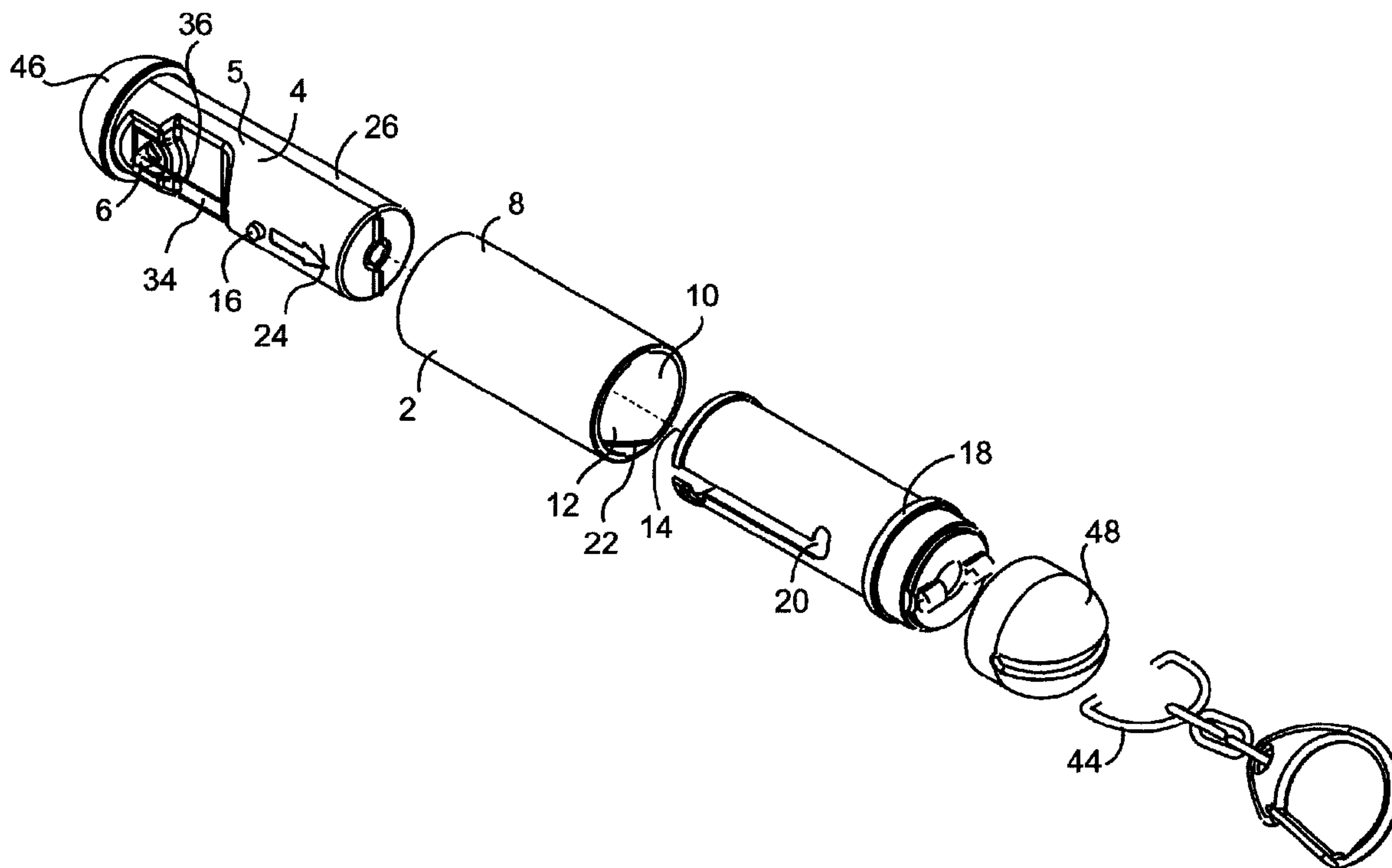




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(54) Titre : DISTRIBUTEUR DE SOIE DENTAIRE  
(54) Title: DENTAL FLOSS DISPENSING DEVICE



(57) **Abrégé/Abstract:**

A dental floss dispensing device comprises a body and a dental floss dispenser and floss cutter assembly, the body has a cavity therein, the cavity has a longitudinal axis. The assembly is disposed at least partially within the cavity of the body and is movable along the longitudinal axis of the cavity. The assembly is selectively positionable between at least a storage position where the dispenser is at least partially within the cavity of the body and an accessible position where the dispenser is at least partially outside the cavity of the body. The floss cutter is accessible when the assembly is in the accessible position and is concealed when the assembly is in the storage position. When the assembly is in the storage position the dispenser is concealed and no dental floss extends outside of the device. The assembly is selectively positionable between the accessible position and the storage position by rotating the body relative to the dental floss dispenser.

## ABSTRACT

A dental floss dispensing device comprises a body and a dental floss dispenser and floss cutter assembly, the body has a cavity therein, the cavity has a longitudinal axis. The assembly is disposed at least partially within the cavity of the body and is movable along the longitudinal axis of the cavity. The assembly is selectively positionable between at least a storage position where the dispenser is at least partially within the cavity of the body and an accessible position where the dispenser is at least partially outside the cavity of the body. The floss cutter is accessible when the assembly is in the accessible position and is concealed when the assembly is in the storage position. When the assembly is in the storage position the dispenser is concealed and no dental floss extends outside of the device. The assembly is selectively positionable between the accessible position and the storage position by rotating the body relative to the dental floss dispenser.

## DENTAL FLOSS DISPENSING DEVICE

### FIELD OF THE INVENTION

The present invention relates to a dental floss dispensing device, and more particularly to a dental floss dispensing device having a dental floss dispenser that is  
5 selectively positionable in at least a storage position and an accessible position.

### BACKGROUND OF THE INVENTION

Dental hygiene is an important part of everyday life. It requires regular and frequent attention to one's teeth. Proper dental hygiene is performed using a variety  
10 of tools, including dental floss. The regular use of dental floss is recommended by dentists and dental hygienists in order to clean in between the teeth to remove food remnants and bacteria. Dental floss is commonly supplied in portable dispensers that contain a dental floss spindle. Known prior art devices include U. S. Patents No. 5,762,079; U. S. Patents No. 6,997,191; U. S. Patents No. 6,766,809. While these  
15 devices may fulfill their respective particular objectives, they are still not optimal. In particular many people still do not floss every day. Those that do floss rarely carry around dental floss dispensers with them. Most people simply floss at home. There is therefore a need in the art for an improved portable dental floss dispenser.

20

### SUMMARY OF THE INVENTION

The primary objective of the present invention is to provide a dental floss dispenser that is selectively positionable between a storage position and an accessible position. The storage position preferably completely conceals the dental floss  
25 dispenser thereby storing the dental floss dispenser (making it inaccessible to the user), whereas the accessible position gives the user access to the dental floss dispenser, and thus the dental floss.

Another objective of the present invention is to provide a floss cutter positioned adjacent the dental floss dispenser, to form a dental floss dispenser and floss cutter assembly. As such, the floss cutter is accessible when the dispenser is in the accessible position and concealed when the dispenser is in the storage position.

5 Therefore, when the dispenser is in the accessible position, the user can pull a strand of floss until a desired length and then cut off the strand of floss by using the floss cutter. Conversely, when the dispenser is in the storage position, the floss cutter is concealed (and is inaccessible) thereby reducing the risk of injury when the dental floss dispenser is not being used.

10 A further objective of the present invention is to provide a dental floss dispenser comprising a body and a dental floss dispenser and floss cutter assembly. The assembly is selectively positionable between the accessible position and the storage position by rotating the body relative to the assembly, thereby providing a simple and convenient way of using the dental floss dispensing device.

15 An additional objective of the present invention is to provide a dental floss dispensing device wherein the dental floss dispenser is completely removable from the body of the dental floss dispensing device thereby facilitating the replacement of the dental floss spindle. In such a case, the user can either replace the whole dental floss dispensing dispenser with a new dental floss dispenser or can only replace the

20 dental floss spindle itself.

A further objective of the present invention is to provide a dental floss dispensing device wherein a recess is positioned on the dental floss dispenser. The recess is suitable for allowing the user to pinch dental floss.

Therefore, in accordance with the present invention, in one aspect there is

25 provided a dental floss dispensing device comprising: a body, the body having an outer surface, an inner surface and a cavity therein, the cavity having a longitudinal axis; and a dental floss dispenser and floss cutter assembly, the assembly being disposed at least partially within the cavity of the body and being movable along the longitudinal axis of the cavity and being selectively longitudinally positionable

30 between at least a storage position wherein the assembly is at least partially within the cavity of the body and an accessible position where the assembly is at least partially

outside the cavity of the body, the dental floss dispenser and the floss cutter being accessible when the assembly is in the accessible position and being concealed when the assembly is in the storage position. It is preferred that the assembly be fully within the cavity of the body, and that all dental floss is completely retained therein  
5 (i.e. no strands of dental floss are outside of the body), when the assembly is in storage position.

Preferably, the assembly is operatively connected to the body and is positioned, at least between the storage position and the accessible position, by rotation of the body relative to the assembly.

10

It is also preferred that there be a positioning mechanism for selectively positioning the assembly between at least the storage position and the accessible position, the mechanism including at least one engagement tab, a guide cylinder including at least one longitudinally extending guide slot therein receiving the tab,  
15 and at least one helical groove receiving the tab. (In the context of the present invention, the "guide cylinder" is merely so called because of the presence of the guide slot.)

The at least one engagement tab preferably protrudes outwardly from the  
20 assembly and the at least one helical groove preferably is located on the inner surface of the body.

It is also preferred that the guide cylinder be intermediate the assembly and the body, and the at least one engagement tab simultaneously be received within and  
25 extend through the guide slot of the guide cylinder, and be received within the helical groove of the body, whereby rotational movement of the body relative to the assembly in a first direction causes the at least one engagement tab to move simultaneously helically along the at least one helical groove and longitudinally along the at least one guide slot of the guide cylinder, thereby moving the assembly towards the accessible  
30 position, and whereby rotational movement of the body relative to the assembly in a second direction, opposite to the first direction, causes the at least one engagement tab to move simultaneously helically along the at least one helical groove and

longitudinally along the at least one guide slot of the guide cylinder, thereby moving the assembly towards the storage position.

It is also highly preferred that the at least one engagement tab be a first  
5 engagement tab and a second engagement tab, each tab protruding outwardly from the  
assembly; the at least one longitudinally-extending guide slot be a first longitudinally-  
extending guide slot and a second longitudinally-extending guide slot; the at least one  
helical groove be a first helical groove and a second helical groove, each helical groove  
being located on the inner surface of the body; the guide cylinder be intermediate the  
10 assembly and the body; and the first engagement tab simultaneously be received  
within and extend through the first guide slot of the guide cylinder, and be received  
within the first helical groove of the body the second engagement tab simultaneously  
be received within and extend through the second guide slot of the guide cylinder, and  
be received within the second helical groove of the body whereby rotational  
15 movement of the body relative to the assembly in a first direction causes the first  
engagement tab to move simultaneously helically along the first helical groove and  
longitudinally along the first guide slot of the guide cylinder, and the second  
engagement tab to move simultaneously helically along the second helical groove and  
longitudinally along the second guide slot of the guide cylinder, and thereby moving  
20 the assembly towards the accessible position; and whereby rotational movement of  
the body relative to the assembly in a second direction, opposite to the first direction,  
causes the first engagement tab to move simultaneously helically along the first  
helical groove and longitudinally along the first guide slot of the guide cylinder, and  
the second engagement tab to move simultaneously helically along the second helical  
25 groove and longitudinally along the second guide slot of the guide cylinder, and  
thereby moving the assembly towards the storage position.

It is preferred that the assembly be completely removable from the body.

30 It is also preferred that at least one of the engagement tabs be movable to  
selectively: disengage the tab from its helical groove and from its guide slot, allowing  
the assembly to be disengaged and removed from the body; and engage the tab into its  
helical groove through its guide slot, allowing the assembly to be engaged with the  
body.

The assembly preferably includes a recess constructed and arranged to allow a user to pinch dental floss extending across the recess. The recess may be positioned in front of a hole from which dental floss is dispensed, and the cutter may be positioned so as to be substantially longitudinally aligned with the hole.

It is highly preferred that the assembly include an interior cavity containing a dental floss spindle providing dental floss to the hole from which the floss is dispensed.

Alternatively, the assembly may include an interior cavity containing a dental floss spindle and a tunnel extending from the cavity for allowing dental floss to be dispensed. In such cases, the assembly may include a recess constructed and arranged to allow a user to pinch dental floss extending from the tunnel across the recess. Also, the cutter may be positioned so as to be substantially longitudinally aligned with the tunnel.

It is also preferred that the assembly include a mirror, and that the mirror be located on an opposite side of the assembly from the dental floss dispenser.

It is preferred that a clip be attached to the body, to attach keys or a key chain, for example.

Embodiments of the present invention each have at least one of the above-mentioned objects and/or aspects, but do not necessarily have all of them. It should be understood that some aspects of the present invention that have resulted from attaining the above-mentioned objects may not satisfy these objects and/or may satisfy other objects not specifically recited herein.

Additional and/or alternative features, aspects, and advantages of the embodiments of the present invention will become apparent from the following description, the accompanying drawings, and the appended claims.

**BRIEF DESCRIPTION OF THE DRAWINGS**

For a better understanding of the present invention, as well as other aspects and further features thereof, reference is made to the following description which is to be used in conjunction with the accompanying drawings, where:

5       **FIG. 1** is a rear-left side perspective view of a dental floss dispensing device in accordance with the preferred embodiment of the present invention wherein a dental floss dispenser and floss cutter assembly is in an accessible position;

10       **FIG. 2** is a front-left side perspective view of the dental floss dispensing device of **FIG. 1**, wherein the dental floss dispenser and floss cutter assembly is in a storage position;

**FIG. 3** is an exploded rear-left perspective view of the dental floss dispensing device of **FIG. 1**;

**FIG. 4** is a left elevation view of the dental floss dispensing device as shown in **FIG. 1**;

15       **FIG. 5** is a cross-sectional view of the dental floss dispensing device as shown in **FIG. 4** taken along the line B-B;

**FIG. 6** is a left elevation view of a body of the dental floss dispensing device of **FIG. 1**;

20       **FIG. 7** is a cross-sectional view of the body of the dental floss dispensing device as shown in **FIG. 6** taken along the line B-B (the line B-B of Fig. 6 being unrelated to the line B-B of Fig. 4);

**FIG. 8** is left elevation view of a guide cylinder of the dental floss dispensing device of **FIG. 1**;

25       **FIG. 9** is a cross-sectional view of the guide cylinder of the dental floss dispensing device as shown in **FIG. 8** taken along the line A-A;

**FIG. 10** is a right elevation view of the guide cylinder of the dental floss dispensing device as shown in **FIG. 8**; and



**FIG. 11** is bottom-left perspective view of the dental floss dispenser and floss cutter assembly of the dental floss dispensing device of **FIG. 1** depicted in its opened position, wherein the dental floss spindle is apparent.

## 5 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings and initially to **FIGS. 1 and 3-5**, a dental floss dispensing device in accordance with the preferred embodiment of the present invention comprises a body **2** and a dental floss dispenser and floss cutter assembly **5** having dental floss dispenser **4** and an adjacent a floss cutter **6**. The body **2** has an  
10 outer surface **8**, an inner surface **10** (see **FIG. 3**) and a cavity **12** (see **FIG. 3**) therein, the cavity **12** having a longitudinal axis **14** (see **FIG. 3**). The assembly **5** is disposed partially within the cavity **12** of the body **2** and is movable along the longitudinal axis **14** of the cavity **12**, the assembly **5** is selectively positionable between a storage position (see **FIG. 2**) where the assembly **5** is at least partially (and in this  
15 embodiment fully) within the cavity **12** of the body **2** and an accessible position (see **FIG. 1**) where the assembly **5** is partially outside the cavity **12** of the body **2** rendering accessible both the dental floss dispenser **4** and the floss cutter **6** to the user. Accordingly, the floss cutter **6** and the dispenser **4** are accessible when the assembly **5** is in the accessible position (see **FIG. 1**) and concealed when the assembly **5** is in the  
20 storage position (see **FIG. 2**).

As was previously described, the body **2** of the dental floss dispensing device is formed by a cylinder having an outer surface **8** and an inner surface **10**. In accordance with the preferred embodiment of the present invention the inner surface **10** of the body **2** comprises a first helical groove **22** and a second helical groove **30**, as  
25 best shown on **FIG. 7**. The body **2** is made of injection-molded ABS plastic, but could also be any other suitable plastic material such as polystyrene, polycarbonate, polypropylene, or a metal (e.g. die-cast zinc).

Although two grooves are disclosed in the preferred embodiment of the present invention, a body including only one groove is within the scope of the present  
30 invention.

As shown on **FIGS. 3 and 8-10**, a guide cylinder **18** is positioned, at least partially, within the cavity **12** of the body **2** of the dental floss dispensing device, between the inner surface **10** of the body **2** and the dental floss dispenser and floss cutter assembly **5**. The guide cylinder **18** is formed by a cylinder, opened at the one  
5 end, and having a bottom at the other end. In addition, in the preferred embodiment of the present invention, the guide cylinder **18** includes a protruding ring that is visible when the guide cylinder **18**, the body **2**, dental floss dispenser and floss cutter assembly **5** and an hemispherical end portion **48** of the dental floss dispensing device are assembled together.

10 Referring now to **FIGS. 8 and 10**, the guide cylinder **18** includes a first guide slot **20** and a second guide slot **32** (also described as top and bottom longitudinal tracks in the United States Provisional Patent Application No. 60/744,041, from which the present application claims priority). The first guide slot **20** and the second  
15 guide slot **32** limit the dental floss dispenser and floss cutter assembly **5** to move upward or downward only with respect to the body as the engagement tabs **16** and **28** (described hereinbelow) when received within the guide slots **20** and **32** will prevent any movement other than that allowed by the guide slots **20** and **32**. In addition, the first guide slot **20** and the second guide slot **32** include locking track portions at their  
20 ends. The locking track portions prevent push back effects resulting from a force applied on the dental floss dispenser and floss cutter assembly **5** with respect to the body **2** when the assembly **5** is in its accessible position.

Further, the bottom of the guide cylinder **18** includes two looped fasteners, each one having a tubular shape, to which an attachment clip **44** is installed. Although, two guide slots are disclosed in the preferred embodiment of the present  
25 invention, a guide cylinder including only one guide slot is within the scope of the present invention.

The guide cylinder **18** is made of injection-molded polypropelene but could also be made any other suitable material such as a plastic material such as ABS, POM, polystrene, or polypropelene.

30 The dental floss dispensing device further comprises a dental floss dispenser and floss cutter assembly **5**, shown in **FIGS. 1, 3-5 and 11**. In the preferred

embodiment of the present invention, the dental floss dispenser and floss cutter assembly **5** is formed from a first portion **24** and a second portion **26** (also described as top and bottom portions in the United States Provisional Patent Application No. 60/744,041, from which the present application claims priority). The first portion **24** and the second portion **26**, when assembled together, form a cylindrical shape. Further, the first portion **24** and the second portion **26** enclose a floss spindle **40**. The floss spindle **40** is free to rotate within the assembly **5**. A line of dental floss **36** extends from the floss spindle **40** located inside the assembly **5** to the outside of the dispenser **4** through a hole **38** positioned on the dispenser **4** of the assembly **5**.

In an alternative embodiment, the hole **38** may be replaced by a tunnel, the tunnel extending from the inside of the assembly **5** to the outside of the assembly **5**, thereby guiding the line of dental floss **36** from the inside of the assembly to the outside of the assembly.

In addition, the assembly **5** has a recess **34**, suitable for allowing a user to pinch dental floss **36** extending from the hole **38** associated with the dispenser **4**, in front of the hole **38**. The floss cutter **6** is positioned on the top of the first portion **24**, substantially in line with the hole **38**. Therefore, the line of dental floss **36** extending to the outside of the dispenser **4** through the hole **38** is held in place by the floss cutter **6**, above the recess **34** (see **FIG. 5**).

Further, the assembly **5** includes a first engagement tab **16** and a second engagement tab **28** that protrude outwardly from the outer surface of the first portion **24** and the outer surface of the second portion **26**, respectively. The second engagement tab **28** is movable with respect to the assembly **5** by being located on a retractable portion of the second portion **26**, allowing the second engagement tab **28** to retract into the assembly **5**. The retractable portion is provided, in the preferred embodiment of the present invention, by two incisions on the second portion **26** on both sides of the second engagement tab **28**. The retractable portion also includes a grooved portion in order to allow a user to easily apply a force on the retractable portion thereby causing the second engagement tab **28** to retract into the assembly **5**.

Referring now to **FIG. 11**, in the preferred embodiment the assembly **5** is made of polypropylene but could also be made of any other suitable material such as a

plastic material such as ABS, POM, polystyrene, or polypropelene. Further, the first portion **24** and the second portion **26** are parts of the same piece and are linked at their bottom parts by a flexible portion of material. Consequently, the first portion **24** and the second portion **26** can be bent with respect to the axis defined by the flexible portion of material, thereby enclosing the floss spindle **40** between the first portion **24** and the second portion **26**.

In addition, the assembly **5** has a second recess positioned on the second portion **26** (opposite the dispenser **4**) and a mirror **42** is snapped-on the second recess. The assembly **5** further has a hemispherical cap **46** fixed to one of its ends.

The dental floss dispensing device further comprises a hemispherical end portion **48** fixed to the guide cylinder **18**. The hemispherical end portion **48** has an opening located in its center, allowing a clip **44** to be fixed to the two looped fasteners of the guide cylinder **18**, through its opening. In other embodiments, the hemispherical end portion **48** can be replaced or augmented by a functional element such as a pen, laser pointer, lipstick dispenser or a knife.

In the preferred embodiment of the present invention, the first guide slot **20** and the second guide slot **32** of the guide cylinder **18**, the first helical groove **22** and the second helical groove **30** of the body **2**, the first engagement tab **16** and the second engagement tab **28** of the assembly **5**, when assembled together, form a positioning mechanism. The positioning mechanism selectively positions the assembly **5** between the storage position and the accessible position through rotation of the body **2** relative to the assembly **5**.

In operation, the assembly **5**, the body **2**, the guide cylinder **18**, the hemispherical end portion **48** and the clip **44** are assembled together. The first engagement tab **16** of the assembly **5** engages the first helical groove **22** of the body **2** through the first guide slot **20** of the guide cylinder **18**. The second engagement tab **28** of the assembly **5** engages the second helical groove **30** of the body **2** through the second guide slot **32** of the guide cylinder **18**. Thus, when a user rotates the body **2** relative to the assembly **5** in a first direction, the first engagement tab **16** and the second engagement tab **28** move helically along the first helical groove **22** and the second helical groove **30** and longitudinally along the first guide slot **20** and the

second guide slot 32, respectively, thereby moving the assembly 5 towards the accessible position. The combined movements cause the assembly 5 to move longitudinally upwards with respect to the body 2, but not rotate with respect thereto. Conversely, when the user rotates the body 2 relative to the assembly 5 in a second direction, opposite to the first direction, the first engagement tab 16 and the second engagement tab 28 move helically along the first helical groove 22 and the second helical groove 30 and longitudinally along the first guide slot 20 and the second guide slot 32, respectively, thereby moving the assembly towards the storage position. The combined movements cause the assembly 5 to move longitudinally downwards with respect to the body 2, but not rotate with respect thereto.

In practice, the user rotates the body 2 relative to the assembly 5 by holding the hemispherical end portion 48 with one hand and by rotating the body 2 with the other hand. When the user moves the assembly 5 towards the accessible position, the assembly 5 protrudes partially outside the cavity 12 of the body 2 exposing at least the dental floss dispenser 4 and the floss cutter 6. The user then pinches the line of dental floss 36 above the recess 34 and pulls the dental floss 36 until a desired length of dental floss has been extracted from the dispenser 4. Next, the user cuts off a piece of dental floss of the desired length by using the floss cutter 6. When the user moves the assembly 5 towards the storage position, the dispenser 4 and cutter 6 retract within the cavity 12 of the body 2 thereby storing the dental floss and concealing the floss cutter 6. Therefore, the floss cutter 6 is stored out of sight when the dispenser 4 is in its storage position, reducing the risk of injury resulting from an accidental contact with the floss cutter 6 when the dental floss dispensing device is unused.

In addition, the assembly 5 is completely removable from the body 2 of the dental floss dispensing device thereby facilitating the replacement when the dental floss spindle 40 is empty. To do so, the user presses the grooved portion of the second portion 26 of the assembly 5 in order to retract the second engagement tab 28 into the assembly 5. Accordingly, the second engagement tab 28 is disengaged from the second helical groove 30 of the body 2 and from the second guide slot 32 of the guide cylinder 18, allowing the assembly 5 to be freed from the body 2 of the dental floss dispensing device. The first engagement tab 16 is disengaged from the first helical groove 22 of the body 2 and through the open section of the first guide slot 20

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of the guide cylinder 18 when the assembly 5 is extracted from the body 2. Subsequently, the user extracts the assembly 5 from the body 2 of the dental floss dispensing device and either replaces the assembly 5 by a new assembly 5 or only replaces the dental floss spindle 40 located within the assembly 5. Then, the user  
5 presses the grooved portion of the second portion 26 of the assembly 5 and introduces the assembly 5 into the body 2 of the dental floss dispensing device thereby engaging the first engagement tab 16 into the first helical groove 22 of the body 2 and through the open section of the first guide slot 20 of the guide cylinder 18. Next, the user releases the grooved portion of the second portion 26 thereby engaging  
10 the second engagement tab 28 into the second helical groove 30 of the body 2 and into the second guide slot 32 of the guide cylinder 18, allowing the assembly 5 to be clipped into the body 2 of the dental floss dispensing device.

Modifications and improvements to the above-described embodiments of the present invention may become apparent to those skilled in the art. The foregoing  
15 description is intended to be exemplary rather than limiting. The scope of the present invention is therefore intended to be limited solely by the scope of the appended claims.

What is claimed is:

1. **A dental floss dispensing device comprising:**  
a body, the body having an outer surface, an inner surface and a cavity therein,  
the cavity having a longitudinal axis; and  
5 a dental floss dispenser and floss cutter assembly, the assembly being disposed  
at least partially within the cavity of the body and being movable along the  
longitudinal axis of the cavity and being selectively longitudinally positionable  
between at least a storage position wherein the assembly is at least partially within the  
cavity of the body and an accessible position where the assembly is at least partially  
10 outside the cavity of the body, the dental floss dispenser and the floss cutter being  
accessible when the assembly is in the accessible position and being concealed when  
the assembly is in the storage position.
2. The dental floss dispensing device of claim 1, wherein the assembly is  
15 operatively connected to the body and is positioned, between at least the storage  
position and the accessible position, by rotation of the body relative to the assembly.
3. The dental floss dispensing device of claim 2, further comprising:  
a positioning mechanism for selectively positioning the assembly between at  
20 least the storage position and the accessible position, the mechanism including at least  
one engagement tab, a guide cylinder including at least one longitudinally extending  
guide slot therein receiving the tab, and at least one helical groove receiving the tab.
4. The dental floss dispensing device of claim 3, wherein the at least one  
25 engagement tab protrudes outwardly from the assembly and wherein the at least one  
helical groove is located on the inner surface of the body.
5. The dental floss dispensing device of claim 4, wherein  
the guide cylinder is intermediate the assembly and the body, and  
30 the at least one engagement tab simultaneously  
is received within and extends through the guide slot of the guide  
cylinder, and  
is received within the helical groove of the body

whereby rotational movement of the body relative to the assembly in a first direction causes the at least one engagement tab to move simultaneously helically along the at least one helical groove and longitudinally along the at least one guide slot of the guide cylinder, thereby moving the assembly towards the accessible position, and

5

whereby rotational movement of the body relative to the assembly in a second direction, opposite to the first direction, causes the at least one engagement tab to move simultaneously helically along the at least one helical groove and longitudinally along the at least one guide slot of the guide cylinder, thereby moving the assembly towards the storage position.

10

6. The dental floss dispensing device of claim 1, wherein when the assembly is in the storage position, no dental floss extends outside of the dispensing device.

15

7. The dental floss dispensing device of claim 3, wherein:

the at least one engagement tab is a first engagement tab and a second engagement tab, each tab protruding outwardly from the assembly;

the at least one longitudinally-extending guide slot is a first longitudinally-extending guide slot and a second longitudinally-extending guide slot;

20

the at least one helical groove is a first helical groove and a second helical groove, each helical groove being located on the inner surface of the body;

the guide cylinder is intermediate the assembly and the body; and

the first engagement tab simultaneously

25

is received within and extends through the first guide slot of the guide cylinder, and

is received within the first helical groove of the body

the second engagement tab simultaneously

is received within and extends through the second guide slot of the guide cylinder, and

30

is received within the second helical groove of the body

whereby rotational movement of the body relative to the assembly in a first direction causes



- 15 -

the first engagement tab to move simultaneously helically along the first helical groove and longitudinally along the first guide slot of the guide cylinder, and

5 the second engagement tab to move simultaneously helically along the second helical groove and longitudinally along the second guide slot of the guide cylinder, and

thereby moving the assembly towards the accessible position; and

whereby rotational movement of the body relative to the assembly in a second direction, opposite to the first direction, causes

10 the first engagement tab to move simultaneously helically along the first helical groove and longitudinally along the first guide slot of the guide cylinder, and

15 the second engagement tab to move simultaneously helically along the second helical groove and longitudinally along the second guide slot of the guide cylinder, and

thereby moving the assembly towards the storage position.

8. The dental floss dispensing device of claim 7, wherein the assembly is completely removable from the body.

20

9. The dental floss dispensing device of claim 8, wherein at least one of the engagement tabs is movable to selectively:

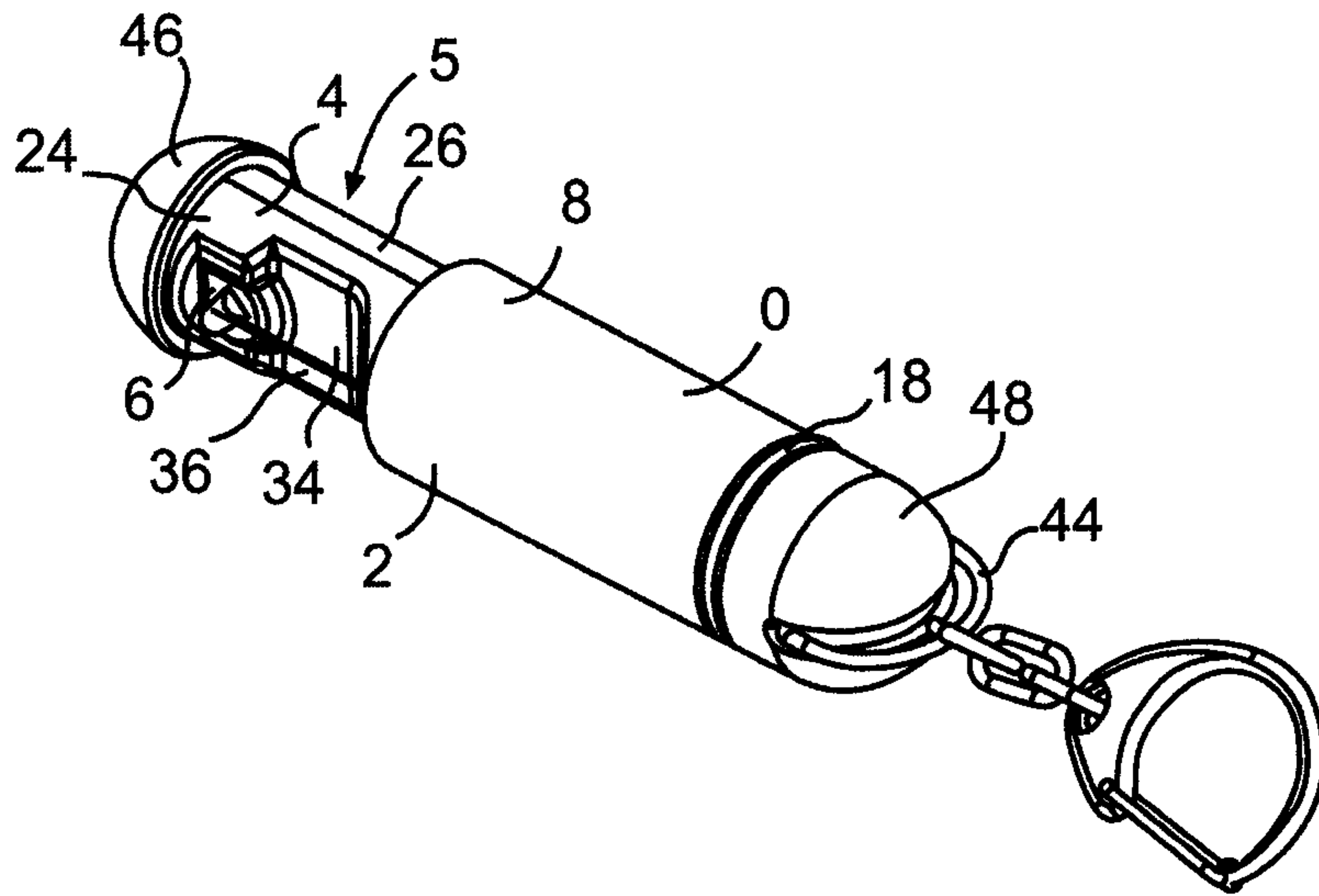
disengage the tab from its helical groove and from its guide slot, allowing the assembly to be disengaged from the body; and

25 engage the tab into its helical groove through its guide slot, allowing the assembly to be engaged with the body.

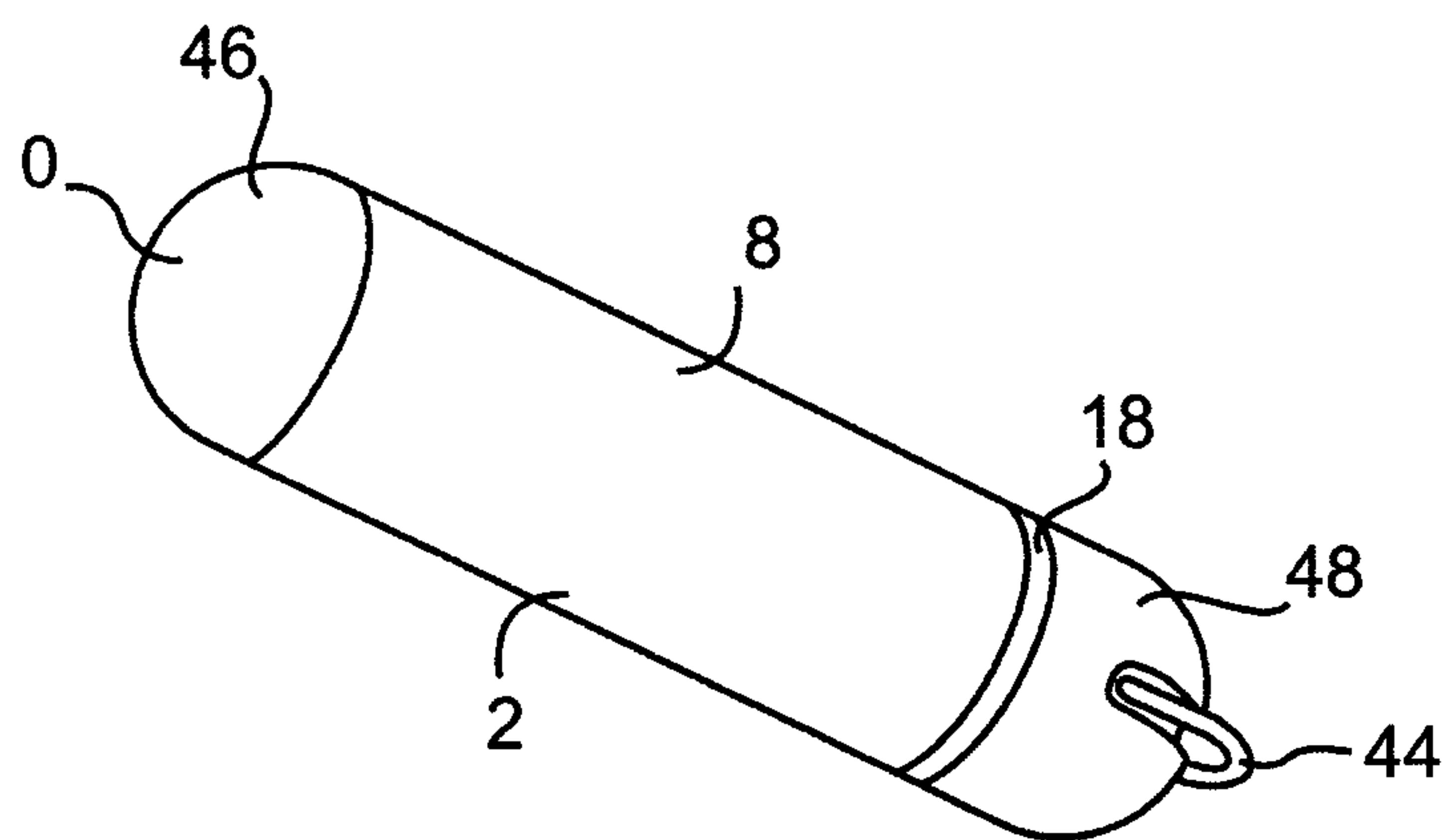
10. The dental floss dispensing device of claim 1, wherein the assembly includes a recess constructed and arranged to allow a user to pinch dental floss extending across  
30 the recess.

11. The dental floss dispensing device of claim 10, wherein the recess is positioned in front of a hole from which dental floss is dispensed.

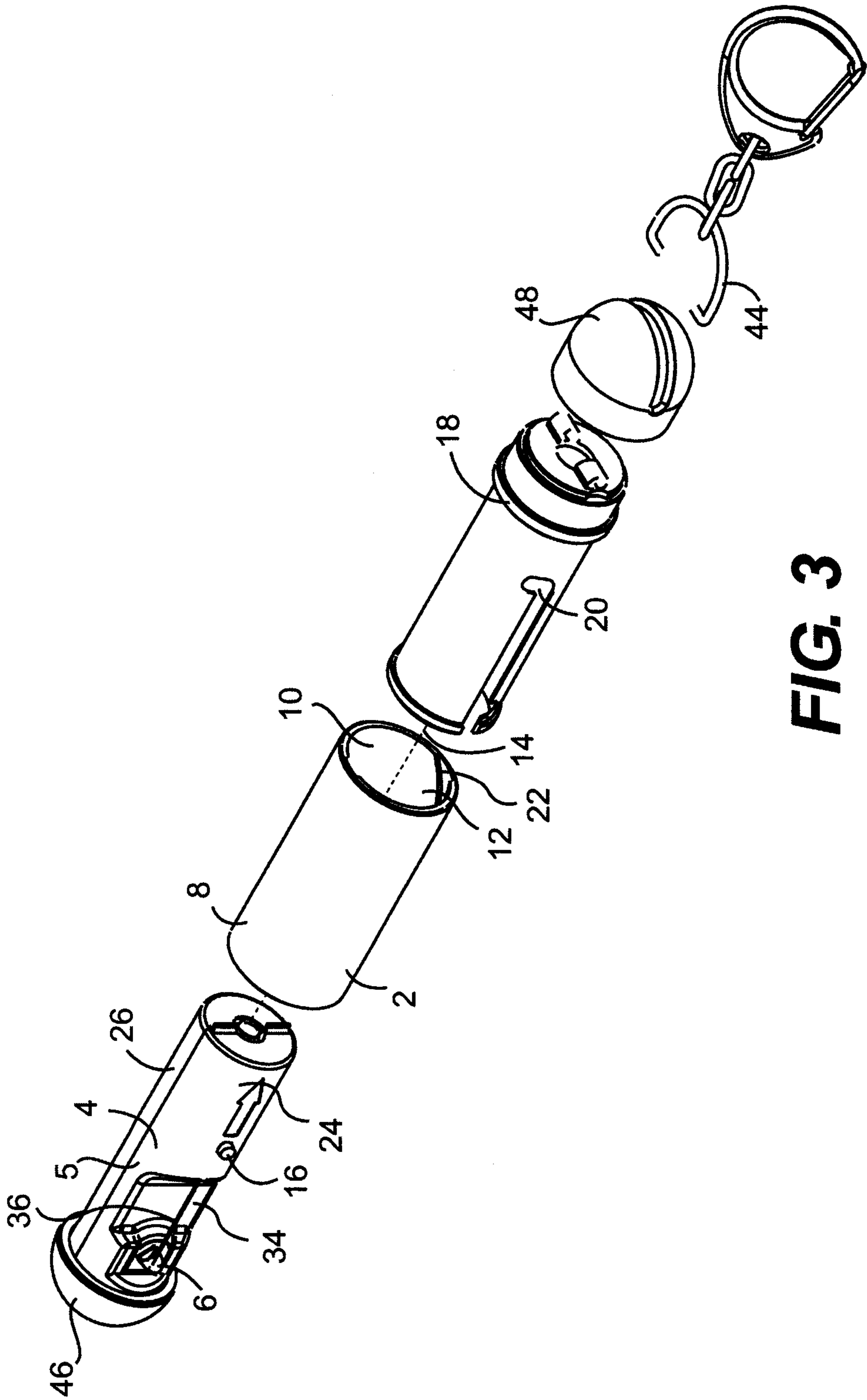
12. The dental floss dispensing device of claim 11, wherein the assembly includes an interior cavity containing a dental floss spindle providing dental floss to the hole from which the floss is dispensed.
- 5 13. The dental floss dispensing device of claim 10, wherein the assembly includes an interior cavity containing a dental floss spindle and a tunnel extending from the cavity for allowing dental floss to be dispensed.
- 10 14. The dental floss dispensing device of claim 13, wherein the assembly includes a recess constructed and arranged to allow a user to pinch dental floss extending from the tunnel across the recess.
- 15 15. The dental floss dispensing device of claim 1, wherein the assembly includes a mirror.
16. The dental floss dispensing device of claim 15, wherein the mirror is located on an opposite side of the assembly from the dental floss dispenser.
- 20 17. The dental floss dispensing device of claim 12, wherein the floss cutter is positioned so as to be substantially longitudinally aligned with the hole.
18. The dental floss dispensing device of claim 13, wherein the floss cutter is positioned so as to be substantially longitudinally aligned with the tunnel.
- 25 19. The dental floss dispensing device of claim 1, further including a clip attached to the body.
- 30 20. The dental floss dispensing device of claim 1, wherein, the assembly is fully within the cavity of the body when in the storage position.



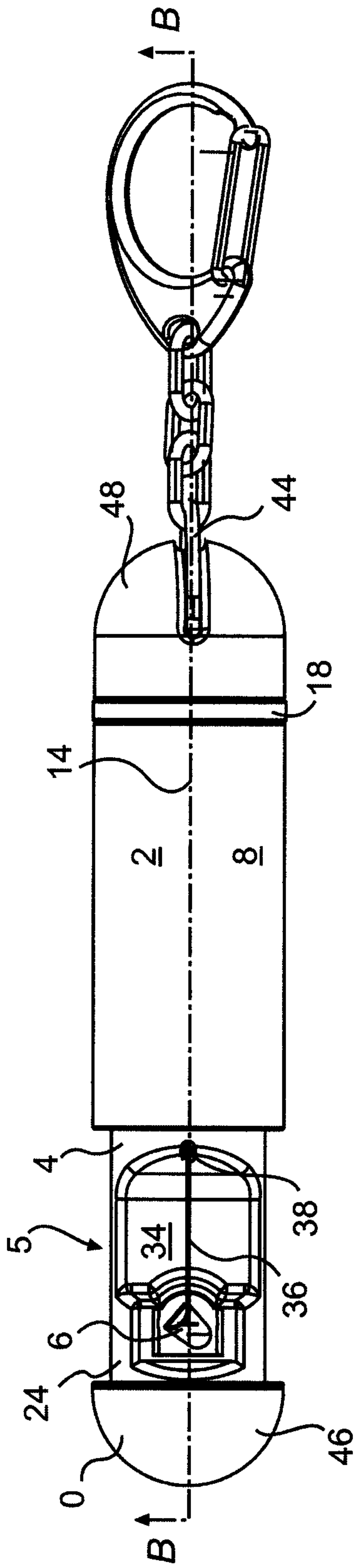
**FIG. 1**



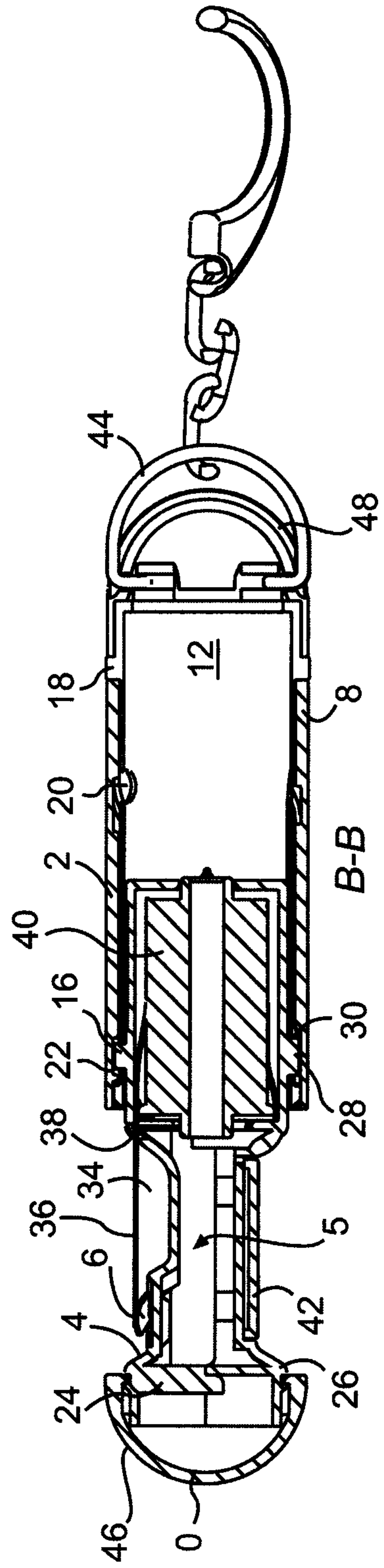
**FIG. 2**



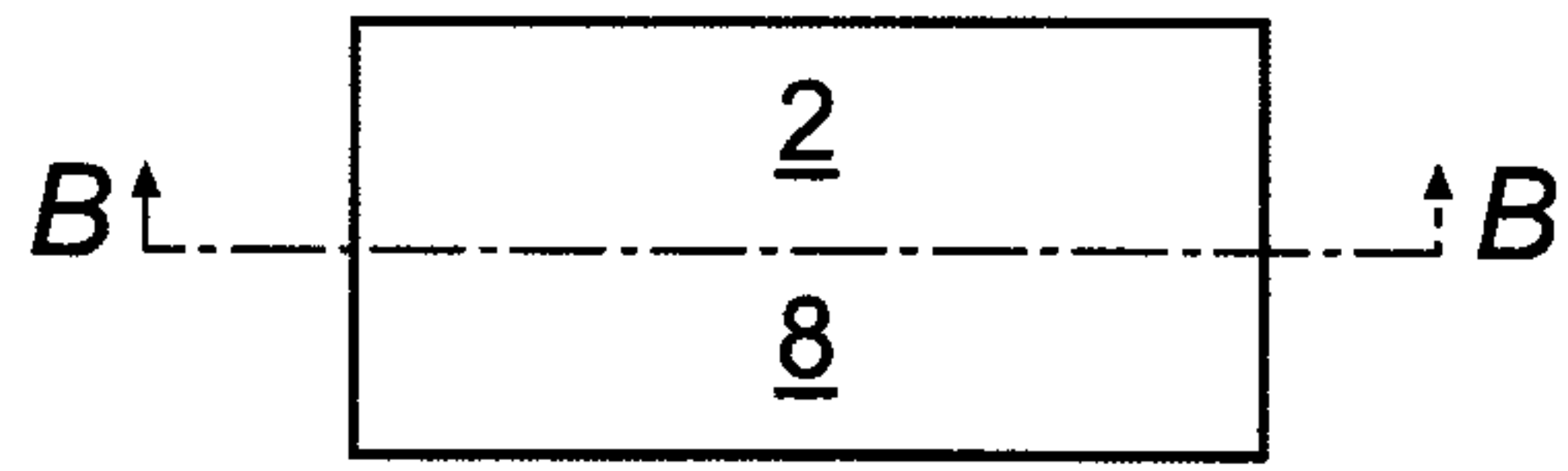
**FIG. 3**



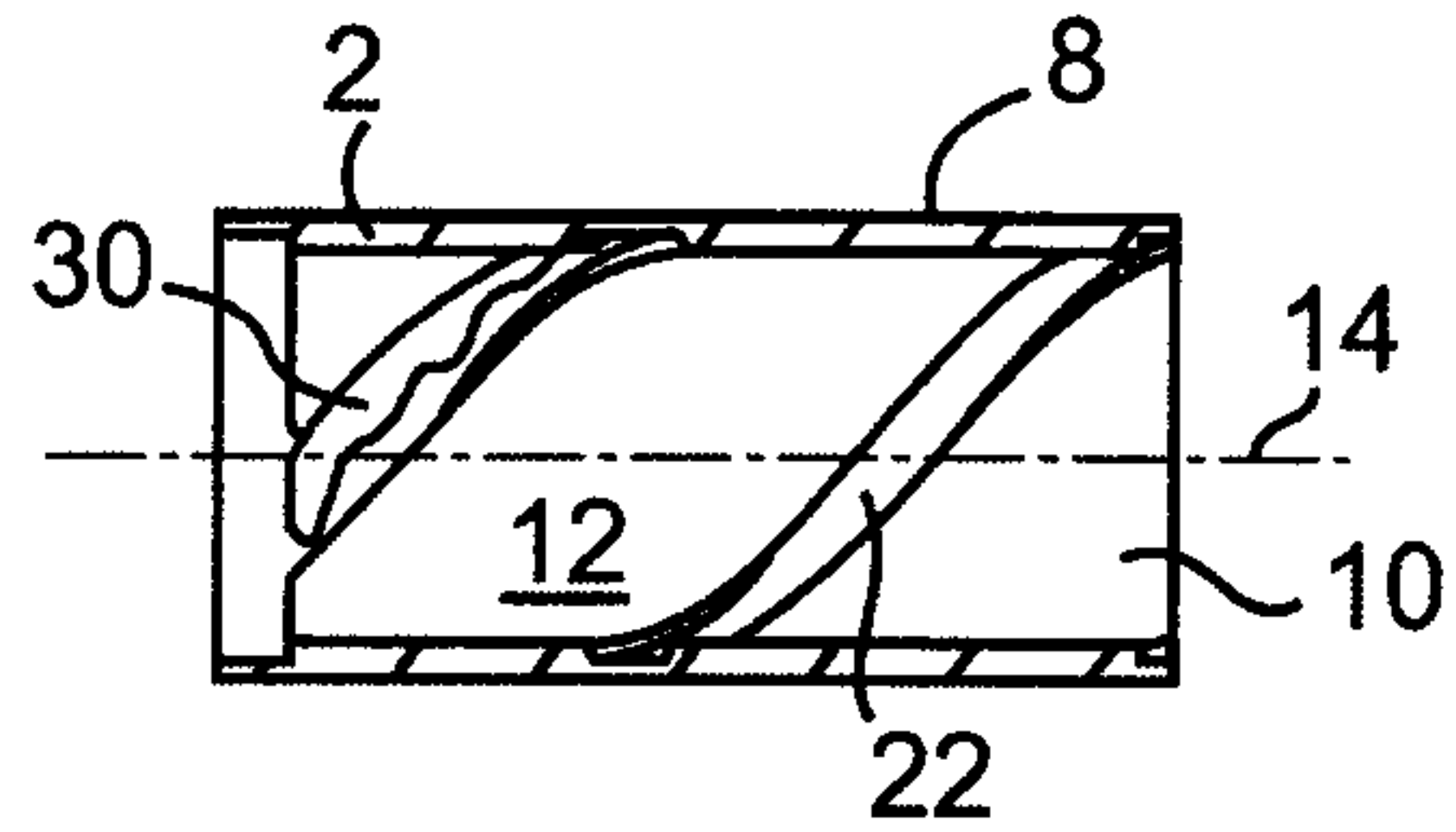
**FIG. 4**



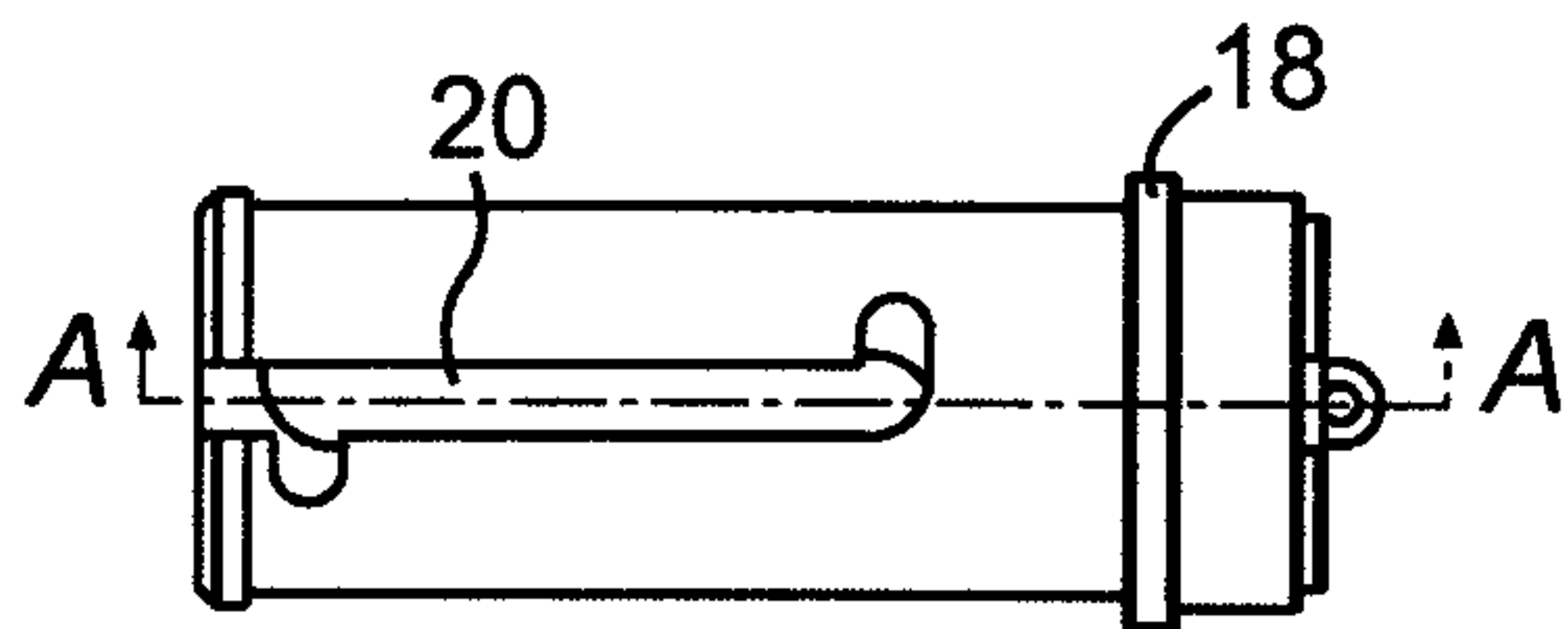
**FIG. 5**



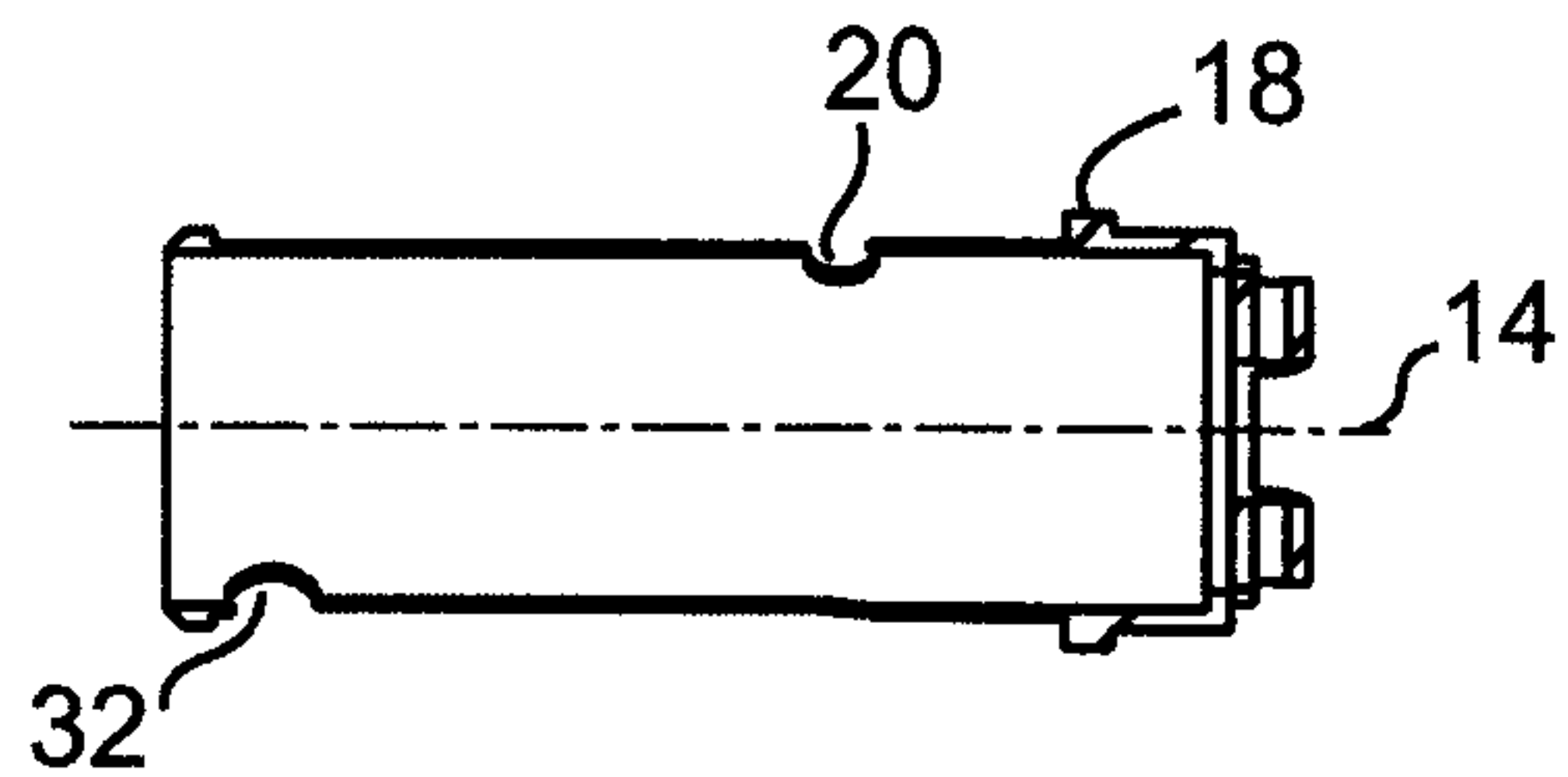
**FIG. 6**



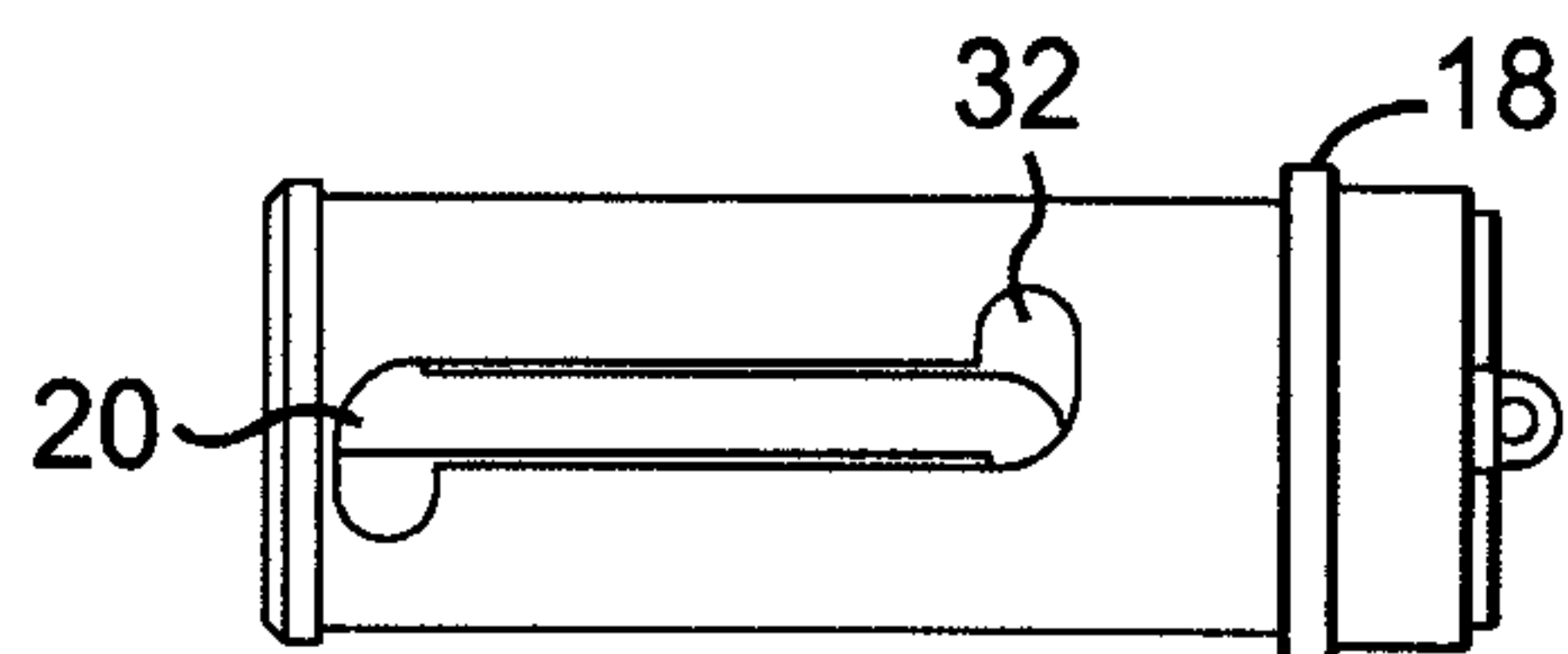
**FIG. 7**



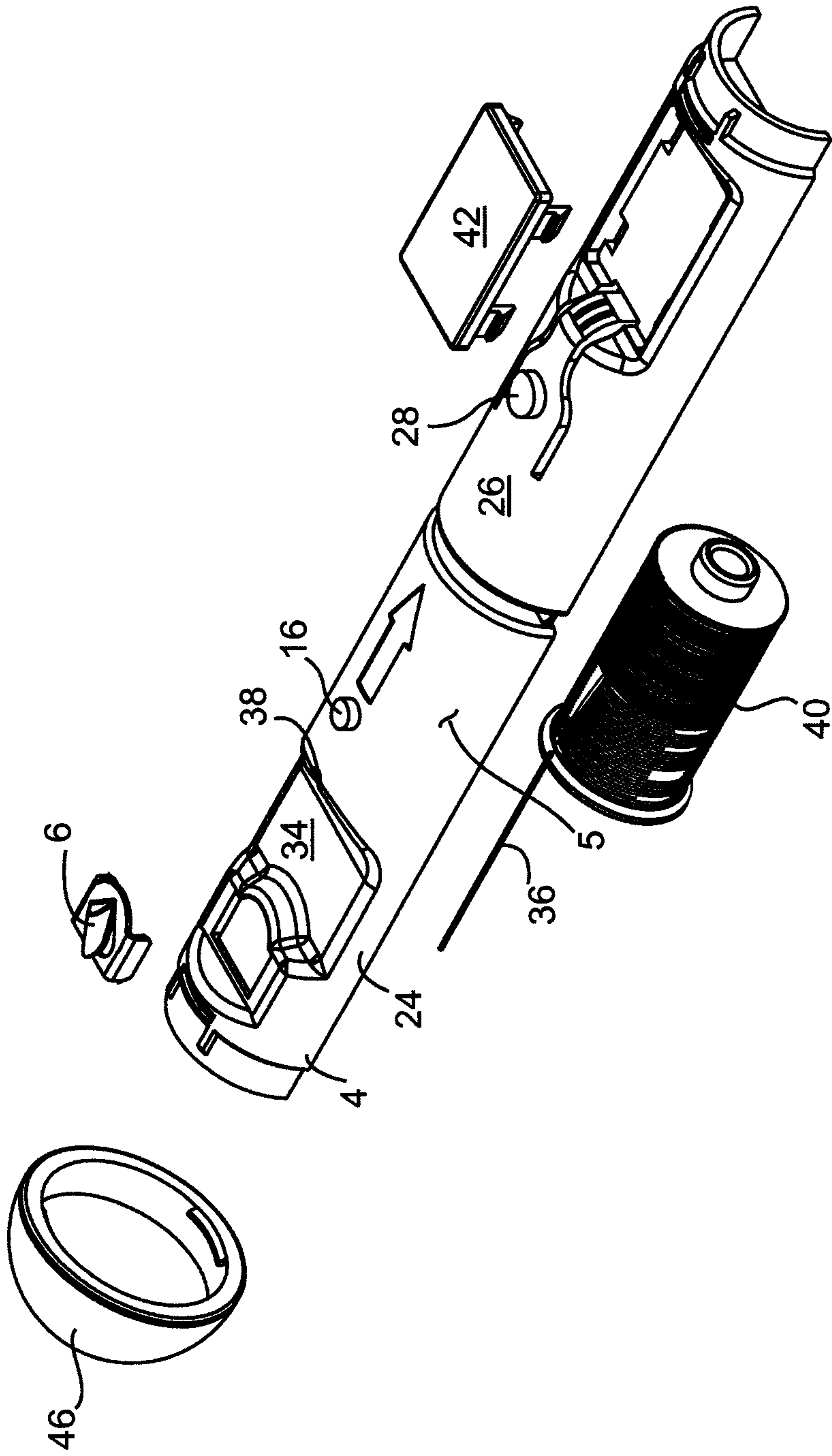
**FIG. 8**



**FIG. 9**



**FIG. 10**



**FIG. 11**

