그리고, 상기 제 2 결합 브라켓(550)은 리벳, 나사와 같은 결합부에 의하여 상기 일 브라켓(400)과 결합된다.

여기서, 상기 스위블 어셈블리(500)가 접小时前, 즉, 상기 바들의 상면과 하면이 서로 접촉하였을 때, 상기 제 2 브라켓(120)과 제 3 바(540)가 간섭을 일으킬 수 있다. 따라서, 상기 제 1 결합 브라켓(120)의 타단은 하면에 상기 제 2 결합 브라켓(550)의 끝 부분의 두께와 동일하거나 높게 단차가 간다. 그리고, 상기 제 2 결합 브라켓(550)의 끝 부분이 상기 제 2 바(530)의 상기 단차 쪽 부분에 삽입되어, 상기 제 2 결합 브라켓(550)과 상기 제 3 바(540)가 간섭을 일으키는 것을 방지한다.

그리고, 상기 스위블 어셈블리(500)는 볼트(560)와 너트(570)에 의하여 회전 가능하게 결합된다. 즉, 상기 제 1 결합 브라켓(510), 제 2 결합 브라켓(550), 제 1 바(520), 제 2 바(530) 그리고 제 3 바(540)는 서로 회전 가능하게 상기 볼트(560)와 너트(570)에 의하여 결합된다. 여기서, 회전이 보다 원활히 이루어지기 위하여, 상기 스위블 어셈블리(500)는 와셔(580)를 더 포함하여 이루어진다.

한편, 상기 스위블 어셈블리(500)는 보다 안정적으로 상기 본체(10)를 지지하기 위하여, 두개 이상 구비된다. 여기서, 일 브라켓(600)의 폭중이 부족하기 때문에 상기 스위블 어셈블리(500)는 두개로 이루어지는 것이 바람직하다. 또한, 상기 스위블 어셈블리(500)의 길이를 감소 조절하여 상기 본체(10)를 좌우로 이동시킬 수 있으며, 상기 스위블 어셈블리(500)의 길이를 다르게 조절하여 상기 본체(10)를 스위블 회전시킬 수 있다.

그리고, 스위블 어셈블리(500)가 두개로 이루어질 경우, 상기 제 2 결합 브라켓(550)도 두개가 된다. 여기서, 두개의 상기 제 2 결합 브라켓(550)은 서로 연결되어 상기 탄트 브라켓(400)과 결합된다. 이 경우, 상기 제 2 결합 브라켓(550)은 상기 탄트 브라켓(400)과의 접촉면적을 넓혀서, 보다 많은 결합 부재로 결합되기 때문에 보다 견고히 결합된다.

발명의 효과

이상에서 설명한 바와 같이, 본 발명에 따른 영상 표시 장치의 벽걸이 어셈블리는 본체를 밖에 간단히 거치시켜거나, 닫기 시킬 수 있다.

또한, 상기 벽걸이 어셈블리는 좌우 이동, 탄트 회전, 스위블 회전을 하여 사용자에게 보다 넓은 유연 시청각을 제공한다.

본 명세서에서 몇몇의 실시예가 설명되었음에도 불구하고, 그 취지와 범주에서 벗어남 없이 다른 특정 형태로 구체화될 수도 있다는 사실은 당연히에게 자명하다. 그러므로, 상술된 실시예는 예시적인 것으로 여기지 않아, 본 발명의 범위는 원부분 청구항의 범주 및 그 동등 범위 내에서 변경된 모든 특정 형태를 포함한다.

(57) 청구의 범위

청구항 1.

영상을 표시하는 본체의 후면에 결합되고, 상부에는 후크 형상의 제 1 브라켓이 형성되며, 하부에는 홈을 가지는 제 2 브라켓이 형성되는 본체 브라켓;

상기 홈에 결합되어 외력에 의하여 탄성적으로 이동하는 고정 수단. 그리고,

벽에 고정되고, 상부에는 상기 제 1 브라켓과 결합되는 제 3 브라켓이 형성되며, 하부에는 상기 고정 수단과 결합되는 제 4 브라켓이 형성되는 서포터 브라켓을 포함하여 이루어지는 영상 표시 장치의 벽걸이 어셈블리.
청구항 2.

제 1 항에 있어서.

상기 고정 수단은,

중앙 부분이 상기 홈에 삽입되고, 양 단이 제 2 브라켓에 절리도록 형성되는 결합부.

상기 제 2 브라켓에 결합되고, 상기 결합부가 삽입되는 개구부가 형성되는 케이스; 그리고,

상기 케이스와 상기 결합부 사이에 구비되어, 상기 결합부를 탄성적으로 이동시키는 탄성 부재를 포함하여 이루어지는 것을 특징으로 하는 영상 표시 장치의 백결이 어셈블리.

청구항 3.

제 2 항에 있어서.

상기 케이스는 상부 양 측면에 상기 제 2 브라켓과 결합되는 케이스 브라켓이 형성되는 것을 특징으로 하는 영상 표시 장치의 백결이 어셈블리.

청구항 4.

제 3 항에 있어서.

상기 케이스 브라켓은 나사에 의하여 상기 제 2 브라켓과 결합되는 것을 특징으로 하는 영상 표시 장치의 백결이 어셈블리.

청구항 5.

제 2 항에 있어서.

상기 결합부의 중심부는 전후 방향으로 갈수록 높이가 낮아지도록 경사지게 형성되는 것을 특징으로 하는 영상 표시 장치의 백결이 어셈블리.

청구항 6.

제 5 항에 있어서.

상기 제 4 브라켓은 상기 결합부의 중앙 부분과 대응되는 형상으로 이루어지는 것을 특징으로 하는 영상 표시 장치의 백결이 어셈블리.

청구항 7.

제 2 항에 있어서.

상기 탄성 부재는 스프링으로 이루어지는 것을 특징으로 하는 영상 표시 장치의 어셈블리.
청구항 8.
제 1 항에 있어서.

상기 본체 브라켓의 측면에는 상기 본체 브라켓과 상기 서포터 브라켓의 좌우 결합 위치를 안내하는 제 1 사이드 브라켓이 형성되고,

상기 서포터 브라켓의 측면에는 상기 본체 브라켓과 상기 서포터 브라켓의 좌우 결합 위치를 안내하는 제 2 사이드 브라켓이 형성되는 것으로 하는 영상 표시 장치의 벽걸이 어셈블리.

청구항 9.

영상 표시하는 본체의 후면에 결합되고, 상부에는 후크 형상의 제 1 브라켓이 형성되며, 하부에는 홈을 가지는 제 2 브라켓이 형성되며 본체 브라켓.

상기 홈에 결합되어 의역에 의하여 탄성적으로 이동하는 고정 수단.

상부에는 상기 제 1 브라켓과 결합되는 제 3 브라켓이 형성되며, 하부에는 상기 고정 수단과 결합되는 제 4 브라켓이 형성되는 서포터 브라켓; 그리고,

벽에 고정되고, 당 측면에는 현지 어셈블리와 같이 조절되는 팀크 어셈블리에 의하여 상기 서포터 브라켓이 타일 트레일 가 능하게 결합되는 제 5 브라켓이 형성되는 팀크 브라켓(tilt bracket)를 포함하여 이루어지는 영상 표시 장치의 벽걸이 어셈블리.

청구항 10.
제 9 항에 있어서.

상기 제 5 브라켓은 상부가 상기 팀크 어셈블리에 의하여 상기 서포터 브라켓의 상부와 연결되고, 하부가 상기 현지 어셈블리에 의하여 상기 서포터 브라켓의 하부와 연결되는 것을 특징으로 하는 영상 표시 장치의 벽걸이 어셈블리.

청구항 11.
제 10 항에 있어서.

상기 서포터 브라켓의 앞 측면에는 상부가 상기 팀크 어셈블리에 의하여 상기 제 5 브라켓의 상부와 연결되고, 하부가 상기 현지 어셈블리에 의하여 상기 제 5 브라켓의 하부와 연결되는 제 2 사이드 브라켓이 형성되는 것을 특징으로 하는 영상 표시 장치의 벽걸이 어셈블리.

청구항 12.
제 11 항에 있어서.

상기 제 5 브라켓은 하부가 상부보다 더 긴게 형성되는 것을 특징으로 하는 영상 표시 장치의 벽걸이 어셈블리.

청구항 13.
제 12 항에 있어서.

상기 링크 어셈블리는,

상기 제 5 브라켓에 회전 가능하게 연결되는 제 1 링크; 그리고,

일측이 상기 제 1 링크에 회전 가능하게 연결되고, 타측이 상기 서포터 브라켓에 회전 가능하게 연결되는 제 2 링크를 포함하여 이루어지는 것을 특징으로 하는 영상 표시 장치의 백길이 어셈블리.

청구항 14.

제 13 항에 있어서,

상기 제 5 브라켓과 제 1 링크, 상기 제 1 링크와 제 2 링크 그리고 상기 제 2 링크와 상기 서포터 브라켓 중 적어도 어느 하나는 상기 한지 어셈블리에 의하여 결합되는 것을 특징으로 하는 영상 표시 장치의 백길이 어셈블리.

청구항 15.

제 13 항에 있어서.

상기 링크 어셈블리의 최대 길이는 상기 제 5 브라켓의 하부 길이보다 길고, 최소 길이는 상기 제 5 브라켓의 하부 길이 보다 짧은 것을 특징으로 하는 영상 표시 장치의 백길이 어셈블리.

청구항 16.

제 9 항 내지 제 14 항에 있어서.

상기 한지 어셈블리는 상기 서포터 브라켓에 외력이 발생하지 않을 때, 마찰력을 이용하여 상기 서포터 브라켓이 회전하는 것을 방지하는 프릭션 한지(friction hinge)로 이루어지는 것을 특징으로 하는 영상 표시 장치의 백길이 어셈블리.

청구항 17.

영상을 표시하는 본체의 후면에 결합되고, 상부에는 후크 형상의 제 1 브라켓이 형성되며, 하부에는 홀을 가지는 제 2 브라켓이 형성되며 본체 브라켓;

상기 홀에 결합되어 외력에 의하여 탄성적으로 이동하는 고정 수단;

상부에는 상기 제 1 브라켓과 결합되는 제 3 브라켓이 형성되며, 하부에는 상기 고정 수단과 체결되는 제 4 브라켓이 형성되는 서포터 브라켓; 그리고,

일측이 박에 고정되는 일 브라켓에 회전 가능하게 결합되고, 타측이 상기 서포터 브라켓에 회전 가능하게 결합되며, 걸이 조절이 가능한 스위블 어셈블리(swivel assembly)를 포함하여 이루어지는 영상 표시 장치의 백길이 어셈블리.

청구항 18.

제 17 항에 있어서,
상기 서포트 브라켓과 상기 일 브라켓 사이에 구비되어, 양 측면에는 현지 어셈블리를 잡아 조절되는 링크 어셈블리에 의해 상기 서포트 브라켓이 닫트 회전 가능하게 결합되는 제5 브라켓이 형성되고, 후면에는 상기 스위블 어셈블리와 결합되는 닫트 브라켓(tilt bracket)을 포함하여 이루어지는 영상 표시 장치의 백결이 어셈블리.

청구항 19.

제 17 항 또는 제 18 항에 있어서.

상기 스위블 어셈블리는 서로 회전 가능하게 연결되는 적어도 두개 이상의 바(bar)를 포함하여 이루어지는 것을 특징으로 하는 영상 표시 장치의 백결이 어셈블리.

청구항 20.

제 19 항에 있어서.

상기 스위블 어셈블리는.

일 브라켓에 고정되는 상기 제 1 결합 브라켓;

상기 제 1 결합 브라켓에 회전 가능하게 결합되는 제 1 바;

상기 멀트 브라켓에 고정되는 제 2 결합 브라켓;

상기 제 2 결합 브라켓에 회전 가능하게 결합되는 제 2 바; 그리고,

일단이 상기 제 1 바에 회전 가능하게 결합되고, 타단이 제 2 바에 회전 가능하게 결합되는 제 3 바를 포함하여 이루어지는 것을 특징으로 하는 영상 표시 장치의 백결이 어셈블리.

청구항 21.

제 20 항에 있어서.

상기 제 1 결합 브라켓, 제 2 결합 브라켓, 제 1 바, 제 2 바 그리고 제 3 바는 물트와 너트에 의해 회전 가능하게 서로 결합되는 것을 특징으로 하는 영상 표시 장치의 백결이 어셈블리.

청구항 22.

제 17 항 내지 21 항에 있어서.

적어도 두개 이상의 상기 스위블 어셈블리가 상기 일 브라켓과 상기 서포트 브라켓에 결합되는 것을 특징으로 하는 영상 표시 장치의 백결이 어셈블리.

청구항 23.

제 22 항에 있어서.
상기 스위블 어셈블리는 두개 구비될 경우, 두개의 상기 제 2 결합 브라켓은 서로 연결되는 것을 특징으로 하는 영상 표시 장치의 벽걸이 어셈블리.

청구항 24.

제 18 항에 있어서,

상기 서포터 브라켓의 양 측면에 형성되며, 상부가 상기 링크 어셈블리를 위하여 상기 제 5 브라켓의 상부와 연결되고, 하부가 상기 힌치 어셈블리에 위하여 상기 서포터 브라켓의 하부와 연결되는 제 2 사이드 브라켓이 형성되는 것을 특징으로 하는 영상 표시 장치의 벽걸이 어셈블리.

청구항 25.

제 24 항에 있어서,

상기 제 5 브라켓은 하부가 상부보다 더 길게 형성되는 것을 특징으로 하는 영상 표시 장치의 벽걸이 어셈블리.

청구항 26.

제 24 항에 있어서,

상기 링크 어셈블리는, 상기 제 5 브라켓에 회전 가능하게 연결되는 제 1 링크; 그리고, 일측이 상기 제 1 링크에 회전 가능하게 연결되고, 타측이 상기 서포터 브라켓에 회전 가능하게 연결되는 제 2 링크를 포함하여 이루어지는 것을 특징으로 하는 영상 표시 장치의 벽걸이 어셈블리.

청구항 27.

제 26 항에 있어서,

상기 제 5 브라켓과 제 1 링크, 상기 제 1 링크와 제 2 링크 그리고 상기 제 2 링크와 상기 제 서포터 브라켓 중 적어도 어느 하나는 상기 힌치 어셈블리에 위하여 결합되는 것을 특징으로 하는 영상 표시 장치의 벽걸이 어셈블리.

청구항 28.

제 24 항 내지 제 27 항에 있어서,

상기 힌치 어셈블리는 상기 서포터 브라켓에 외력이 발생하지 않을 때, 마찰력을 이용하여 상기 서포터 브라켓이 회전하는 것을 방지하는 브릭션 힌치(friction hinge)로 이루어지는 것을 특징으로 하는 영상 표시 장치의 벽걸이 어셈블리.

청구항 29.

제 9 항 또는 17 항에 있어서.
상기 고정 수단은,

전후 방향으로 길수록 높이가 낮아지도록 정사지게 형성되는 중심부가 상기 홀에 삽입되고, 양 단이 제 2 브라켓에 결리도록 형성되는 결합부.

상부 양 측면에 상기 제 2 브라켓과 결합되는 케이스 브라켓이 형성되고, 상면에 개구부가 형성되어 상기 결합부가 삽입되는 케이스; 그리고,

상기 케이스와 상기 결합부 사이에 구비되어, 상기 결합부를 탄성적으로 이동시키는 탄성 부재를 포함하여 이루어지는 것을 특징으로 하는 영상 표시 장치의 백결이 어셈블리.

청구항 30.

제 9 항 또는 17 항에 있어서,

상기 제 4 브라켓은 상기 결합부의 중앙 부분과 대응되는 형상으로 이루어지는 것을 특징으로 하는 영상 표시 장치의 백결이 어셈블리.

청구항 31.

제 9 항 또는 제 17 항에 있어서,

상기 본체 브라켓의 측면에는 상기 본체 브라켓과 상기 서포터 브라켓의 좌우 결합 위치를 안내하는 제 1 사이드 브라켓이 형성되는 것을 특징으로 하는 영상 표시 장치의 백결이 어셈블리.

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**Warnings:**

**Information:**

| NPL Documents | KROA12092009.pdf | 412029 | no | 4 |

**Warnings:**

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| Foreign Reference | KR20060080005.pdf | 1925138 | no | 21 |

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Kyoungsu KIM and Hakryun KANG

Confirmation No.: 1355

Group Art Unit: 3673

Serial No.: 12/265,022

Examiner: To Be Assigned

Filed: November 5, 2008

Customer No.: 34610

For: CASE LOCKING DEVICE

INFORMATION DISCLOSURE STATEMENT

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Sir:

Pursuant to 37 C.F.R. § 1.56, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO-1449. One copy of each non-U.S. reference is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the “References Cited” on any patent to issue therefrom.

Applicants have listed publication dates on the attached PTO-1449 based on information presently available to the undersigned. However, the listed publication dates should not be construed as an admission that the information was actually published on the indicated date. Applicant reserves the right to establish the patentability of the claimed invention over any of the information provided herewith, and/or to prove that this information may not be prior art, and/or to prove that this information may not be enabling for the teachings purportedly offered. This statement should not be construed as a representation that a search has been made, that information cited in the statement is considered to be and/or is material to patentability, or that information more material to the examination of the present patent application does not exist. The Examiner is specifically requested not to rely solely on the material submitted herewith. It is further understood that the Examiner will consider information that was cited or submitted to the U.S. Patent and Trademark Office in a prior application relied on under 35 U.S.C. §120. 1138 OG 37, 38 (May 19, 1992).

☑ 1. This Information Disclosure Statement is being filed (i) within three months of the U.S. filing date of a U.S. application other than a CPA continued prosecution application under §1.53(d) OR (ii) within three months of the date of entry of the national stage as set forth in §1.491 in an international application OR (iii) before the mailing date of a first Office Action on the merits OR (iv) before the mailing of a first Office Action after the filing of a Request for continued examination under §1.114. No certification or fee is required. 37 C.F.R. §1.97(b).

☐ 2. This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection OR Notice of Allowance OR an action that otherwise closes prosecution in the application. 37 C.F.R. §1.97(c).

☐ a. I hereby state that each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(c)(1). No fee is required.
b. I hereby state that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 C.F.R. §1.97(e)(2).

Please charge our Credit Card in the amount of $180.00 in payment of the fee under 37 C.F.R. §1.17(p) per the attached PTO 2038 form. Please credit or debit Deposit Account No. 16-0607 as needed to ensure consideration of the disclosed information. Two duplicate copies of this paper are attached.

This Information Disclosure Statement is being filed after the mailing date of a Final Rejection OR Notice of Allowance OR an action that otherwise closes prosecution in the application, but on or before payment of the Issue Fee.

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4. The reference was cited in a corresponding Korean application. A copy of the Office Action issued by the Korean Intellectual Property Office dated December 9, 2009 is attached for the Examiner's information.

5. To the extent necessary, a petition for an extension of time under 37 C.F.R. §1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
KED & ASSOCIATES, LLP

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Date: March 8, 2010
Please direct all correspondence to Customer Number 34610
Title: CASE LOCKING DEVICE
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Publication Date: 01/07/2010

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

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This is to certify that the following application annexed hereto is a true copy from the records of the Korean Intellectual Property Office.

출원번호 : 10-2008-0065420
Application Number

출원일 : 2008년 07월 07일
Filing Date
JUL. 07, 2008

출원인 : 주식회사 휴맥스
Applicant(s)

2009년 03월 06일

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【발명의 영문명칭】 Case locking device

【발명자】
【성명】 김경수
【성명의 영문표기】 KIM, Kyoung Su
【주민등록번호】 691109-1XXXXXX
【우편번호】 431-845
【주소】 경기도 안양시 동안구 부림동 한가람 삼성아파트 208동 1106호

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【성명의 영문표기】 KANG, Hak Ryun
【주민등록번호】 761116-1XXXXXX
【우편번호】 464-752
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【주소】 경기도 광주시 오포읍 신현리 588-1 현대모닝사이드2차아파트
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【국적】 KR

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위와 같이 특허청장에게 제출합니다.

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【수수료】

【출원료】 0 면 38,000 원
【가산출원료】 20 면 0 원
【우선권주장료】 0 건 0 원
【심사청구료】 11 항 461,000 원
【합계】 499,000 원
본 발명은, 케이스 체결 장치에 관한 것으로, 예를 들어, 셋탑 박스(SIB) 등과 같은 다양한 유형의 전자기기에 사용되는 외측 케이스(Outer Case)와 내측 케이스(Inner Case)를, 스프링 등과 같은 탄성체의 탄성력을 이용하는 체결수단을 사용하여 체결하고, 상기 체결수단에 의해 체결된 외측 케이스와 내측 케이스를, 별도로 제작된 지그(Jig)를 사용하여 잘 분리할 수 있도록 함으로써, 상기 외측 케이스와 내측 케이스를 보다 용이하게 체결할 수 있게 되며, 또한 일반 사용자가, 상기 외측 케이스와 내측 케이스를 임의로 분리할 수 없게 되므로, 사용자의 임의 조작으로 인해 전자기기에 치명적인 고장이 발생하게 되는 것을 효율적으로 예방할 수 있게 된다.

【대표도】

도 7

【색인어】

외측 케이스, 내측 케이스, 체결수단, 삼입구, 체결구, 지그

21-3
[병세서]

[발명의 명칭]

케이스 체결 장치 (Case locking device)

[발명의 상세한 설명]

[기술분야]

<1> 본 발명은, 케이스 체결 장치에 관한 것으로, 예를 들어, 셋탑 박스(STB) 등과 같은 다양한 유형의 전자기기에 사용되는 외측 케이스(Outer Case)와 내측 케이스(Inner Case)의 체결을 보다 용이하게 함과 아울러, 일반 사용자들이 쉽게 분리하지 못하도록 하기 위한 케이스 체결 장치에 관한 것이다.

[배경기술]

<2> 일반적으로, 디지털 방송을 수신하는 셋탑 박스와 같은 다양한 유형의 전자기기들은, 외측 케이스와 내측 케이스가 체결된 박스 형태로 제조 및 판매되는 데, 예를 들어, 상기 외측 케이스와 내측 케이스는, 스크루(Screw)와 같은 나사못, 또는 볼트(Blot)/너트(Nut)와 같은 체결 소자에 의해 결합하게 체결된다.

<3> 한편, 상기와 같이 외측 케이스와 내측 케이스가, 나사못 또는 볼트/너트와 같은 체결 소자에 의해 체결된 경우, 일반 사용자들은, 가정에서 쉽게 구할 수 있는 일반형 드라이버 또는 섬지형 드라이버 등을 이용하여, 상기 외측 케이스와 내측 케이스를 용이하게 분리할 수 있게 된다.
에를 들어, 일반 사용자들은, 셋탑 박스와 같은 전자기기가 정상적으로 동작하지 않으면, 일자형 드라이버 또는 십자형 드라이버 등을 이용하여, 상기 외측 케이스와 내측 케이스에 채결된 스크루 등을 임의로 분리할 수 있게 된다.

따라서, 일반 사용자의 임의적 조작으로 인해, 전자기기에 잦은적인 고장이 발생하게 되는 사례가 점차 많아지고 있는 데, 이를 미연에 방지할 수 있도록 하기 위한 효율적인 해결 방안이 아직 마련되어 있지 않은 설정이다.

【발명의 내용】

【해결하고자 하는 과제】

본 발명은, 상기와 같은 설정을 감안하여 장착된 것으로, 예를 들어, 셋탑 박스(STB) 등과 같은 다양한 유형의 전자기기에 사용되는 외측 케이스(Outer Case)와 내측 케이스(Inner Case)를 보다 용이하게 채결할 수 있도록 함과 아울러, 일반 사용자들이, 통상적인 일자(-)형 드라이버 또는 십자(+)형 드라이버 등을 이용하여, 상기 외측 케이스와 내측 케이스를 임의로 분리할 수 없도록 하기 위한 케이스 채결 장치를 제공하는 데, 그 목적이 있는 것이다.

【과제 해결 수단】

상기와 같은 목적인 달성하기 위한 본 발명에 따른 케이스 채결 장치는, 내측 케이스, 외측 케이스 및 가압력에 의해, 상기 내측 케이스와 외측케이스를 결
함 또는 분리시키기 위한 체결수단을 포함하는 것을 특징으로 하며,

<8> 또한, 상기 내측 케이스의 측면에는, 상기 체결수단을 삽입하기 위한 삽입구가 형성되어 있고, 상기 외측 케이스의 측면에는, 상기 삽입구 내에 삽입된 체결수단과의 체결을 위한 체결구가 형성되어 있는 것을 특징으로 하며,

<9> 또한, 상기 체결수단은, 상기 내측 케이스와 외측 케이스를 체결하기 위한 탄성체를 포함하여 구성된 것을 특징으로 하며,

<10> 또한, 상기 체결수단은, 수직 또는 수평 방향에서 인가되는 외측 케이스의 가압력에 의해, 내측 케이스의 내측으로 이동된 후, 상기 탄성체의 탄성력에 의해 외측 케이스와 내측 케이스를 체결시키는 것을 특징으로 하며,

<11> 또한, 상기 체결수단은, 수직 또는 수평 방향에서 인가되는 지그의 돌기의 가압력에 의해, 내측 케이스의 내측으로 이동되어, 상기 외측 케이스와 내측 케이스를 분리시키는 것을 특징으로 하며,

<12> 또한, 상기 지그의 돌기는, 외측 케이스와 내측 케이스의 사이에 노출된 체결구에 삽입되도록, 상기 체결수단의 체결 위치에 대응되는 위치에 형성되어 있는 것을 특징으로 하며,

<13> 또한, 상기 체결수단은, 외부에서 보이지 않도록 상기 케이스 내측에 구비된 것을 특징으로 하며,

<14> 또한, 상기 체결수단은, 커버 프론트, 후크, 탄성체, 그리고 커버 리어를 포함하여 구성되는 것을 특징으로 하며.
또한, 상기 후크에는, 서로 다른 반대 방향의 점사각을 갖는 다수의 돌기를
이 형성되어 있는 것을 특징으로 하며,

또한, 상기 삽입구는, 넓은 면적과 좁은 면적의 접시 홈 하나로 연결 형성
되어 있는 것을 특징으로 하며,

또한, 상기 체결구는, 외측 케이스의 측면을 통하는 1 개의 홈과, 외측 케
이스의 측면 및 하면을 서로 연결되어 통하는 2 개의 홈으로 이루어진 것을 특징으
로 한다.

【효과】

본 발명에 따른 케이스 체결 장치는, 애를 들어, 셋탑 박스(STB) 등과 같은
다양한 유형의 전자기기에 사용되는 외측 케이스(Outer Case)와 내측 케이스(Inner
Case)를, 스프링 등과 같은 탄성체의 탄성력을 이용하는 체결수단을 사용하여 체결
하고, 상기 체결수단에 의해 체결된 외측 케이스와 내측 케이스를, 별도로 제작된
지그(Jig)를 사용해야만 분리할 수 있도록 함으로써, 상기 외측 케이스와 내측 케
이스를 보다 용이하게 체결할 수 있게 되며, 또한 일반 사용자가, 상기 외측 케이
스와 내측 케이스를 임의로 분리할 수 없게 되므로, 사용자의 임의 조작으로 인해
전자기기에 치명적인 고장이 발생하게 되는 것을 효율적으로 예방할 수 있게 된다.
【발명의 실시를 위한 구체적인 내용】

이하, 본 발명에 따른 케이스 체결 장치에 대한 바람직한 실시예에 대해, 철부된 도면을 참조하여 상세히 설명한다.

우선, 본 발명에 따른 케이스 체결 장치는, 외측 케이스와 내측 케이스가 체결되어 박스 형태 등으로 체결되는 다양한 유형의 전자기기에 적합할 수 있는 것으로, 예를 들어, 본 발명이 적용되는 셋탑 박스(STB)와 같은 전자기기의 외측 케이스와 내측 케이스는, 스프링 등과 같은 탄성체의 탄성력을 이용하는 체결수단에 의해 체결된다.

예를 들어, 도 1에 도시한 바와 같이, 본 발명에 따른 체결수단으로서 사용되는 고정 유니트(Locking Unit)(10)는, 커버 프론트(Cover Front)(100), 후크(Hook)(101), 탄성체(Spring)(102), 그리고 커버 라이어(Cover Rear)(103)가 조립된 어셈블리(Assembly)로 구성된다.

한편, 상기 후크(101)의 중앙에는, 예를 들어 + 방향의 경사각을 갖는 1 개의 돌기가 형성되고, 상기 후크(101)의 양쪽에는, - 방향의 경사각을 갖는 2 개의 돌기가 형성된다.

또한, 상기 고정 유니트(10)는, 내측 케이스의 양측면에 형성된 삽입구(Insert Hole)에 삽입되는 데, 예를 들어 도 2에 도시한 바와 같이, 상기 내측 케이스(20)의 양측면에는, 4 개의 고정 유니트(10~13)를 삽입하기 위한 4 개의 삽입구(200~203)가 형성된다.
그리고, 상기 삽입구는, 넓은 면적과 좁은 면적의 관통 흔이 하나로 연결 형성되어 있기 때문에, 상기 고정 유니트(10)는, 상기 삽입구의 넓은 면적을 통해 먼저 삽입된 후, 그 상태에서 좌/우 측면의 좁은 면적으로 이동되어, 좁은 면적이 견고하게 삽입된다.

한편, 도 3에 도시한 바와 같이, 상부 유니트(30)의 암축면에는, 4 개의 고정 유니트(10-13)와의 체결을 위한 4 개의 체결구(300-303)가 형성되는데, 상기 체결구는, 외측 케이스의 측면을 관통하는 1 개의 홀과, 외측 케이스의 측면 및 하면을 관통하는 나온(나) 지 형상을 갖는 2 개의 홀로 이루어진다.

예를 들어, 도 4에 도시한 바와 같이, 상기 내측 케이스(20)의 삽입구 내에 고정 유니트(300)가 삽입된 상태에서, 상기 체결구(300)가 형성된 외측 케이스(30)를, 하측 수직 방향으로 서서히 내리게 되면, 상기 고정 유니트(300)의 중앙에 형성된 돌기가, 상기 내측 케이스의 내측으로 점차 이동하게 된다.

그리고, 이후, 상기 고정 유니트(300)의 탄성체의 탄성력에 의해, 상기 고정 유니트의 돌기가, 원래대로 돌출되기 때문에, 상기 외측 케이스의 체결구(300) 내, 상기 고정 유니트의 돌기가 돌출 삽입되므로, 결국 외측 케이스와 내측 케이스를 응이하게 체결시킬 수 있게 된다.

또한, 상기와 같은 과정을 거쳐 외측 케이스와 내측 케이스가 체결된 상태에서, 전자기기의 배면도를 보면, 도 2에 도시한 바와 같이, 외측 케이스(30)의 양측 하단부에, 8 개의 작은 홈들이 4 개의 쌍으로 노출된다.
한편, 상기와 같이 도출된 8개의 작은 홈들 내에 각각 삽입되도록, 도 6에 도시한 바와 같이, 8개의 둥근이 4개의 꼭(400-403)으로 둥근 형성된 지그(Jig)(40)를 별도로 제작하여, 상기 외측 케이스와 내측 케이스를 분리할 때 사용하게 된다.

예를 들어, 도 6에 도시한 바와 같이, 고정 유니트가 외부에서 보이지 않은 상태에서, 상기 외측 케이스와 내측 케이스가 복합된 전자기기를, 상기 지그에 적절히 안착시킨 후, 수직 방향으로 천천히 누르게 되면, 도 7에 도시한 바와 같이, 상기 지그에 형성된 둥근(400)가, 상기 외측 케이스에 형성된 체결구(300)에 삽입되면서, 상기 고정 유니트(미무호)를 내측 케이스의 내측으로 점차 밀게 되므로, 결국 상기 고정 유니트에 의해 체결된 외측 케이스와 내측 케이스가 자연스럽게 분리된다.

따라서, 상기와 같은 지그를 구비하고 있지 않은 일반 사용자들은, 외측 케이스와 내측 케이스를 염두로 분리할 수 없게 되므로, 사용자의 염두 조각으로 인해 전자기기에 치명적인 고장이 발생하게 되는 것을 효율적으로 예방할 수 있게 된다.

이상, 전술한 본 발명의 바람직한 실시예는, 예시의 목적을 위해 개시된 것으로, 당연하리라, 이와 정부된 특허정규범위에 개시된 본 발명의 기술적 사상과 그 기술적 범위 내에서, 또는 다른 다양한 실시예들을 개량, 변경, 대체 또는 부가 등이 가능한 것이다.
【특허청구범위】

【청구항 1】

내측 케이스;
외측 케이스; 및

가압력에 의한 상기 내측 케이스와 외측케이스를 결합 또는 분리시키기 위한 체결수단을 포함하는 것을 특징으로 하는 케이스 체결 장치.

【청구항 2】

제 1항에 있어서,

상기 내측 케이스의 측면에는, 상기 체결수단을 삽입하기 위한 삽입구가 형성되어 있고,

상기 외측 케이스의 측면에는, 상기 삽입구 내에 삽입된 체결수단과의 체결을 위한 체결구가 형성되어 있는 것을 특징으로 하는 케이스 체결 장치.

【청구항 3】

제 1항에 있어서,

상기 체결수단은, 상기 내측 케이스와 외측 케이스를 체결하기 위한 탄성체를 포함하여 구성된 것을 특징으로 하는 케이스 체결 장치.

【청구항 4】

제 4항에 있어서,

상기 체결수단은, 수직 또는 수평 방향에서 일어나는 외측 케이스의 가압력
에 의해, 내측 케이스의 내측으로 이동된 후, 상기 탄성체의 탄성력에 의해 외측케이스와 내측케이스를 채결시키는 것을 특징으로 하는 케이스 채결 장치.

【청구항 5】

제1항에 있어서.

상기 채결수단은, 수직 또는 수평 방향에서 인가되는 지그의 돌기의 가압력에 의해, 내측 케이스의 내측으로 이동되어, 상기 외측 케이스와 내측 케이스를 분리시키는 것을 특징으로 하는 케이스 채결 장치.

【청구항 6】

제5항에 있어서.

상기 지그의 돌기는, 외측 케이스와 내측 케이스의 사이에 노출된 채결구에 삽입되도록, 상기 채결수단의 채결 위치에 대응되는 위치에 형성되어 있는 것을 특징으로 하는 케이스 채결 장치.

【청구항 7】

제1항에 있어서.

상기 채결수단은, 외부에서 보이지 않도록 상기 케이스 내측에 구비된 것을 특징으로 하는 케이스 채결 장치.

【청구항 8】

제1항에 있어서.

상기 채결수단은, 커버 프론트, 후크, 탄성체, 그리고 커버 라이트를 포함하여
구성되는 것을 특징으로 하는 케이스 체결 장치.

【청구항 9】

제 8항에 있어서.

상기 후크에는, 서로 다른 반대 방향의 정사각을 갖는 다수의 돌기들이 형성되어 있는 것을 특징으로 하는 케이스 체결 장치.

【청구항 10】

제 2항에 있어서.

상기 살립구는, 넓은 면적과 좁은 면적의 관통 홈이 하나로 연결 형성되어 있는 것을 특징으로 하는 케이스 체결 장치.

【청구항 11】

제 2항에 있어서.

상기 체결구는, 외측 케이스의 측면을 관통하는 1 개의 홈과, 외측 케이스의 측면 및 하면을 서로 연결되어 관통하는 2 개의 홈으로 이루어진 것을 특징으로 하는 케이스 체결 장치.

【도면의 간단한 설명】

<33> 도 1은 본 발명에 따른 케이스 체결 장치에 적용되는 고정 유니트에 대한 실 시예를 도시한 것이고,

<34> 도 2는 본 발명에 따른 케이스 체결 장치에 적용되는 내측 케이스에 대한 실 시예를 도시한 것이고,
도 3은 본 발명에 따른 케이스 체결 장치에 적용되는 외측 케이스에 대한 설치 예를 도시한 것이고,

도 4는 본 발명에 따른 외측 케이스와 내측 케이스가 체결되는 설치 예를 도시한 것이고,

도 5는 본 발명에 따른 외측 케이스와 내측 케이스가 체결된 상태에서의 배면도를 도시한 것이고,

도 6은 본 발명에 따른 지그에 대한 설치 예를 도시한 것이고,

도 7은 본 발명에 따른 지그의 돌기에 의해 고정 유니트가 내측 케이스의 내측으로 이동되는 설치 예를 도시한 것이다.

※ 도면의 주요 부분에 대한 부호의 설명

10 ~ 13: 고정 유니트  20: 내측 케이스
30: 외측 케이스  40: 지그
100: 커버 프론트  101: 후크
102: 탄성체  103: 커버 리어
200 ~ 203: 삽입구  300 ~ 303: 체결구
400 ~ 403: 돌기
【도면】

【도 1】

제출 일자 : 2008-07-07
【도 5】
【도 6】
【도 7】

제출 일자 : 2008-07-07
Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections.

Applicant(s)
Kyoungsu KIM, Anyang-si, KOREA, REPUBLIC OF;
Hakryun KANG, Gwangju-si, KOREA, REPUBLIC OF;

Power of Attorney: The patent practitioners associated with Customer Number 34610

Domestic Priority data as claimed by applicant

Foreign Applications
REPUBLIC OF KOREA 10-2008-0065420 07/07/2008

Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper Request to Retrieve Electronic Priority Application(s) (PTO/SB/38 or its equivalent). Consequently, the USPTO will attempt to electronically retrieve these priority documents.

If Required, Foreign Filing License Granted: 11/28/2008

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US 12/265,022

Projected Publication Date: 01/07/2010

Non-Publication Request: No

Early Publication Request: No
PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process simplifies the filing of patent applications on the same invention in member countries, but does not result in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as
set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

**NOT GRANTED**

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of  
Kyoungsu KIM and Hakryun KANG  
Serial No.: 12/265,022  
Filed: November 5, 2008  
For: CASE LOCKING DEVICE

Confirmation No.: 1355  
Group Art Unit: 3679  
Examiner: To Be Assigned  
Customer No.: 34610

REPLY TO NOTICE OF INCOMPLETE REPLY  
FILING DATE GRANTED

U.S. Patent and Trademark Office  
Customer Service Window, MAIL STOP MISSING PARTS  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Sir:

In reply to the Notice of Incomplete Reply dated January 21, 2008, submitted herewith are the following documents for filing in the above-referenced application:

☑ Letter Submitting Formal Drawings (Seven (7) sheets (Figures 1-7)).

It is requested that an Official Filing Receipt showing the data contained herewith now be issued.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim  
Registration No. 36,186

Correspondence Address:  
P.O. Box 221200  
Chantilly, VA 20153-1200  
703 766-3777 DYK/dak

Date: February 2, 2009
Please direct all correspondence to Customer Number 34610
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Kyoungsu KIM and Hakryun KANG

Serial No.: 12/265,022

Filed: November 5, 2008

For: CASE LOCKING DEVICE

OFFICIAL DRAFTSMAN
Confimation No.: 1355
Group Art Unit: 3679
Examiner: To Be Assigned
Customer No.: 34610

U.S. Patent and Trademark Office
Customer Service Window, MAIL STOP DRAWINGS
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

Please find attached hereto seven (7) sheets (Figures 1-7) of formal drawings in connection with the above-identified application. Please substitute the seven (7) Replacement Sheets (Figures 1-7) of formal drawing for the seven (7) sheets (Figures 1-7) of formal drawings previously filed in connection with this application.

If the Examiner has any questions, please contact the undersigned at the telephone number listed below.

Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,

KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186

Correspondence Address:
P.O. Box 221200
Chantilly, VA 20153-1200
703 766-3777 dyk@dak

Date: February 2, 2009

Please direct all correspondence to Customer Number 34610
**Electronic Acknowledgement Receipt**

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**Warnings:**

**Information:**

| Total Files Size (in bytes): | 460776 |

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
NOTICE OF INCOMPLETE REPLY (NONPROVISIONAL)

Filing Date Granted

The U.S. Patent and Trademark Office has received your reply on 01/08/2009 to the Notice to File Missing Parts (Notice) mailed 12/03/2008 and it has been entered into the nonprovisional application. The reply, however, does not include the following items required in the Notice.

The period of reply remains as set forth in the Notice. You may, however, obtain EXTENSIONS OF TIME under the provisions of 37 CFR 1.136(a) accompanied by the appropriate fee (37 CFR 1.17(a)).

A complete reply must be timely filed to prevent ABANDONMENT of the above-identified application. Replies should be mailed to: Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

Items Required to Avoid Abandonment:

The required items noted below SHOULD be filed along with any items required above. The filing date of this nonprovisional application will be the date of receipt of the items required above.

The application is informal since it does not comply with the regulations for the reason(s) indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

• Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
  • The drawings must be reasonably free from erasures and must be free from alterations, overwriting, interlineations, folds, and copy marks. See Figure(s) A.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.
Replies should be mailed to:
Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web. https://sporal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

/thailemariam/

_________________________________________________________
Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Kyoungsu KIM and Hakryun KANG

Confirmation No.: 1355

Group Art Unit: 3679

Serial No.: 12/265,022

Examiner: To Be Assigned

Filed: November 5, 2008

Customer No.: 34610

For: CASE LOCKING DEVICE

REPLY TO NOTICE TO FILE MISSING PARTS OF APPLICATION
FILING DATE GRANTED

U.S. Patent and Trademark Office
Customer Service Window, MAIL STOP MISSING PARTS
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

In reply to the Notice of Missing Parts of Application dated December 3, 2008, submitted herewith are the following documents for filing in the above-referenced application:

☐ Declaration and Power of Attorney.
☐ Filing Fee of $1,090.00.
☐ Late filing surcharge of ☐ $130.00 (large entity).
☐ Authorization to Treat a Reply as Incorporating An Extension of Time under 37 C.F.R. §1.136(a)(3).
☐ Please charge my Credit Card in the amount of $1,220.00.
☐ Letter Submitting Formal Drawings (Seven (7) sheets (Figures 1-7)).

It is requested that an Official Filing Receipt showing the data contained herewith now be issued.
Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186

Correspondence Address:
P.O. Box 221200
Chantilly, VA 20153-1200
703 766-3777  DYL/dak

Date: January 8, 2009
Please direct all correspondence to Customer Number 34610
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of  

Kyoungsu KIM and Hakryun KANG

OFFICIAL DRAFTSMAN

Confirmation No.: 1355

Group Art Unit: 3679

Serial No.: 12/265,022

Examiner: To Be Assigned

Filed: November 5, 2008

Customer No.: 34610

For: CASE LOCKING DEVICE

LETTER SUBMITTING FORMAL DRAWINGS

U.S. Patent and Trademark Office
Customer Service Window, MAIL STOP DRAWINGS
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

Please find attached hereto seven (7) sheets (Figures 1-7) of formal drawings in connection with the above-identified application. Please substitute the seven (7) Replacement Sheets (Figures 1-7) of formal drawing for the seven (7) sheets (Figures 1-7) of formal drawings previously filed in connection with this application.

If the Examiner has any questions, please contact the undersigned at the telephone number listed below.

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Respectfully submitted,
KED & ASSOCIATES, LLP

Daniel Y.J. Kim
Registration No. 36,186

Correspondence Address:
P.O. Box 221200
Chantilly, VA 20153-1200
703 766-3777 DYN/dak

Date: January 8 2009

Please direct all correspondence to Customer Number 34610
Fig. 1
Fig. 7

300

400

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REPLACEMENT SHEET
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**Total in USD ($)**  1220
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**Warnings:**

**Information:**

| 2   | Fee Worksheet (PTO-06) | fee-info.pdf | 36858 | no  | 2   |

**Warnings:**

**Information:**

Total Files Size (in bytes): 965381

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections.

Applicant(s)
Kyoungsu KIM, Anyang-si, KOREA, REPUBLIC OF;
Hakryun KANG, Gwangju-si, KOREA, REPUBLIC OF;

Power of Attorney: The patent practitioners associated with Customer Number 34610

Domestic Priority data as claimed by applicant

Foreign Applications
REPUBLIC OF KOREA 10-2008-0065420 07/07/2008

Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper Request to Retrieve Electronic Priority Application(s) (PTO/SB/38 or its equivalent). Consequently, the USPTO will attempt to electronically retrieve these priority documents.

If Required, Foreign Filing License Granted: 11/28/2008

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US 12/265,022

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No
PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process simplifies the filing of patent applications on the same invention in member countries, but does not result in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15
GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as
set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

**NOT GRANTED**

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).
NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given TWO MONTHS from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

• The statutory basic filing fee is missing.
  Applicant must submit $330 to complete the basic filing fee for a non-small entity. If appropriate, applicant may make a written assertion of entitlement to small entity status and pay the small entity filing fee (37 CFR 1.27).

The application is informal since it does not comply with the regulations for the reason(s) indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

• Replacement drawings in compliance with 37 CFR 1.84 and 37 CFR 1.121(d) are required. The drawings submitted are not acceptable because:
  • The drawings must be reasonably free from erasures and must be free from alterations, overwriting, interlineations, folds, and copy marks. See Figure(s) All.

Applicant is cautioned that correction of the above items may cause the specification and drawings page count to exceed 100 pages. If the specification and drawings exceed 100 pages, applicant will need to submit the required application size fee.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

• To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.16(f) of $130 for a non-small entity, must be submitted with the missing items identified in this notice.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is $1220 for a non-small entity
• $330 Statutory basic filing fee.
• $130 Surcharge.
• The application search fee has not been paid. Applicant must submit $540 to complete the search fee.
• The application examination fee has not been paid. Applicant must submit $220 to complete the examination fee for a non-small entity.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web. https://sporal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at http://www.uspto.gov/ebc.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

/masfaw/

________________________________________
Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101
### Multiple Dependent Claim
#### Fee Calculation Sheet
Substitute for Form PTO-1360

(For use with Form PTO/SB/06)

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This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.
UTILITY PATENT APPLICATION TRANSMITTAL UNDER 37 C.F.R.§1.53(b)

U.S. Patent and Trademark Office
Customer Service Window, MAIL STOP PATENT APPLICATION
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Docket No.: RPL-0337

Sir:

Transmitted herewith for filing is the patent application of
INVENTORS: Kyoungsu KIM and Hakryun KANG

FOR: CASE LOCKING DEVICE

Enclosed are:

1. ☑ 12 pages of specification, claims, abstract
2. ☑ 7 sheets of FORMAL drawings
3. ☑ 2 pages of newly executed Declaration & Power of Attorney (copy or original)
5. □ Applicant claims Small Entity Status
6. □ Information Disclosure Statement, Form PTO-1449 and references

7. ☑ Assignment papers for HUMAX Co., Ltd. cover sheet, assignment and assignment fee) (To Follow)
8. ☑ Certified copy of Priority Application No. 10-2008-0065420 filed on July 7, 2008 in Korea (To Follow)
9. ☑ Two (2) return postcards
   □ Stamp & Return with Courier
   □ Prepaid postcard-stamped filing date & returned with unofficial Serial Number
10. □ Authorization under 37 C.F.R. §1.136(a)(3)
12. □ Other:

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☐ A check in the amount of $________ (Check #________) is attached.

☐ Please charge my Credit Card.

☐ Please charge my Deposit Account No. 16-0607 in the amount of $____. A duplicate copy of this sheet is enclosed.

☐ The Commissioner is hereby authorized to charge payment of following fees during the pendency of this application or credit any overpayment to Deposit Account No. 16-0607.

☐ Any additional filing fees required under 37 C.F.R. 1.16.

☐ Any patent application processing fees under 37 C.F.R. 1.17.

☐ Any filing fees under 37 C.F.R. 1.16 for presentation of extra claims.

Respectfully submitted,
KED & ASSOCIATES, LLP

[Signature]

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Date: November 5, 2008

Please direct all correspondence to Customer Number 3610
CASE LOCKING DEVICE

This application claims the benefit of Korean Patent Application No. 10-2008-0065420 filed on July 07, 2008, which is hereby incorporated by reference.

BACKGROUND

Field

[01] The present invention relates to a case locking device, and more specifically to a case locking device that enables locking to be more easily done between an outer case and an inner case that are used for various types of electronic devices, for example, such as set-top boxes and the like, and prevents a general user from separating between the two cases arbitrarily.

Description of the Related Art

[02] In general, various types of electronic devices, such as set-top boxes receiving digital broadcast, are manufactured and sold in the form of a box that has an outer case and an inner case locked to the outer case. The outer case and the inner case are firmly locked, for example, by screws or other connecting elements such as bolts and nuts.
[03] In the meanwhile, a general user may easily separate the outer case and the inner case from each other by using a flat-head screw driver or Phillips screw driver that may be easily obtained at home when the outer case and the inner case are locked to each other through screws or other connecting elements such as bolts and nuts.

[04] For instance, the general user may arbitrarily release the screws that join the outer case to the inner case by using a flat-head screw driver or Phillips screw driver when an electronic device such as a set-top box does not operate normally.

[05] Accordingly, the number of catastrophic failures gradually increases due to user’s arbitrary manipulations. However, there are not yet prepared any solutions of being capable of effectively preventing such failures in advance.

SUMMARY

[06] The present invention is made in consideration of the above problem, and an aspect of the present invention provides a case locking device that does not only enable locking to be more easily done between an outer case and an inner case that are used, for example, for various types of electronic devices such as set-top boxes and the like, but
also prevents a general user from arbitrarily separating the outer case and the inner case from each other by using a common flat-head screw driver or Phillips screw driver.

BRIEF DESCRIPTION OF THE DRAWINGS

[07] The accompany drawings, which are included to provide a further understanding of the invention and are incorporated on and constitute a part of this specification illustrate embodiments of the invention and together with the description serve to explain the principles of the invention.

[08] FIG. 1 is a view illustrating a locking unit applying to a case locking device according to an exemplary embodiment of the present invention.

[09] FIG. 2 is a view illustrating an inner case applying to a case locking device according to an exemplary embodiment of the present invention.

[10] FIG. 3 is a view illustrating an outer case applying to a case locking device according to an exemplary embodiment of the present invention.

[11] FIG. 4 is a view illustrating processes where an outer case and an inner case are connected to each other according to an exemplary embodiment of the present invention.
[12] FIG. 5 is a rear view illustrating a state where an outer case and an inner case are connected to each other according to an exemplary embodiment of the present invention.

[13] FIG. 6 is a view illustrating a jig according to an exemplary embodiment of the present invention.

[14] FIG. 7 is a view illustrating processes where a locking unit moves toward the inside of the inner case by protrusions of a jig according to an exemplary embodiment of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[15] Reference will now be made in detail embodiments of the invention examples of which are illustrated in the accompanying drawings.

[16] Hereinafter, a case locking device according to an exemplary embodiment of the present invention will be described in detail with reference to accompanying drawings.

[17] To begin with, the case locking device may apply to various types of electronic devices that are manufactured in the form of a box where an outer case and an inner case are connected to each other. For example, the outer case and the inner case of an electronic device such as a set-top box ("STB") to which the present invention applies are connected
to each other by a connecting means using a resilient force exerted from an elastic material such as a spring.

[18] For instance, the locking unit 10 used as a connecting means according to the present invention is configured as an assembly that comprises a cover front 100, a hook 101, a spring 102, and a cover rear 103, as shown in FIG. 1.

[19] In the meanwhile, the hook 101 comprises a protrusion having an inclined angle in the positive direction at its center, and two protrusions having an inclined angle in the negative direction at its both sides.

[20] In addition, the locking unit 10 is inserted into an insert hole that is formed at both sides of the inner case. For example, the inner case 20 has four insert holes 200 to 203 at its both sides to insert four locking units 10 to 13 as shown in FIG. 2.

[21] And, each insert hole comprises a through hole with a narrow area and a through hole with a broad area that are integrally formed. Accordingly, the locking unit 10 is firstly inserted through the through hole with the broad area and then transferred in left or right direction toward the through hole with the narrow area. By doing so, the locking unit 10 may be firmly inserted in the through hole with the narrow area.
[22] In the meanwhile, four fasteners 300 to 303 are provided at both sides of the outer case 30 to connect to the four locking units 10 to 13 as shown in FIG. 3. Each fastener comprises one hole that penetrates a side surface of the outer case and two holes that penetrate the side surface and the bottom surface of the outer case and has the shape of the letter "L".

[23] For example, the protrusion formed in the middle of the locking unit 10 gradually moves toward the inside of the inner case when the outer case 30 having the fastener 300 is gradually brought down in the vertical direction, with the locking unit 10 inserted in the insertion hole of the inner case 20, as shown in FIG. 4.

[24] Thereafter, the protrusion of the locking unit returns to the original location by a resilient force exerted from the spring comprised in the locking unit 300, and therefore, the protrusion of the locking unit is inserted into the fastener 300 of the outer case. Consequently, the inner case may be easily connected to the outer case.

[25] Eight small holes are exposed in four pairs from both sides of the bottom end of the outer case 30, with the outer case and the inner case connected to each other through the above processes, as shown in FIG. 5 which is a rear view of the electronic device.
[26] In the meanwhile, a jig 40 is separately prepared, which has eight protrusions provided in four pairs 400 to 403, each of which is inserted into each of the small holes, as shown in FIG. 6. The protrusions are used to separate the outer case and the inner case from each other.

[27] For instance, the electronic device whose outer case is connected to the inner case is properly seated over the jig with the locking units not viewed from the outside, as shown in FIG. 6. When the electronic device is gradually pressed down in the vertical direction in this state, the protrusion 400 formed on the jig is inserted into the fastener 300 formed on the outer case and pushes the locking unit (not shown in FIG. 6) toward the inside of the inner case. Accordingly, the outer case and the inner case locked to each other by the locking unit may be naturally separated.

[28] As a consequence, the general user may not arbitrarily disconnect the outer case and the inner case from each other without the jig, so that catastrophic failures may be effectively prevented from occurring due to user's arbitrary.

[29] The foregoing embodiments and advantages are merely exemplary and are not to be construed as limiting the present invention. The present teaching can be readily applied to other types of apparatuses. The description of the foregoing embodiments is intended to be illustrative,
and not to limit the scope of the claims. Many alternatives, modifications, and variations will be apparent to those skilled in the art.
What is claimed is:

1. A case locking device comprising:
   an inner case;
   an outer case; and
   a locking means that connects or disconnects the inner case and the outer case by a pressing force.

2. The case locking device of claim 1, wherein
   an insertion hole is provided at a side surface of the inner case to insert the locking means, and
   a fastener is provided at a side surface of the outer case to connect to the locking means inserted in the insertion hole.

3. The case locking device of claim 1, wherein
   the locking means comprises an elastic material for connecting the inner case and the outer case to each other.

4. The case locking device of claim 3, wherein
   the locking means moves toward the inside of the inner case by a pressing force exerted from the outer case in a vertical or horizontal direction and then locks the outer case and the inner case to each other by a resilient force of the elastic material.
5. The case locking device of claim 1, wherein
the locking means moves toward the inside of the inner
case by a pressing force exerted from a protrusion of a jig
in a vertical or horizontal direction to separate the outer
case and the inner case from each other.

6. The case locking device of claim 5, wherein
the protrusion of the jig is provided near a location
(corresponding to connection location of the locking means in
order to be inserted into a fastener exposed between the
outer case and the inner case.

7. The case locking device of claim 1, wherein
the locking means is provided inside the case not to be
seen from the outside.

8. The case locking device of claim 1, wherein
the locking means comprises a cover front, a hook, an
elastic material, and a cover rear.

9. The case locking device of claim 8, wherein
the hook has a plurality of protrusions having inclined
angles formed in different direction.
10. The case locking device of claim 2, wherein
the insert hole comprises a through hole with a narrow
area and a through hole with a broad area that are integrally
formed to each other.

11. The case locking device of claim 2, wherein
the fastener comprises one hole that penetrates a side
surface of the outer case and two holes that penetrate the
side surface and the bottom surface of the outer case.
ABSTRACT OF THE DISCLOSURE

The present invention relates to a case locking device. For example, the outer case and the inner case used for various types of electronic devices such as set-top boxes (STB) are connected by a locking means using a resilient force exerted from an elastic material such as a spring so that the outer case and the inner case may be separated from each other only by using a jig provided separately. Accordingly, the outer case and the inner case may be connected to each other more easily and any general user may be prevented from separating the cases arbitrarily, thus making it possible to effectively prevent catastrophic failures from occurring at the electronic device due to the user’s arbitrary manipulation.
DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter claimed and for which a patent is sought on the invention entitled CASE LOCKING DEVICE, the specification of which
☐ is attached hereto ☐ was filed on ______________ as Application Serial No. _____________ and was amended on ______________ (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose all information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the international or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365 (b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

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I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

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I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose all information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint the attorney(s) and/or agent(s) associated with Customer Number 34610 to prosecute this application and transact all business in the Patent and Trademark Office.
**Direct all correspondence to Customer Number 34610**

| Full name of sole or first inventor: Kyoungru KIM |
|-------------------------------|------------------------|
| Inventor's signature:          | Date: 31, OCT, 2008    |
| Mailing Address: 1109, 208, Hangaram Samsung APT, Burim-dong, Dongan-gu, Anyang-si, Gyunggi-do 431-845 Republic of Korea |
| Citizenship: Republic of Korea  |
| Residence Address              |
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**Title of Invention:** CASE LOCKING DEVICE

**First Named Inventor/Applicant Name:** Kyoungsu KIM

**Customer Number:** 34610

**Filer:** Daniel Y.J. Kim/Deborah Kimberlin

**Filer Authorized By:** Daniel Y.J. Kim

**Attorney Docket Number:** RPL-0337

**Receipt Date:** 05-NOV-2008

**Filing Date:**

**Time Stamp:** 12:25:09

**Application Type:** Utility under 35 USC 111(a)

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Submitted with Payment: no

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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

**National Stage of an International Application under 35 U.S.C. 371**
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.
# PATENT APPLICATION FEE DETERMINATION RECORD

### APPLICATION AS FILED – PART I

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**APPLICATION SIZE FEE (37 CFR 1.16(a))**

- If the specification and drawings exceed 100 sheets of paper, the application size fee due is $270 ($135 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR

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### APPLICATION AS AMENDED – PART II

#### AMENDMENT A

**CLAIMS REMAINING AFTER AMENDMENT**

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**FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))**

**TOTAL ADD'T FEE**

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#### AMENDMENT B

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**FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))**

**TOTAL ADD’T FEE**

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* If the difference in column 1 is less than zero, enter "0" in column 2.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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