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(54) **Thin film dispenser**

(57) A thin film dispenser has a housing (10) and a dispensing unit (20). The housing (10) has an upper casing (11), a lower casing (12) and an engagement device. The upper casing (11) has a first end, a length and an inner surface. The lower casing (12) is combined with the upper casing (11) to define a chamber, and the lower casing (12) has an end, a length and an inner surface. The end of the lower casing (12) is pivotally connected with the first end of the upper casing (11). The length of the lower casing (12) is longer than that of the upper casing (11). The inner surface of the lower casing (12) faces to the inner surface of the upper casing (11). The engagement device is disposed on the inner surfaces of the upper casing (11) and the lower casing (12).

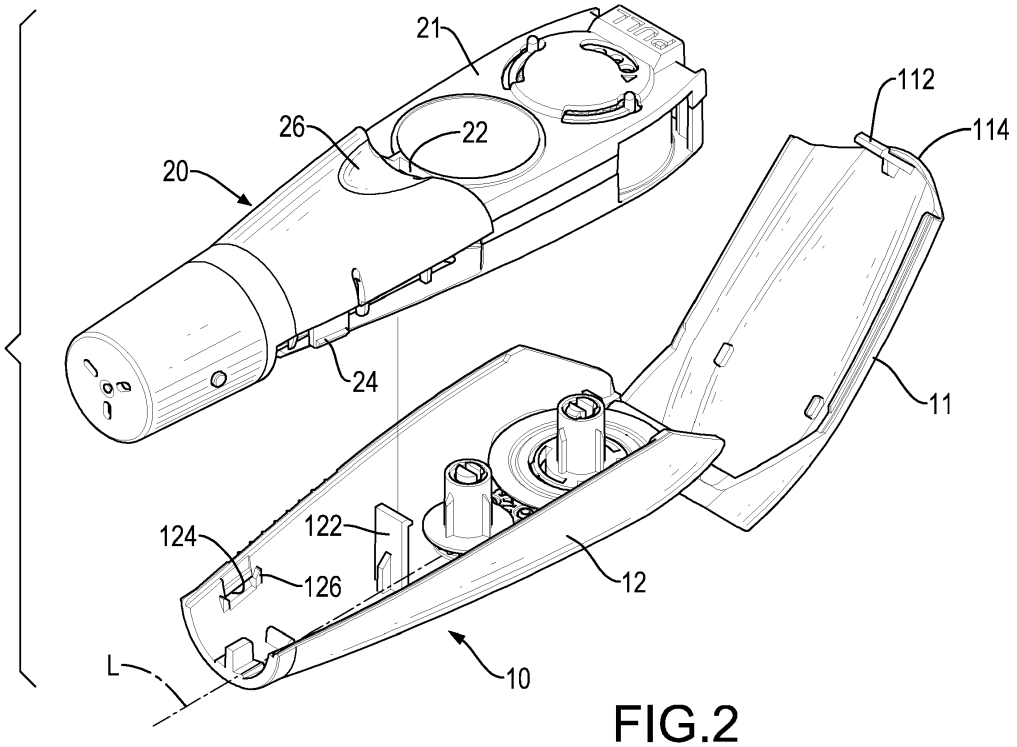

FIG.2

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Description

1. Field of the Invention

[0001] The present invention relates to a thin film dispenser, and more particularly to a thin film dispenser having a housing that can be opened conveniently.

2. Description of Related Art

[0002] A thin film dispenser, such as a correction tape dispenser or an adhesive tape dispenser, substantially comprises a housing and a dispensing unit mounted in the housing. For environmentally friendly purposes and to reduce cost burden of the user, the housing of the thin film dispenser can be opened to allow the user to replace the used dispensing unit with a new one.

[0003] In addition, the conventional housing of the thin film dispenser is composed of two half casings combined with each other, and an engagement device is mounted between the half casings to securely combine the half casings in a closed condition. The conventional engagement device is of a pressable type and comprises two resilient engaging arms and two engaging recesses respectively disposed on sides of the half casings. With the engagement between the engaging arms and the engaging recesses, the half casings are combined with each other. However, to open the housing, the engaging arms have to be pressed to disengage from the engaging recesses, such that the half casings can be detached from each other for replacing the dispensing unit in the housing.

[0004] In addition, the engaging arms and the engaging recesses are disposed on sides of the half casings, such that the half casings have to form a large space for disposing the conventional engagement device. Consequently, the volume of the conventional thin film dispenser is large, and the space for storing, packaging or transporting the conventional thin film dispenser has to be increased. To hold the thin film dispenser with a large volume in a hand of the user is uncomfortable, and the use of the conventional thin film dispenser is inconvenient.

[0005] To overcome the shortcomings, the present invention tends to provide a thin film dispenser to mitigate or obviate the aforementioned problems.

[0006] The main objective of the invention is to provide a thin film dispenser that has an engagement device disposed on inner surfaces of an upper casing and a lower casing of a housing, such that the volume of the housing can be effectively reduced and the space for storing, packaging and transporting the thin film dispenser can also be reduced. And, the thin film dispenser can be easily held, operated or stored by users. The utility and effectiveness of the thin film dispenser can be improved.

[0007] To achieve the aforementioned objective, a thin film dispenser of the present invention has a housing and a dispensing unit. The housing has an upper casing, a lower casing and an engagement device. The upper casing has a first end, a length and an inner surface. The lower casing is combined with the upper casing to define a chamber between the lower casing and the upper casing, and the lower casing has an end, a length and an inner surface. The end of the lower casing is pivotally connected with the first end of the upper casing. The length of the lower casing is longer than that of the upper casing. The inner surface of the lower casing faces to and is spaced from the inner surface of the upper casing. The engagement device is disposed on the inner surfaces of the upper casing and the lower casing. The dispensing unit is mounted in the chamber in the housing.

[0008] With such an arrangement, because the engagement device is disposed between the upper casing and the lower casing of a housing on inner surfaces that face to each other, to open the housing is convenient and laborsaving. In addition, the volume of the housing can be effectively reduced and the space for storing, packaging and transporting the thin film dispenser can also be reduced. Thus, the cost for manufacturing the thin film dispenser can be decreased accordingly. Furthermore, the shape of the thin film dispenser resembles a pen, such that to hold and use the thin film dispenser is easy and convenient and the utility and effectiveness of the thin film dispenser can be improved.

[0009] In addition, with the arrangement of a positioning device between the housing and the dispensing unit, the dispensing unit is combined with the housing at multiple points to prevent the dispensing unit from detaching from the housing arbitrarily, such that the structural stability of the thin film dispenser can be enhanced.

[0010] Other objects, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

IN THE DRAWINGS

[0011]

Fig. 1 is a perspective view of a thin film dispenser with a dispensing unit in accordance with the present invention;

Fig. 2 is an exploded perspective view of the thin film dispenser in Fig. 1;

Fig. 3 is a side view in partial section of the thin film dispenser in Fig. 1;

Fig. 4 is an enlarged partial perspective view of the lower casing of the thin film dispenser in Fig. 1;

Fig. 5 is an operational side view in partial section of the thin film dispenser in Fig. 1, showing the housing opened; and

Fig. 6 is an operational exploded side view in partial section of the thin film dispenser in Fig. 1 showing that the housing is opened for replacing the dispensing unit.

[0012] A thin film dispenser in accordance with the present invention may be a correction tape dispenser, an adhesive tape dispenser, or the like, and includes all kinds of apparatus that can apply coating materials of a thin film onto a desired location. With reference to Figs. 1 to 3, the thin film dispenser in accordance with the present invention comprises a housing 10 and a dispensing unit 20. The housing 10 has a chamber defined in the housing 10 to hold the dispensing unit 20 inside. The housing 10 comprises an upper casing 11 and a lower casing 12. The upper casing 11 has a first end pivotally connected with an end of the lower casing 12 with a pivotal pin. The lower casing 12 has a length longer than that of the upper casing 11. An engagement device is disposed between the upper casing 11 and the lower casing 12 on inner surfaces that face to and are spaced from each other. The upper casing 11 and the lower casing 12 respectively have a U-shaped cross section to make the inner surface of each casing 11,12 have an inner bottom and two inner side surfaces. The inner bottoms of the upper casing 11 and the lower casing 12 face to and are spaced from each other, the inner side surfaces of the upper casing 11 and the lower casing 12 are adjacent to each other. The engagement device comprises an upper engaging tab 112 and a lower engaging tab 122 engaging each other, respectively formed on the upper casing 11 and the lower casing 12, and being resilient. The upper engaging tab 112 is formed on the inner bottom at a second end of the upper casing 11 that is opposite to the first end and extends toward the lower casing 12. The lower engaging tab 122 is formed on the inner bottom of the lower casing 12 at a position corresponding to the upper engaging tab 112. Preferably, the lower engaging tab 122 is formed near a middle of a central line of the lower casing 12.

[0013] The dispensing unit 20 is mounted in the chamber of the housing 10 and may permanently protrude out from the housing 10 as in a normal condition. The dispensing unit 20 may comprise a body 21, a dispensing head, a wheel assembly, a thin film and a cap. The dispensing unit 20 may be conventional and the detail description of the dispensing unit 20 is omitted. In addition, the dispensing unit 20 has a through hole 22 defined through the body 21 and corresponding to the engagement device. The upper engaging tab 112 and the lower engaging tab 122 can be inserted into the through hole 22 and to engage each other. In addition, a positioning device is disposed between the body 21 of the dispensing unit 20 and the housing 10. The positioning device comprises two positioning tabs 24 and two positioning recesses 124. The positioning tabs 24 are formed respectively on two sides of the body 21 of the dispensing unit 20 and respectively have a hook. The positioning recesses 124 are defined in the lower casing 12 and respectively engage the hooks of the positioning tabs 24. Preferably, the positioning recesses 124 are formed as blind recesses un-through the inner side surfaces of the lower casing 12 as shown in the drawings. Alternatively, the positioning recesses 124 are defined through the inner side surfaces of the lower casing 12 to be formed as through bores. In addition, the positioning recesses 124 may be formed in the sides of the body 21 of the dispensing unit 20, and the positioning tabs 24 may be formed on the inner side surfaces of the lower casing 12. With the engagement between the positioning tabs 24 and the positioning recesses 124, the combination strength between the dispensing unit 20 and the housing 10 can be enhanced. Accordingly, the dispensing unit 20 can be prevented from being detached from the housing 20 even when the thin film dispenser accidentally falls down from a high position. The structural stability of mounting the dispensing unit 20 in the housing 10 can be improved.

[0014] With reference to Fig. 4, each positioning recess 124 has two ends and two guiding blocks 126 formed respectively on the ends of the positioning recess 124. Each guiding block 126 has a top and an inclined surface formed on the top of the guiding block 126. With the guiding blocks 126 and the inclined surfaces on the guiding blocks 126, a guiding effect is provided to the positioning tabs 24 to enable the positioning tabs 24 to enter and to engage the positioning recesses 124 smoothly. In addition, the lower casing 12 further has two buffering recesses 127 defined respectively in two edges of the lower casing 12 and being respectively adjacent to the positioning recesses 124. With the arrangement of the buffering recesses 127, the smoothness of the positioning tabs 24 entering into the positioning recesses 124 is improved to make the mounting of the dispensing unit 20 into the housing 10 smooth.

[0015] Accordingly, when the upper casing 11 is closed relative to the lower casing 12, the upper engaging tab 112 and the lower engaging tab 122 will enter into the through hole 22 in the body 21 of the dispensing unit 20 and engage each other. Consequently, the upper casing 11 and the lower casing 12 are combined with each other to hold the dispensing unit 20 between the upper casing 11 and the lower casing 12.

[0016] When the thin film of the dispensing unit 20 is used up and is to be replaced with a new one, with reference to Figs. 5 and 6, the upper casing 11 is pulled upwards and flipped open to disengage the upper engaging tab 112 from the lower engaging tab 122 by the resilience of the engaging tabs 112,122 themselves. Consequently, the upper casing 11 can be pivoted relative to the lower casing 12 to open the housing 10. Thus, the used dispensing unit 20 can be replaced with a new one. After the new dispensing unit 20 is mounted into the housing 10, the upper casing 11 is closed relative to the lower casing 12 to make the upper engaging tab 112 reengage the lower engaging tab 122 so as to enable the thin film dispenser to be used normally.

[0017] To allow a user to flip-open the upper casing 11 for disengaging the engagement device conveniently, the upper casing 11 further has a finger tab 114 formed on and extending horizontally from the top of the upper casing 11 at the second end on which the upper engaging

tab 112 is formed. The body 21 of the dispensing unit 20 further has a finger recess 26 defined in a top of the body 21 and corresponding to the finger tab 114 of the upper casing 11 to allow the finger tab 114 to extend slightly into the finger recess 26. Accordingly, to flip-open the upper casing 11, the finger of the user can apply force onto the finger tab 114 easily so that to open the housing 10 is laborsaving and convenient.

[0018] Even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and function of the invention, the disclosure is illustrative only, and changes may be made in detail, especially in matters of shape, size, and arrangement of parts within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

Claims

1. A thin film dispenser, **characterized in that** the thin film dispenser comprises:

   a housing (10) comprising
   an upper casing (11) having
   a first end;
   a length; and
   an inner surface;
   a lower casing (12) combined with the upper casing (11) to define a chamber between the lower casing (12) and the upper casing (11), and the lower casing (12) having
   an end pivotally connected with the first end of the upper casing (11);
   a length being longer than that of the upper casing (11); and
   an inner surface facing to and spaced from the inner surface of the upper casing (11); and
   an engagement device disposed on the inner surfaces of the upper casing (11) and the lower casing (12); and
   a dispensing unit (20) mounted in the chamber in the housing (10).

2. The thin film dispenser as claimed in claim 1, wherein the engagement device comprises
   an upper engaging tab (112) formed on the upper casing (11); and
   a lower engaging tab (122) formed on the lower casing (12) and engaging the upper engaging tab (112).

3. The thin film dispenser as claimed in claim 2, wherein the upper casing (11) has a second end opposite to the first end of the upper casing (11);
   the upper engaging tab (112) is formed on the second end of the upper casing (11) and extends toward the lower casing (12);
   the lower casing (12) has an inner bottom facing the upper casing (11); and
   the lower engaging tab (122) is formed on the inner bottom of the lower casing (12) at a position corresponding to the upper engaging tab (112).

4. The thin film dispenser as claimed in claim 2 or 3, wherein the lower engaging tab (122) is formed near a middle of a central line of the lower casing (12).

5. The thin film dispenser as claimed in claim 4, wherein the upper engaging tab (112) and the lower engaging tab (122) are resilient.

6. The thin film dispenser as claimed in any one of claims 1 to 3 and 5, wherein the dispensing unit (20) has a body (21) and a through hole (22) defined through the body (21) and corresponding to the engagement device.

7. The thin film dispenser as claimed in any one of claims 1 to 3 and 6, wherein
   the upper casing (11) further has a finger tab (114) formed on and extending horizontally from a top of the upper casing (11) at an end on which the engagement device is mounted; and
   the dispensing unit (20) further has a finger recess (26) defined in a position corresponding to the finger tab (114) of the upper casing (11) to allow the finger tab (114) to extend slightly into the finger recess (26).

8. The thin film dispenser as claimed in any one of claims 1 to 3 and 7 further comprising a positioning device disposed between the dispensing unit (20) and the housing (10).

9. The thin film dispenser as claimed in any one of claims 1 to 3 and 8, wherein the positioning device comprises
   two positioning tabs (24) formed respectively on two sides of the dispensing unit (20); and
   two positioning recesses (124) defined in the lower casing (12) and respectively engaging the positioning tabs (24).

10. The thin film dispenser as claimed in claim 9, wherein the positioning recesses (124) are defined respectively in two inner side surfaces of the lower casing (12).

11. The thin film dispenser as claimed in claim 10, wherein
    each positioning recess (124) has two ends and two guiding blocks (126) formed respectively on the ends of the positioning recess (124); and
    each guiding block (126) has a top and an inclined surface formed on the top of the guiding block (126).

12. The thin film dispenser as claimed in claim 11, wherein the lower casing (12) further has two buffering recesses (127) defined respectively in two edges of the lower casing (12) and being respectively adjacent to the positioning recesses (124).

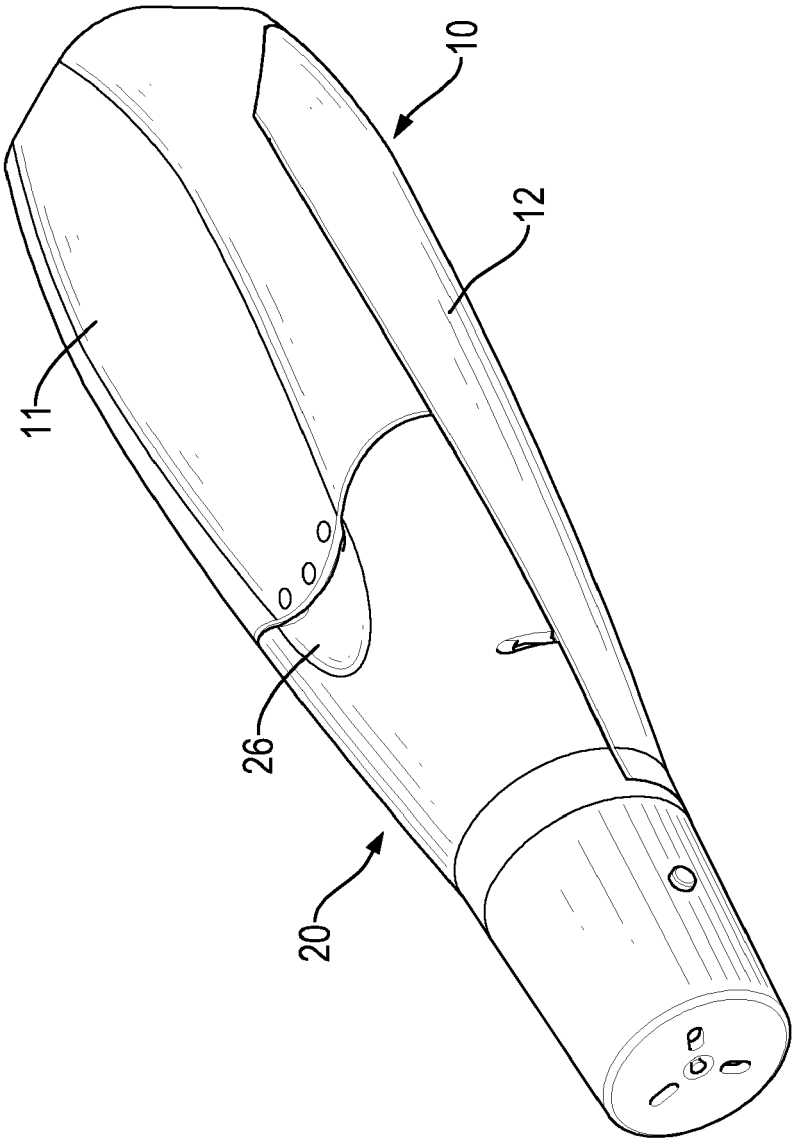

FIG.1

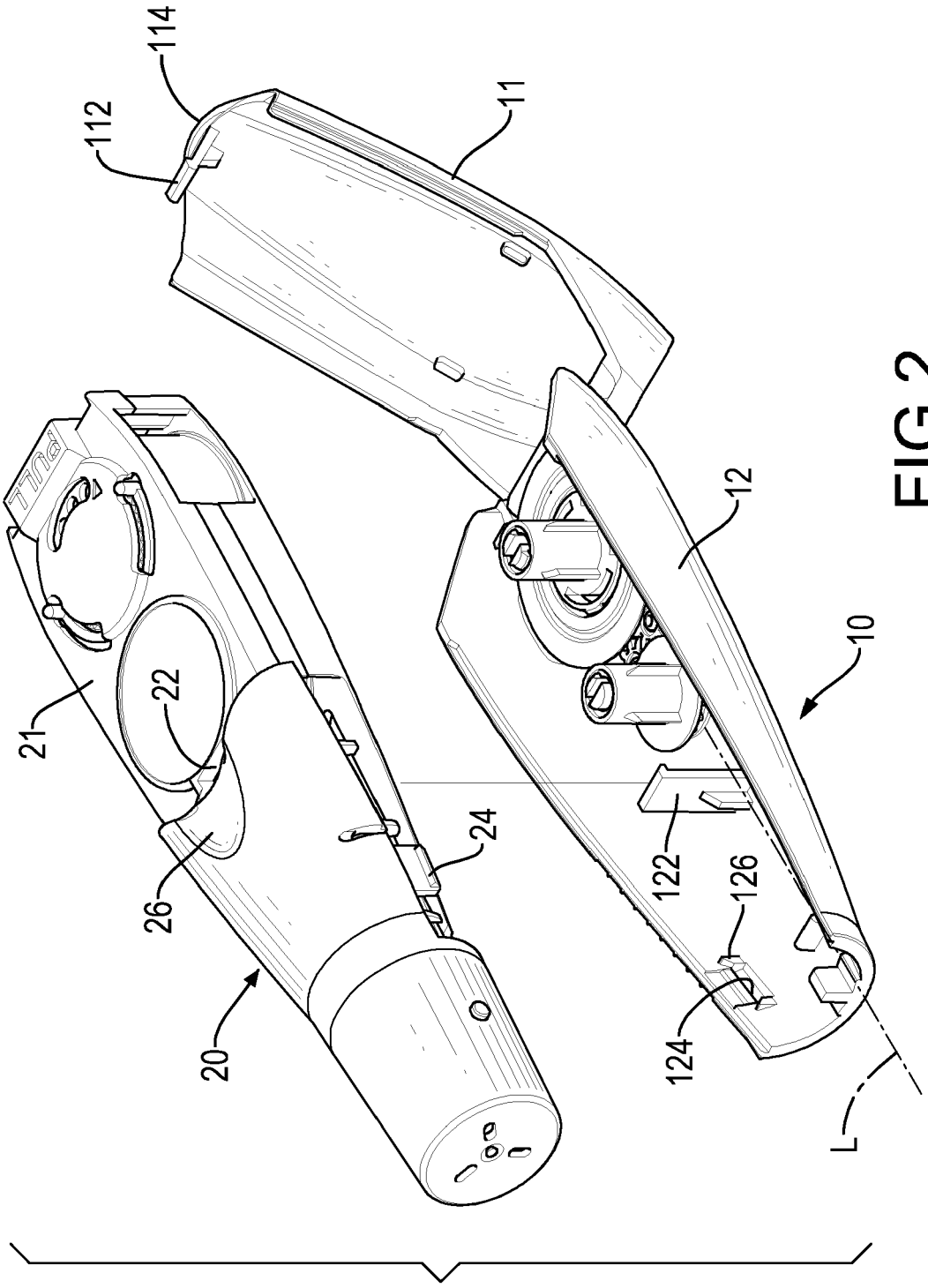

FIG.2

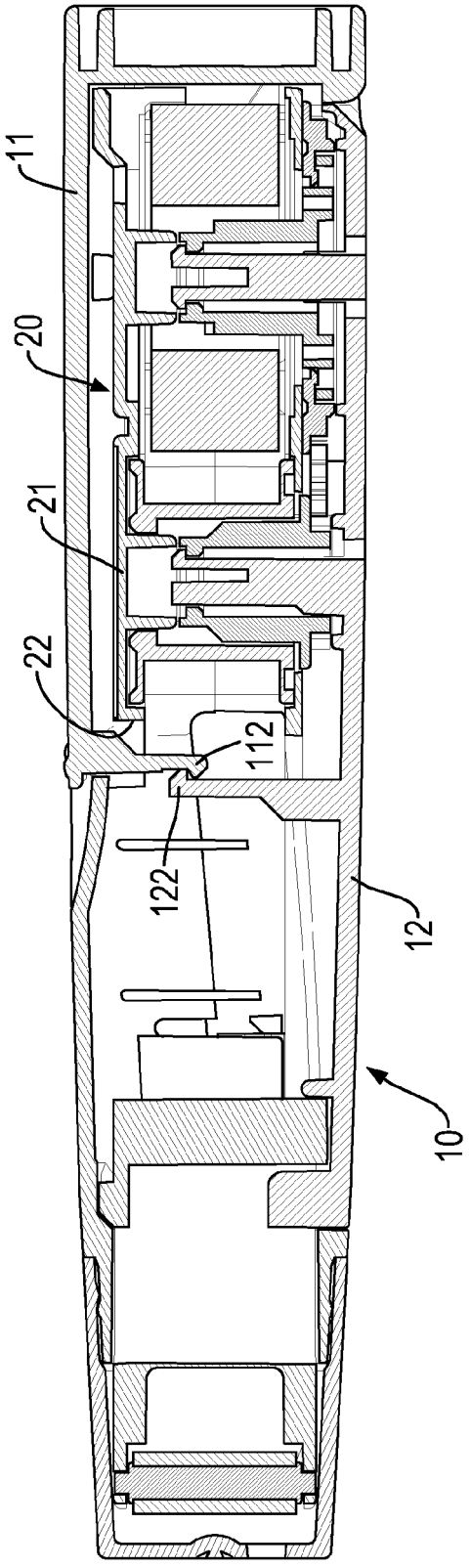

FIG.3

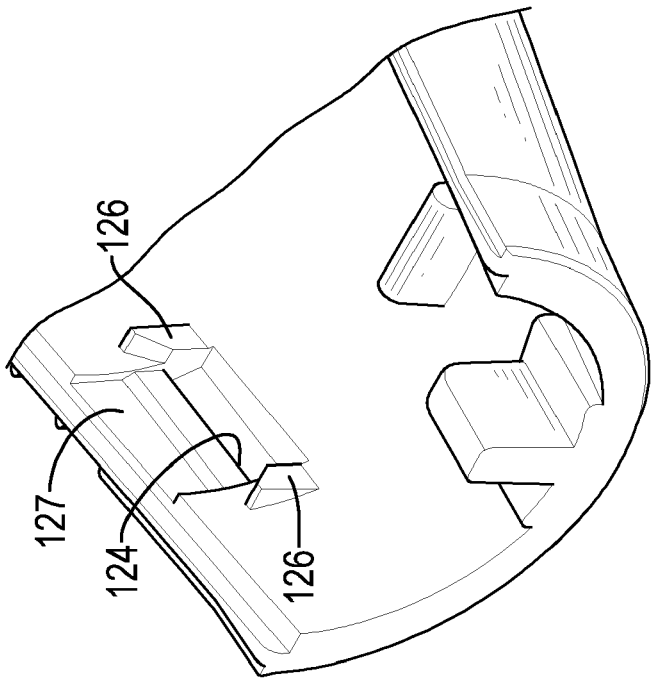

FIG.4

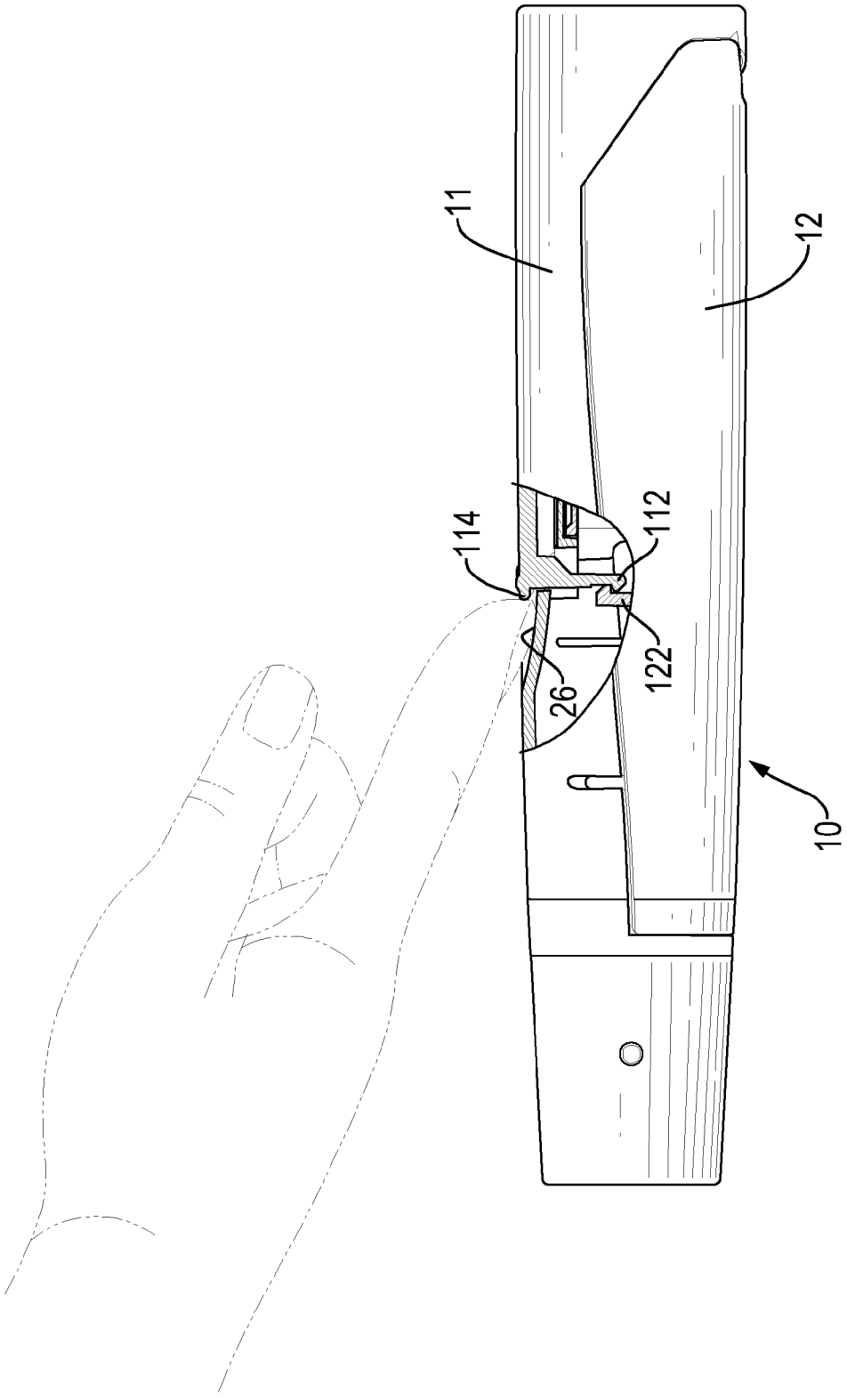

FIG.5

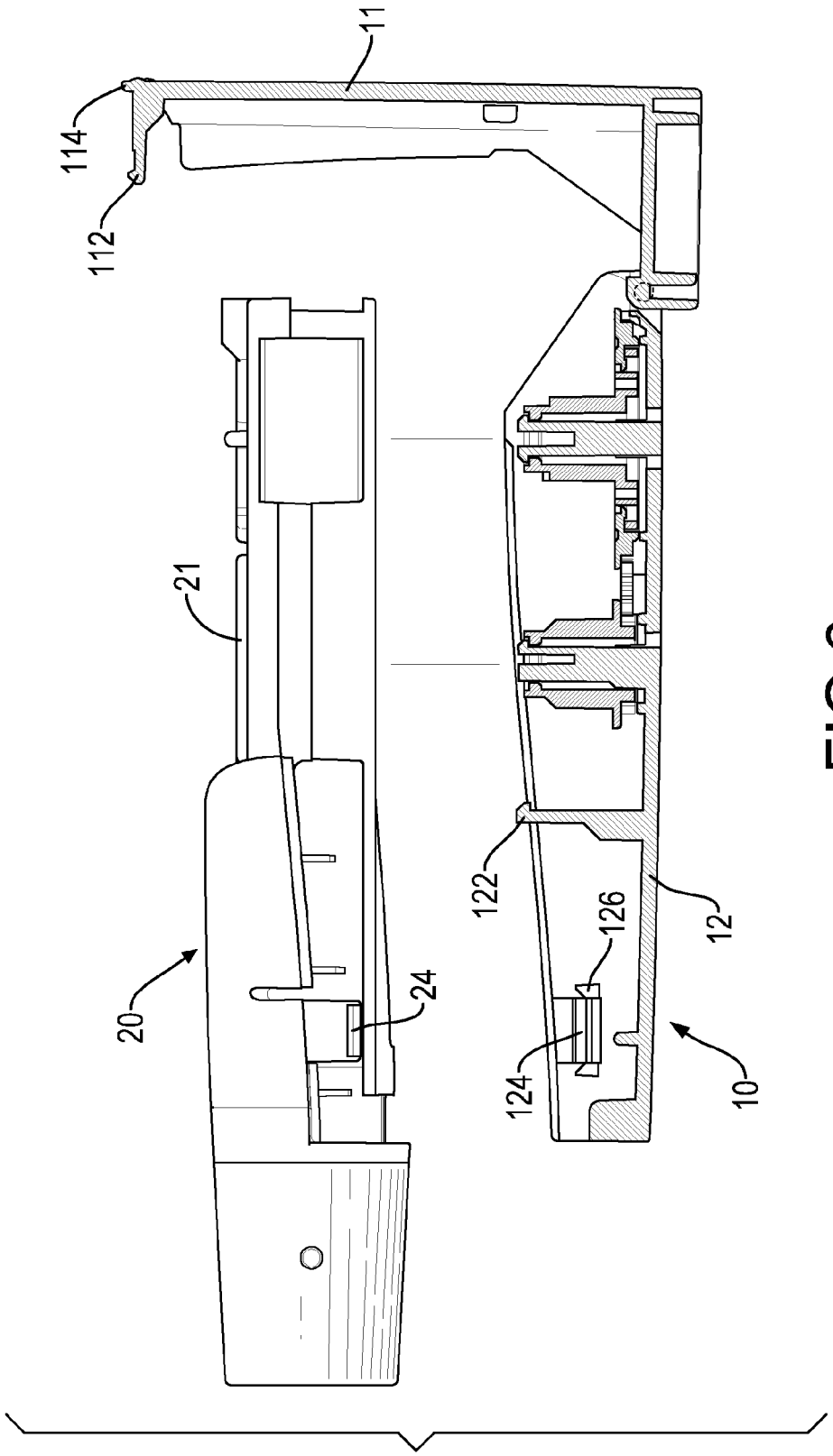

FIG.6

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EUROPEAN SEARCH REPORT

Application Number
EP 13 15 0762

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	26 April 2013	Raven, Peter

CATEGORY OF CITED DOCUMENTS

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