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Remarks:

Amended claims in accordance with Rule 137(2) EPC.

(54) **Rotatable knob controlled adhesive tape dispenser**

(57) An adhesive tape dispenser has a body (10, 10A, 10B), an adhesive tap dispensing unit (12, 12A, 12B), a knob (14, 14A, 14B), a pushing element (16) and a resilient element (18, 18A, 18B). The knob (14, 14A, 14B) is mounted rotatably on the body (10, 10A, 10B) and has a guiding structure (15, 15A, 15B) formed obliquely on the knob (14, 14A, 14B) and having two ends each having a limiting capability to restrict a rotating range of the knob

(14, 14A, 14B) relative to the body (10, 10A, 10B) between the ends of the guiding structure (15, 15A, 15B). The pushing element (16) is mounted slidably in the body (10, 10A, 10B) and has a guided structure (162) connected slidably to slide along the guiding structure (15, 15A, 15B) on the knob (14, 14A, 14B). The resilient element (18, 18A, 18B) is mounted in the body (10, 10A, 10B) to provide a recoil force to the adhesive tape dispensing unit (12, 12A, 12B).

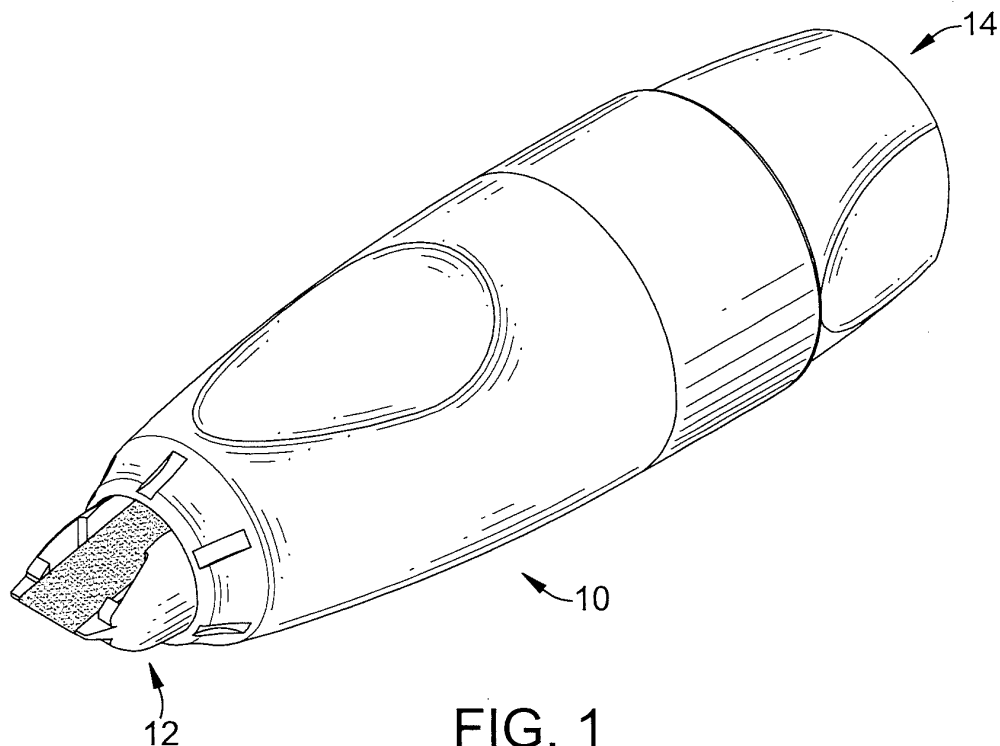


FIG. 1

Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a dispenser, and more particularly to an adhesive tape dispenser controlled by a rotatable knob.

2. Description of Related Art

[0002] An adhesive tape dispenser is used to dispense an adhesive tape, such as a correction tape onto a paper or the like. Taiwan Utility Model No. M345717 discloses a conventional adhesive tape dispenser comprising a body, an adhesive tape dispensing unit and a driving unit. The driving unit comprises a knob and a pushing rod. The knob is mounted rotatably on the body and has multiple oblique tracks formed on the knob in alternative and connected with each other. The pushing rod has a block formed on the pushing rod and attached slidably to the tracks on the knob. When the knob is rotated, the block will be moved along the oblique tracks on the knob to push the pushing rod to move relative to the body. Consequently, pushing rod will push the adhesive tape dispensing unit to protrude out of the body to allow a user to dispense the adhesive tape onto a paper.

[0003] The oblique tracks are formed continuously on the knob in alternative, so the knob is rotated relative to the body in 360°. Therefore, the curvature of each track on the knob of the conventional dispenser is less than 90°, such that a large force is needed to rotate the knob for pushing the pushing rod and the dispensing unit to move and the operation of the conventional dispenser is laborious. In addition, the oblique tracks are connected continuously with each other in alternative, so the conjunction between adjacent tracks does not have a limiting capability. Therefore, the knob is easily rotated overly, and the dispensing unit cannot be well positioned at the extension condition for use.

[0004] To overcome the shortcomings, the present invention tends to provide an adhesive tape dispenser to mitigate or obviate the aforementioned problems.

SUMMARY OF THE INVENTION

[0005] The main objective of the invention is to provide an adhesive tap dispenser that is well-positioned and convenient in use and has a labor-saving capability.

[0006] The adhesive tape dispenser has a body, an adhesive tap dispensing unit, a knob, a pushing element and a resilient element. The adhesive tape dispensing unit is mounted in the body. The knob is mounted rotatably on the body and has a guiding structure formed obliquely on the knob and having two ends each having a limiting capability to restrict a rotating range of the knob relative to the body between the ends of the guiding struc-

ture. The pushing element is mounted slidably in the body, is connected between the knob and the adhesive tape dispensing unit and has a guided structure connected slidably to slide along the guiding structure on the knob when the knob is rotated. The resilient element is mounted in the body to provide a recoil force to the adhesive tape dispensing unit.

[0007] 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

[0008]

Fig. 1 is a perspective view of a first embodiment of an adhesive tape dispenser in accordance with the present invention;

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

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

Fig. 4 shows operational perspective views in partial section of the knob and the pushing element of the dispenser in Fig. 1;

Fig. 5 is an operational side view in partial section of the dispenser in Fig. 1;

Fig. 6 is a perspective view of a second embodiment of an adhesive tape dispenser in accordance with the present invention;

Fig. 7 is an exploded perspective view of the dispenser in Fig. 6;

Fig. 8 is a perspective view of a third embodiment of an adhesive tape dispenser in accordance with the present invention;

Fig. 9 is an exploded perspective view of the dispenser in Fig. 8.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

[0009] With reference to Figs. 1 to 3, a first embodiment of an adhesive tape dispenser in accordance with the present invention comprises a body (10), an adhesive tape dispensing unit (12), a knob (14), a pushing element (16) and a resilient element (18).

[0010] The body (10) is hollow and may be composed of two housings (11, 112) combined detachably with each other to define a chamber in the body (10) for holding the remaining elements of the dispenser inside. In the first embodiment, the body (10) is composed of a front housing (11) and a rear housing (112) detachably combined with the front housing (11) with threads (116). Accordingly, the body (10) is detachable to replace the parts held inside the body (10). In addition, a sleeve (17) is held in the body (10) and may be formed integrally on the rear housing (112).

[0011] The adhesive tape dispensing unit (12) is mounted in the chamber of the body (10) and comprises a bracket (122), a supplying wheel assembly (124) and an adhesive tape (126). The bracket (122) is provided with a dispensing head (123) that can protrude from one end of the body (10). The supplying wheel assembly (124) is mounted operationally in the bracket (122). The adhesive tape (126) may be a correction tape, a stick tape or the like and is mounted in the bracket (122) and around the dispensing head (123) and the supplying wheel assembly (124). The structure and operation of the adhesive tape dispensing unit (12) may be conventional, so detail description of the dispensing unit (12) is omitted.

[0012] With further reference to Fig. 4, the knob (14) is hollow, is mounted rotatably on the body (10) at one end opposite to the end from which the dispensing head (123) protrudes and has an end, a cavity, a guiding structure (15) and an optional guiding tube (142). The cavity is defined in the end of the knob (14) and has a bottom. The guiding tube (142) is formed on and protrudes from the bottom of the cavity. The guiding structure (15) is formed obliquely on the knob (14), may be formed on the guiding tube (142) and may be a guiding cavity with an oblique inner side defined in the knob (14). In an alternative embodiment, the guiding structure (15) may be formed on an inner surface of cavity of the knob (14). The guiding structure (15) has two ends each having a limiting capability to restrict a rotating range of the knob (14) relative to the body (10) between the ends of the guiding structure (15). The ends of the guiding structure (15) correspond respectively to a retracted position and an expanded position of the dispensing unit (12). The guiding structure (15) obliquely extends 90° to 360° in curvature. In a preferred embodiment, the guiding structure (15) extends 180° to 360° in curvature and may extend 180° in curvature. The guiding structure (15) may further have two positioning recesses (152, 154) defined respectively in the ends of the guiding structure.

[0013] The pushing element (16) is mounted slidably in the body (10), may be a rod and mounted slidably through the sleeve (17), is connected between the knob (14) and the adhesive tape dispensing unit (12) and has a guided structure (162). The guided structure (162) is connected slidably to the guiding structure (15) on the knob (14) to slide along the guiding structure (15) when the knob (14) is rotated. The guided structure (162) may be a protrusion, a rib or a block formed on the pushing element (16), abutting slidably with the guiding structure (15) and may be held in one of the positioning recesses (152, 154) of the guiding structure (15) to hold the dispensing unit (12) at the retracted or expended position.

[0014] The resilient element (18) is mounted in the body (10) to provide a recoil force to the adhesive tape dispensing unit (12) and may be a spring. In the first embodiment, the resilient element (18) is held in the body (10) and has an end mounted around one end of the adhesive tape dispensing unit (12).

[0015] With reference to Figs. 3 and 4, when the guided structure (162) is held on the end of the guiding structure (15) corresponding to the retracted position or held in the positioning recess (152) of the guiding structure (15), the dispensing unit (12) is completely retracted into the body (10).

[0016] With further reference to Fig. 5, when the knob (14) is rotated, the guided structure (162) is pushed to slide along the guiding structure (15) to make the pushing element (16) moving relative to the body (10). Consequently, the pushing element (16) pushes the dispensing unit (12) to make the dispensing head (123) protruding out of the body (10), such that a user can dispense the adhesive tape (126) onto a paper or any desired location. At this time, the guided structure (162) may be held in the positioning recess (154) of the guiding structure (15) to provide a positioning effect to and keep the dispensing unit (12) at the expanded position.

[0017] When the knob (14) is rotated in reverse, the dispensing unit (12) and the pushing element (16) will be moved backward with the recoil force provided by the resilient element (18). The guided structure (162) will move along the guiding structure (15) to the end corresponding to the retracted position.

[0018] Because the guiding structure (15) on the knob (14) has a large curvature more than 90°, so the guiding structure (15) has a smoother slope than a conventional one such that a small force is needed for pushing the dispensing unit (12) out of the body (10). Therefore, the operation of the dispenser in accordance with the present invention is laborsaving. In addition, because the ends of the guiding structure (15) have limiting capabilities, the rotating range of the knob (14) is limited between the ends of the guiding structure (15) to allow the knob (14) being rotated only in a limited angle range. Accordingly, overly rotating the knob (14) can be completely prevented, and the dispensing unit (12) is well positioned and the operation of the dispenser is easily controllable and convenient.

[0019] With reference to Figs. 6 and 7, in a second embodiment in accordance with the present invention, the body (10A) of the dispenser is composed of a front housing (11A) and a rear housing (112A). The front housing (11A) has multiple connection slots (113) defined in one end of the front housing (11A). The rear housing (112A) has multiple connection hooks (114) formed on one end the rear housing (112A) and engaging respectively the connection slots (113) in the front housing (11A) to detachably combine the front and rear housings (11A, 112A). Accordingly, when the adhesive tape of the dispensing unit (12A) is exhausted, the body (10A) can be detached to replace a new dispensing unit (12A) into the body (10A). In addition, the resilient element (18A) is held in the bracket of the adhesive tape dispensing unit (12A), and a compressing tab is slidably mounted in the bracket, abuts against one end of the resilient element (18A) and is connected securely to the body (10A). When the dispensing unit (12A) is pushed to move, the resilient ele-

ment (18A) is compressed by the compressing tab and provides a recoil force to the dispensing unit (12A). Furthermore, the knob (14A) may be tubular and has a wall, and the guiding structure (15A) may be a notch, a slot or a concavity defined in the wall of the tubular knob (14A). Accordingly, when the knob (14A) is rotated, the dispensing unit (12A) will be pushed to protrude out of the body (10A) by the pushing element (16) with sliding movement between the guiding and guided structures (15A, 162) on the knob (14A) and the pushing element (16). When the knob (14A) is rotated in reverse, the dispensing unit (12A) can be retracted into the body (10A) with the recoil force provided by the resilient element (18A).

[0020] With reference to Figs. 8 and 9, in a third embodiment in accordance with the present invention, the body (10B) of the dispenser is composed of two side housings (11B, 112B). The knob (14B) may have a guiding tube (142B) on which the guiding structure (15B) is formed. The sleeve (17B) is a separate part from the side housings (11B, 112B) of the body (10B) and has a flange (172) clamped securely between the side housings (11B, 112B). The resilient element (18B) is held in the bracket of the dispensing unit (12B) to provide a recoil force to the dispensing unit (12B). The operation of the third embodiment of the dispenser is similar to that of the first or second embodiment and is omitted.

[0021] 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. An adhesive tape dispenser comprising:

a body (10, 10A, 10B);
 an adhesive tape dispensing unit (12, 12A, 12B) mounted in the body (10, 10A, 10B);
 a knob (14, 14A, 14B) mounted rotatably on the body (10, 10A, 10B) and having a guiding structure (10, 15A, 15B) formed obliquely on the knob (14, 14A, 14B) and having two ends each having a limiting capability to restrict a rotating range of the knob (14, 14A, 14B) relative to the body (10, 10A, 10B) between the ends of the guiding structure (15, 15A, 15B);
 a pushing element (16) mounted slidably in the body (10, 10A, 10B), connected between the knob (14, 14A, 14B) and the adhesive tape dispensing unit (12, 12A, 12B) and having a guided structure (162) connected slidably to slide along the guiding structure (15, 15A, 15B) on the knob

(14, 14A, 14B) when the knob (14, 14A, 14B) is rotated; and
 a resilient element (18, 18A, 18B) mounted in the body (10, 10A, 10B) to provide a recoil force to the adhesive tape dispensing unit (12, 12A, 12B).

2. The adhesive tape dispenser as claimed in claim 1, wherein the guiding structure (15, 15A, 15B) on the knob (14, 14A, 14B) is a guiding cavity defined in the knob.
3. The adhesive tape dispenser as claimed in claim 1 or 2, wherein the guiding structure (15, 15A, 15B) on the knob (14, 14A, 14B) obliquely extends 90° to 360° in curvature.
4. The adhesive tape dispenser as claimed in claim 3, wherein the guiding structure (15, 15A, 15B) on the knob (14, 14A, 14B) obliquely extends 180° to 360° in curvature.
5. The adhesive tape dispenser as claimed in claim 4, wherein the guiding structure (15, 15A, 15B) on the knob (14, 14A, 14B) obliquely extends 180° in curvature.
6. The adhesive tape dispenser as claimed in claim 1 or 5, wherein the knob (14, 14B) is hollow and has a cavity defined in an end of the knob (14, 14B) and having a bottom; and a guiding tube (142, 142B) formed on and protruding from the bottom of the cavity; and the guiding structure (15, 15B) is formed on the guiding tube (142, 142B).
7. The adhesive tape dispenser as claimed in claim 1, 2 or 6, wherein the guiding structure (15, 15A, 15B) has two positioning recesses (152, 154) defined respectively in the ends of the guiding structure (15, 15A, 15B).
8. The adhesive tape dispenser as claimed in claim 1 or 7 further comprising a sleeve (17, 17B) held in the body (10, 10A, 10B), wherein the pushing element (16) is mounted slidably through the sleeve (17, 17B).
9. The adhesive tape dispenser as claimed in claim 1 or 8, wherein the body (10, 10A, 10B) is composed of two housings (11, 112, 11A, 112A, 11B, 112B) combined detachably with each other.
10. The adhesive tape dispenser as claimed in claim 1 or 9, wherein the resilient element (18) is a spring, is held in the body (10) and has an end mounted around one end of the adhesive tape dispensing unit (12).
11. The adhesive tape dispenser as claimed in claim 1

or 9, wherein the resilient element (10A,10B) is a spring and is held in the adhesive tape dispensing unit (12,12A,12B).

Amended claims in accordance with Rule 137(2) EPC.

1. An adhesive tape dispenser comprising:

abody (10,10A,10B);
 an adhesive tape dispensing unit (12,12A,12B) mounted in the body (10,10A,10B);
 a knob (14,14A,14B) mounted rotatably on the body (10,10A,10B);
 a pushing element (16) mounted slidably in the body (10,10A,10B), connected between the knob (14,14A,14B) and the adhesive tape dispensing unit (12,12A,12B); and
 a resilient element (18,18A,18B) mounted in the body (10,10A,10B) to provide a recoil force to the adhesive tape dispensing unit (12,12A,12B),
characterized in that
 the knob (14,14A,14B) having a guiding structure (10,15A,15B) formed obliquely on the knob (14,14A,14B) and having two ends each having a limiting capability to restrict a rotating range of the knob (14,14A,14B) relative to the body (10,10A,10B) between the ends of the guiding structure (15,15A,15B); and
 the pushing element (16) having a guided structure (162) connected slidably to slide along the guiding structure (15,15A,15B) on the knob (14,14A,14B) when the knob (14,14A,14B) is rotated.

2. The adhesive tape dispenser as claimed in claim 1, wherein the guiding structure (15,15A,15B) on the knob (14,14A,14B) is a guiding cavity defined in the knob.

3. The adhesive tape dispenser as claimed in claim 1 or 2, wherein the guiding structure (15,15A,15B) on the knob (14,14A,14B) obliquely extends 90° to 360° in curvature.

4. The adhesive tape dispenser as claimed in claim 3, wherein the guiding structure (15,15A,15B) on the knob (14,14A,14B) obliquely extends 180° to 360° in curvature.

5. The adhesive tape dispenser as claimed in claim 4, wherein the guiding structure (15,15A,15B) on the knob (14,14A,14B) obliquely extends 180° in curvature.

6. The adhesive tape dispenser as claimed in claim 1 or 5, wherein the knob (14,14B) is hollow and has

a cavity defined in an end of the knob (14,14B) and having a bottom; and
 a guiding tube (142,142B) formed on and protruding from the bottom of the cavity; and
 the guiding structure (15,15B) is formed on the guiding tube (142,142B).

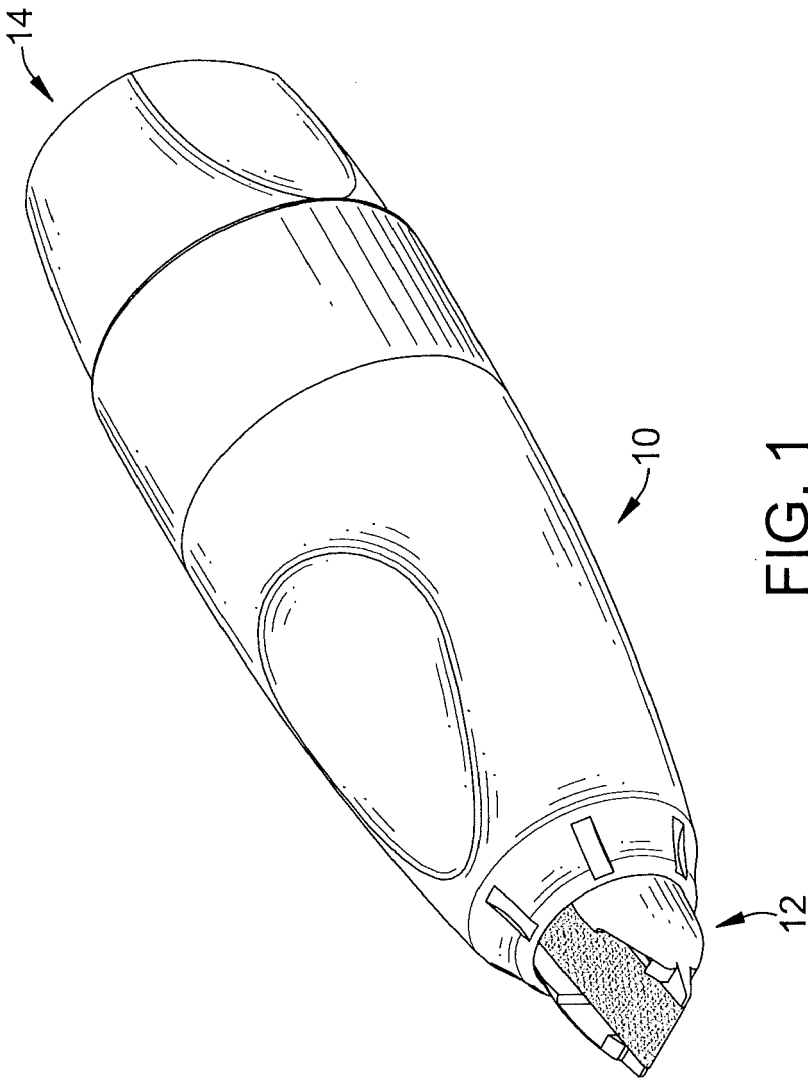
7. The adhesive tape dispenser as claimed in claim 1, 2 or 6, wherein the guiding structure (15,15A,15B) has two positioning recesses (152,154) defined respectively in the ends of the guiding structure (15,15A,15B).

8. The adhesive tape dispenser as claimed in claim 1 or 7 further comprising a sleeve (17,17B) held in the body (10,10A,10B), wherein the pushing element (16) is mounted slidably through the sleeve (17,17B).

9. The adhesive tape dispenser as claimed in claim 1 or 8, wherein the body (10,10A,10B) is composed of two housings (11,112,11A,112A,11B,112B) combined detachably with each other.

10. The adhesive tape dispenser as claimed in claim 1 or 9, wherein the resilient element (18) is a spring, is held in the body (10) and has an end mounted around one end of the adhesive tape dispensing unit (12).

11. The adhesive tape dispenser as claimed in claim 1 or 9, wherein the resilient element (10A,10B) is a spring and is held in the adhesive tape dispensing unit (12,12A,12B).



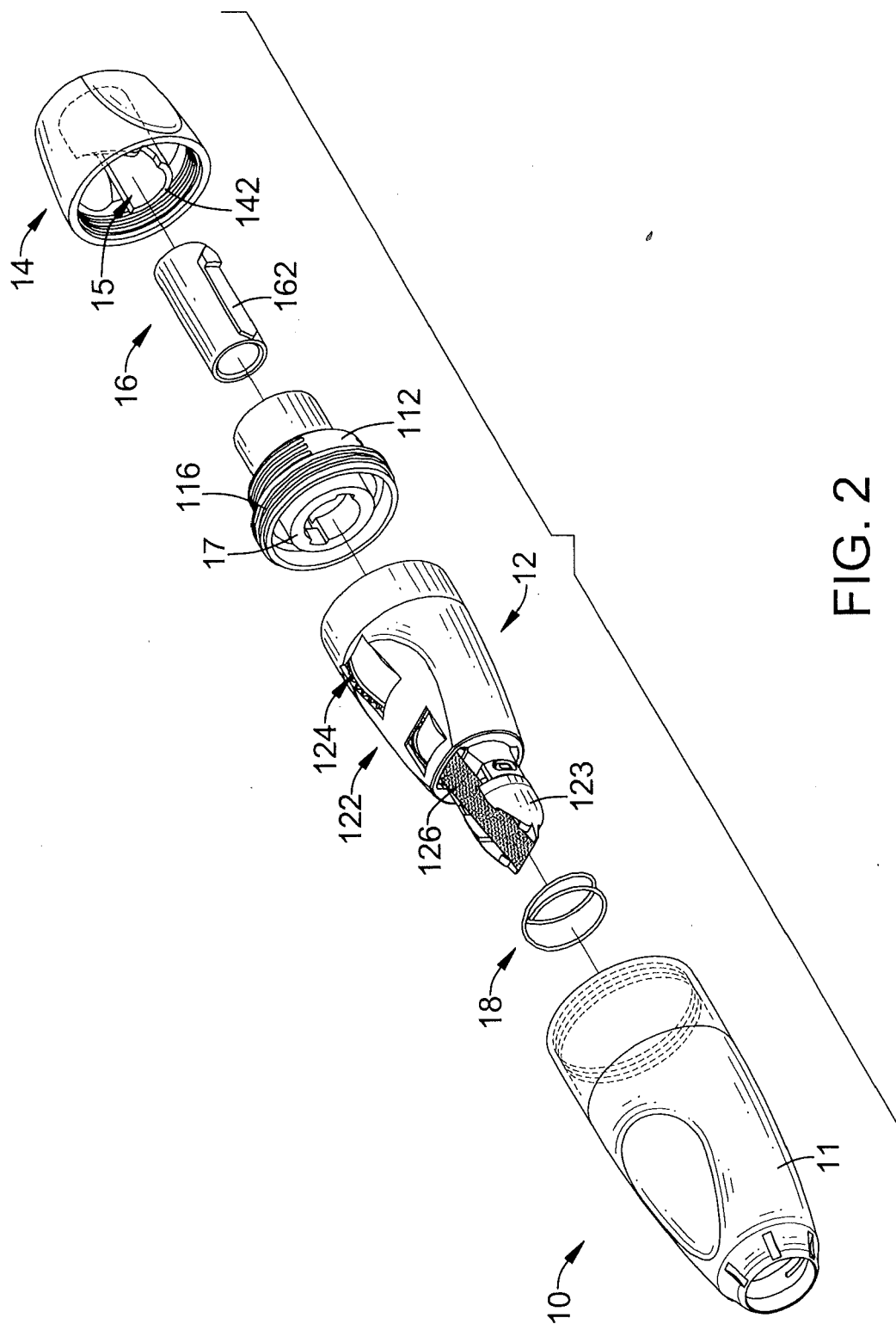


FIG. 2

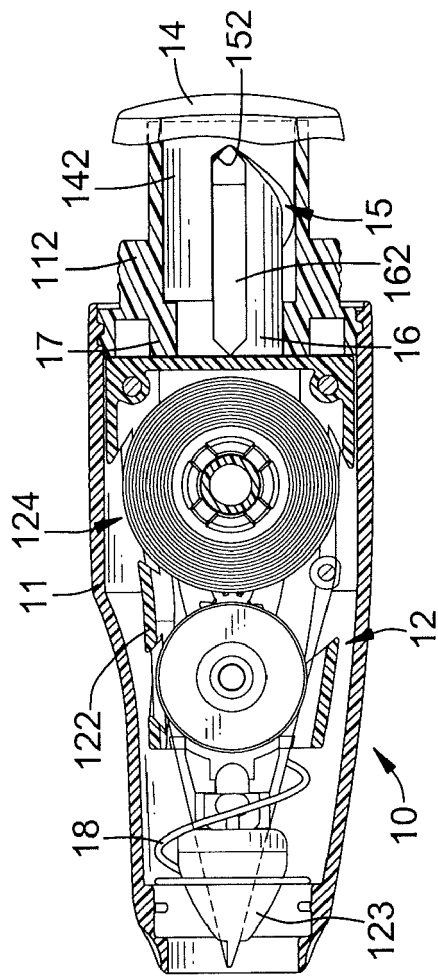


FIG. 3

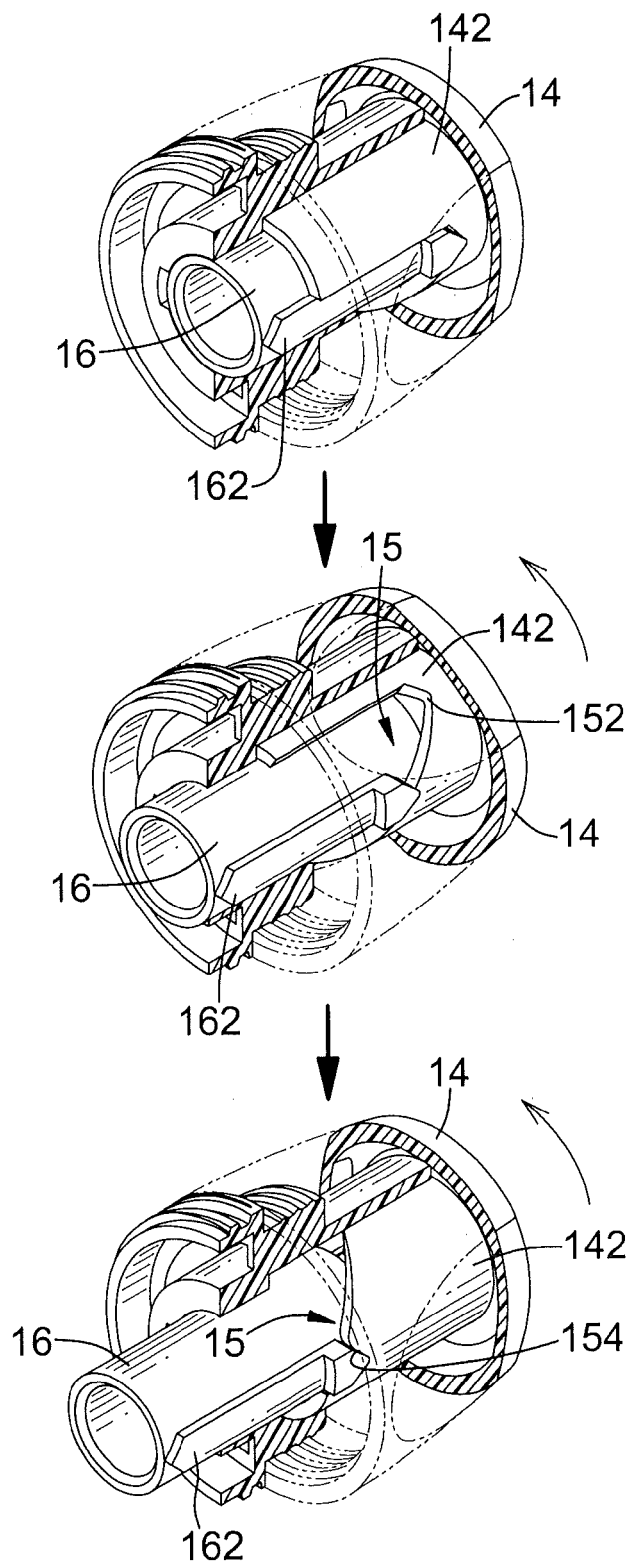


FIG. 4

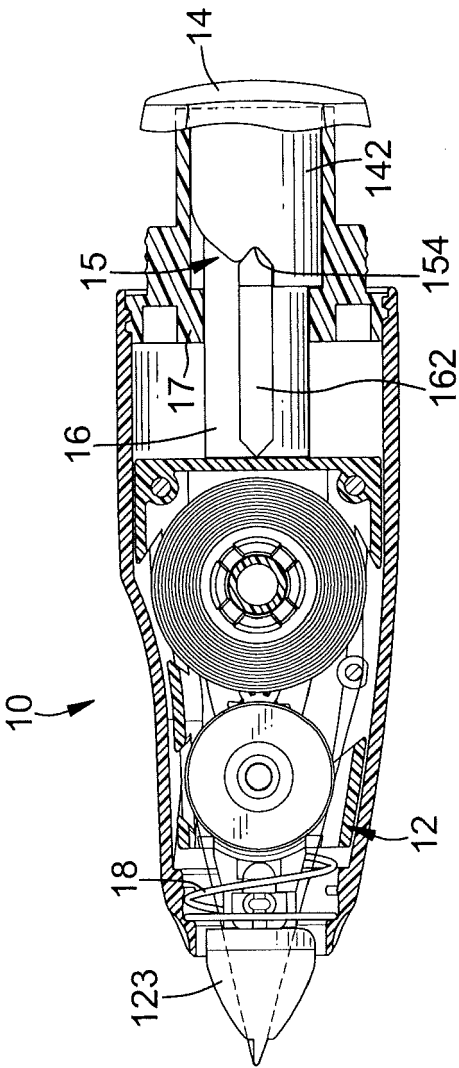


FIG. 5

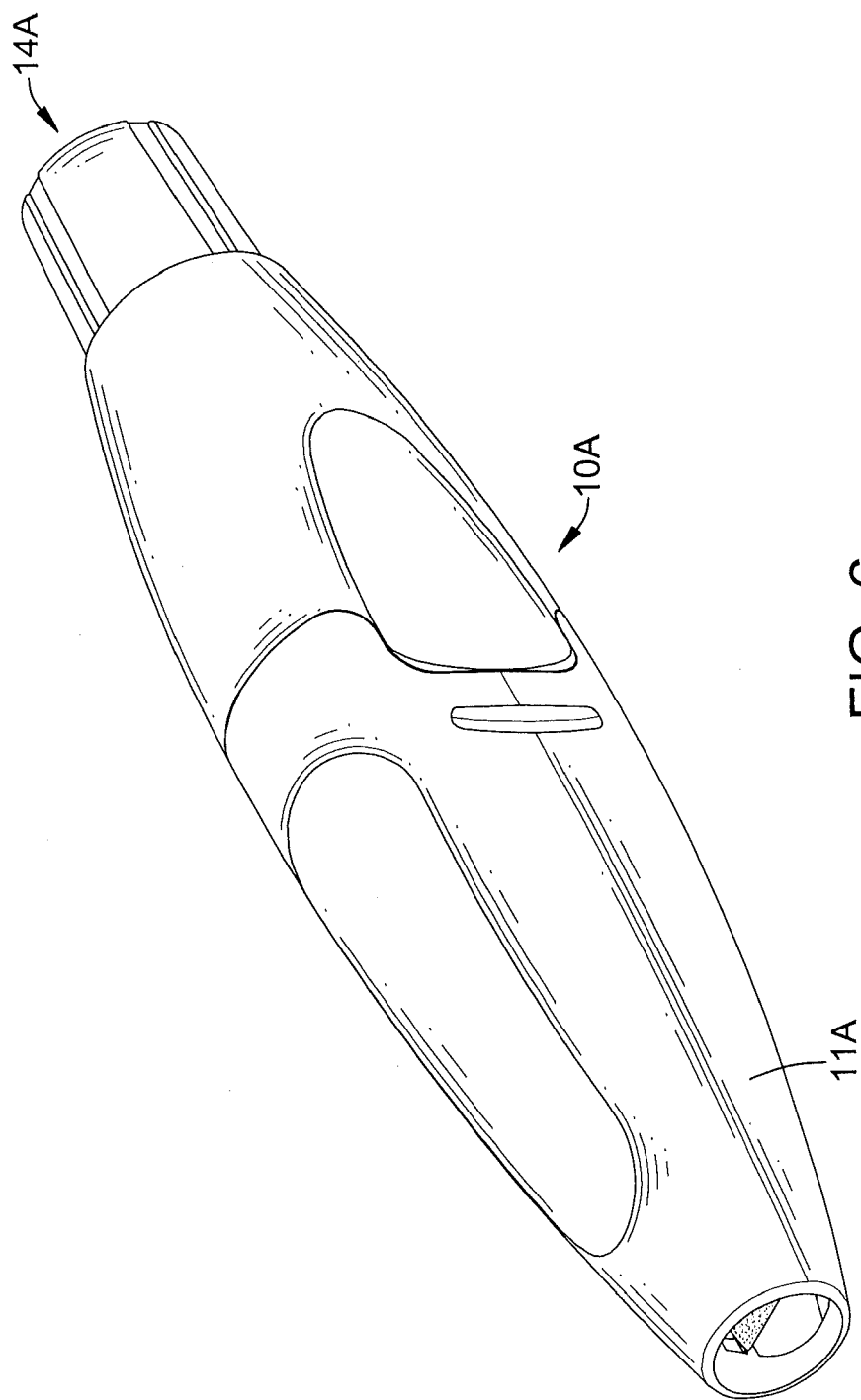


FIG. 6

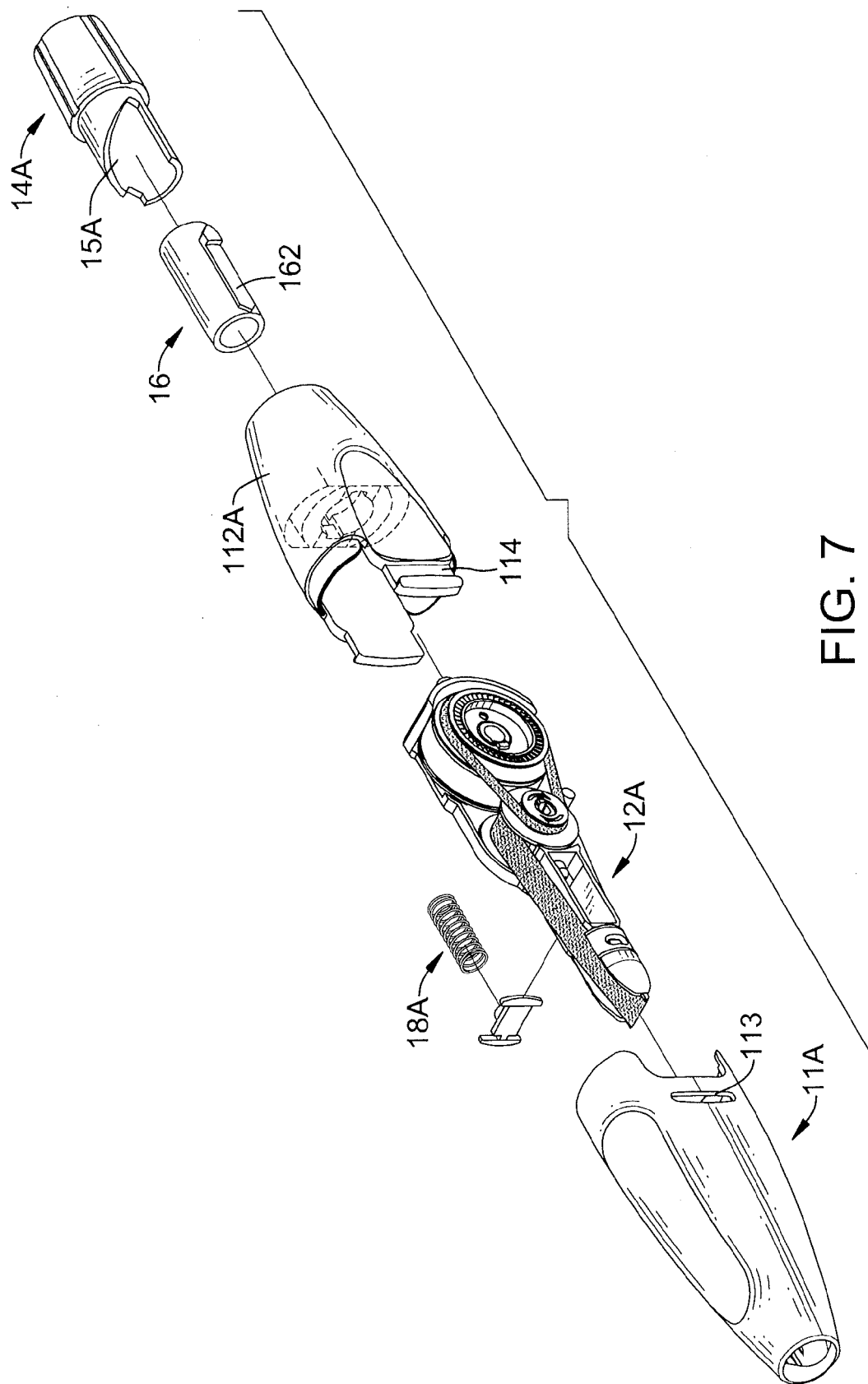


FIG. 7

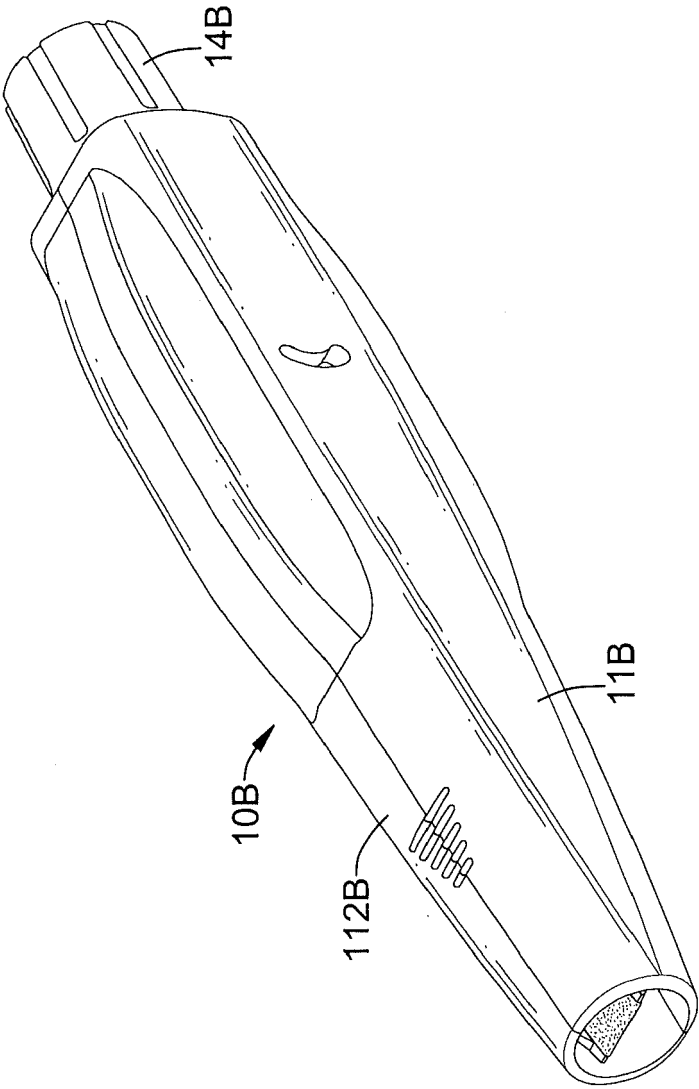


FIG. 8

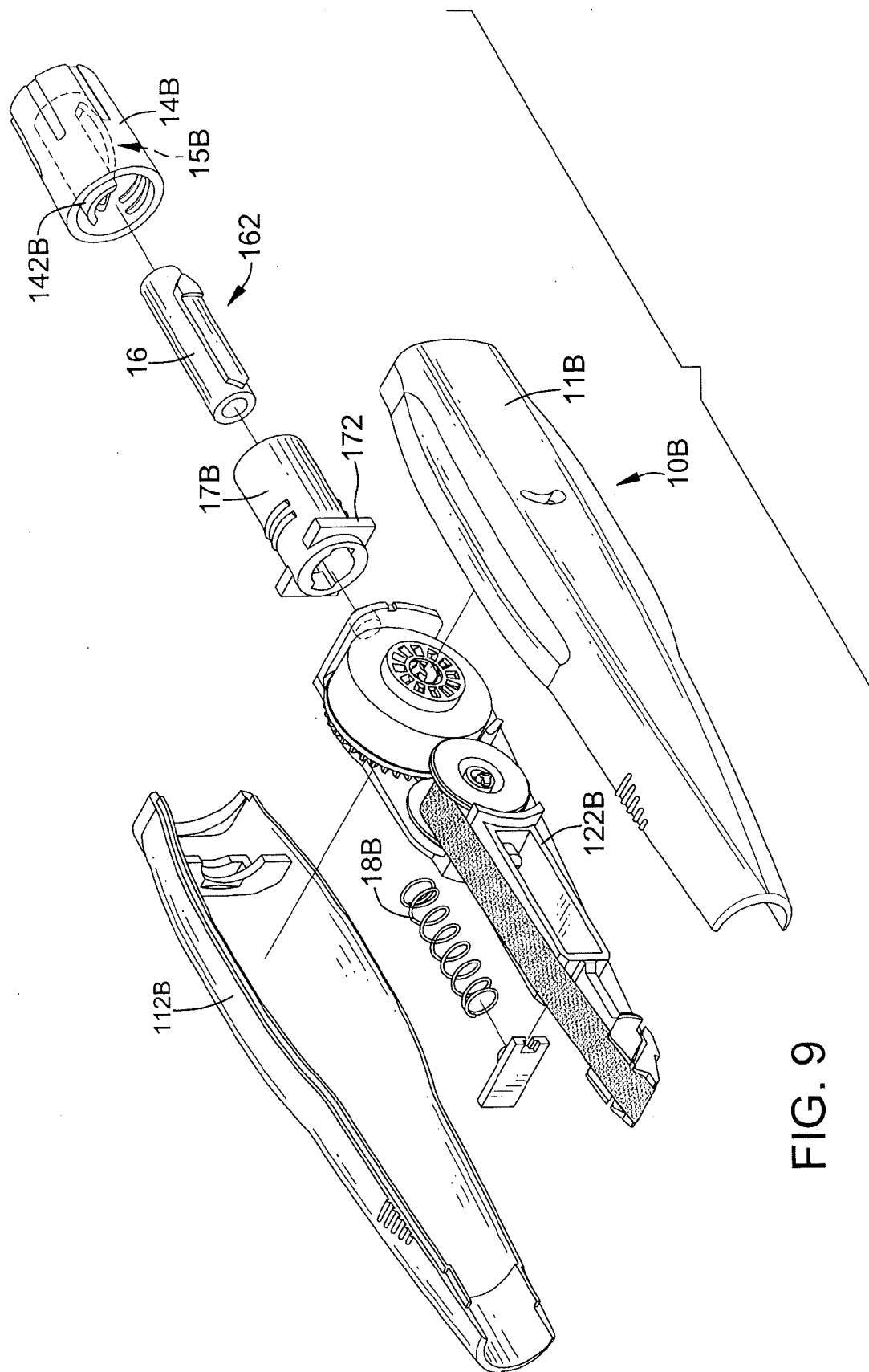


FIG. 9



EUROPEAN SEARCH REPORT

Application Number
EP 09 16 5651

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP 2006 289635 A (FUJI KAGAKU SHIKOGYO) 26 October 2006 (2006-10-26) * abstract; figures 1-6 * -----	1-10	INV. B65H37/00
			TECHNICAL FIELDS SEARCHED (IPC)
			B65H
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 9 December 2009	Examiner Raven, Peter
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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 16 5651

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09-12-2009

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2006289635 A	26-10-2006	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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