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(54) Title: THREAD DISPENSER

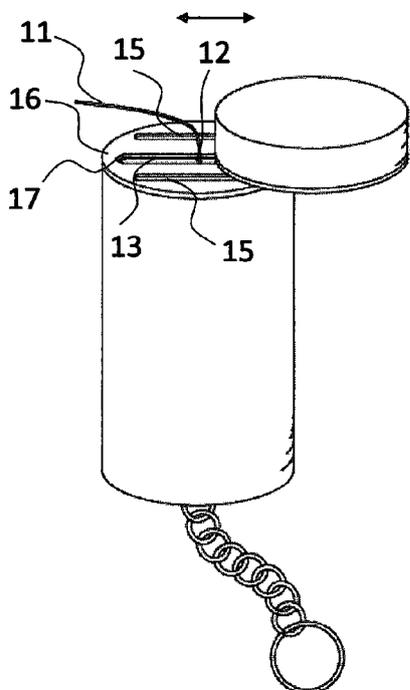


Fig. 2

(57) Abstract: A thread or floss dispenser (1) is disclosed, comprising a container (3) for housing a quantity of thread (11). The container has a substantially flat external wall (16) through which is provided an aperture (12) for the thread to emerge from the interior of the container. A cap (5) is slidably connected to the container so that it can move in a reciprocal manner, along the plane of the external wall, between open and closed positions. The external wall has an elongate recess (13) extending from the aperture towards a terminating point (17) near to the edge of the wall. The edge or underside of the cap carries a blade (27) that, as it passes over the terminating point of the recess towards the closed position, effects cutting of the thread.



Thread Dispenser

Field of the Invention

This invention relates to a thread dispenser, and particularly, though not exclusively,
5 a dental floss dispenser.

Background of the Invention

Dental floss is a thread or filament of material used to remove food and dental
plaque from between teeth. It is typically provided within a dispenser, comprising a
10 container within which is provided a rotatable spool around which the thread is
wound, with one end of the thread emerging through an aperture on an upper
surface of the container. A protruding blade is fixed on the upper surface which
allows part of the thread to be cut and also helps retain the free-end for subsequent
use. A protective cap locates over the upper surface to cover the blade and
15 aperture.

Such dispensers tend to be relatively bulky due to the need to cover the blade with a
hollow cap. Sometimes, the thread may come loose from the blade and return back
inside the container. The protruding blade may damage clothing, e.g. if the cap
20 comes loose inside a user's pocket. The dispenser may be easily lost or forgotten
when travelling.

Summary of the Invention

A first aspect of the invention provides a thread dispenser, comprising a container for
25 housing a quantity of thread, the container having an exterior dispensing surface
comprising an aperture through which thread in use can emerge from the container,
and a cap connected to the container so as to move over the dispensing surface,
between an open position and a closed position, the cap edge or underside having a
blade provided thereon that cuts the thread when the cap moves from the open
30 position to the closed position.

The dispensing surface may comprise a recess extending from the aperture towards,
but not all the way to, an edge of said surface and wherein the cap is arranged to

slidably move over the recess such that the blade in use cuts the thread as it passes over the end of the recess.

5 The dispenser may further comprise a guiding element for guiding thread as it emerges from the dispensing surface aperture to an outlet end, the guiding element being pivotably attached to the container, and located at least partially within the recess, and which rotates upon movement of the cap from the closed position to the open position so that the outlet end is raised above the recess, and which rotates in the opposite direction upon reverse movement of the cap so that the outlet end is
10 positioned adjacent the end of the channel.

The guiding element may be tubular for guiding the thread within, and has a distal end which in use is contacted by the cap as it moves between the open and closed positions.
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The dispensing surface recess and the underside of the cap may be shaped so that the guiding element is enclosed within the dispenser when in the closed position.

20 The dispensing surface may comprise a recessed channel extending from the aperture towards, but not extending all the way to, an edge of said surface and wherein the cap is arranged to slidably move in the direction of the channel such that the blade in use cuts the thread as it passes over the end of the channel.

25 The cap may be connected to the container by means of at least one sliding connector arranged parallel to the recessed channel.

The dispenser may comprise a spool within the container.

30 The dispenser may further comprise a key-chain connector attached to the container. The key-chain connector may be removable.

Preferably, the dispenser is a dental floss dispenser, with a quantity of dental floss stored within the container, e.g. wrapped around a spool.

A second aspect of the invention provides a thread dispenser, comprising a container for housing a quantity of thread, the container having a substantially flat external wall through which is provided an aperture for thread to emerge from the interior of the container; and a cap slidably connected to the container so that it can move in a reciprocal manner between open and closed positions, wherein the external wall of the container has an elongate recess extending from the aperture towards a position near the edge of the wall and the edge or underside of the cap carries a blade that, as it passes over edge of the recess, towards the closed position effects cutting of the thread as it passes over the end of the recess.

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A third embodiment provides a thread dispenser, comprising a container for housing a quantity of thread, the container having a recessed upper surface within which recess is pivotably attached a guide lever for guiding thread from the container to an outlet end of the lever, and a cap carrying a blade on its edge or underside, which cap is slidably connected to the container so that it can move in a reciprocal manner between open and closed positions over the recess, wherein the guide lever is arranged such that its outlet end is moved upwards by movement of the cap towards the open position, and downwards by movement of the cap towards the closed position, whereby during movement towards the closed position, the outlet end of the guide lever is positioned adjacent a side wall of the recess as the blade passes over it.

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Brief Description of the Drawings

The invention will now be described, by way of non-limiting example, with reference to the drawings, in which:

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Figure 1 is a perspective view of a dental floss dispenser, according to a first embodiment of the invention;

Figure 2 is a perspective view of the Figure 1 dispenser, when opened;

30 Figure 3 is an exploded and transparent view of the Figure 1 dispenser, showing constituent components;

Figure 4 is a side view of a dental floss dispenser, according to a second embodiment of the invention, shown in a closed position;

Figure 5 is a side view of the Figure 4 dispenser, when opened;

Figure 6 is an exploded perspective view of the Figure 4 dispenser; and Figure 7 is a perspective view of the Figure 4 dispenser when assembled.

Detailed Description of Preferred Embodiments

5 Embodiments herein describe a dental floss dispenser. However, the dispenser can also be used for other thread-like materials, and in this respect, the term thread is intended to encompass any filament, cord or tape –like material.

10 Referring to Figure 1, a first embodiment dental floss dispenser 1 comprises a cylindrical container 3 and a smaller, cylindrical cap 5. Reference numeral 7 indicates the close interface between the two; as will be described, the container 3 and cap 5 are movable relative to each other, along the interface plane. This Figure shows the dispenser 1 in the closed position. It will be appreciated that the container 3 and cap 5 can be shapes other than cylindrical.

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Figure 2 shows the dispenser 1 in the open position. The cap 5 is slidably connected to the container 3, between the lower surface (not visible) of the former and the upper surface 10 of the latter. The cap lower surface and upper surface 10 are both substantially planar. Two parallel slots 15 in the upper surface 10 provide a means by which lugs or screws extend upwardly from the container 3, through the slots and into the cap 5 where they are fixed, to enable relative sliding of the two parts between the closed and open positions.

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An aperture 12 is provided in the approximate centre of the upper surface 10 to allow floss to emerge from the interior. A recessed groove 13, projecting down from the upper surface 10, extends between, and parallel with, the outer slots 15. The groove 13 extends towards the edge 16 of the upper surface 10 (but not all the way) terminating at a point or edge 17 just short of the perimeter edge.

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30 A keychain 9 is connected to the lower surface of the dispenser 1 to enable the dispenser to conveniently connect to a key ring, belt-loop or the like, making the dispenser easy to carry and avoids accidental loss.

Referring now to Figure 3, within the container 3 is housed a spool 19 which carries a wound quantity of floss 11. The spool 19 has a central bore which locates between two vertically-oriented spindles 22 allowing the spool to rotate as floss 11 is withdrawn in use. The thread 11 passes upwards through the container 3 and emerges from the aperture 12. The upper surface 10 is provided on a separate end-cap 21 that fits within the upper end of the container 3 to close-off the container. A pair of screw-like lugs 25 are shown which extend upwards through the slots 15 and connect within threaded holes 26 in the cap's lower surface. This is performed prior to the end-cap 21 being fitted to the container 3.

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A mechanical stop 23 projects from the lower face of the cap 5 and is shaped to be received in a like-shaped recess 24 when in the closed position. On the lower face of the cap 5, at or near the opposite end to the stop 23, is provided a blade 27 which in use effects automatic cutting of the floss 11. The blade 27 is substantially planar. It is positioned so that the leading edge extends transversely across the groove 13 and will pass over and beyond the terminating point 17 when the cap 5 is slidably moved to the closed position shown in Figure 1.

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As will be appreciated, in use, the user opens the dispenser 1 by relative sliding movement of the cap 5 to the container 3, resulting in the position shown in Figure 2. The required length of floss 11 is drawn from the container 3, and the cap 5 slidably moved back to the closed position as shown in Figure 1. This results in the leading edge of the transverse blade 27 passing over part of the exposed floss 11, which remains held within the groove 13, and then cuts the floss as it passes over the point 17 where the groove terminates. The section of floss held within the groove 13 is effectively prevented from returning back into the interior of the container 3.

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The keychain 9 can be removable, as shown in Figure 3. Specifically, it can be attached by means of a bolt 28 which screws into a threaded channel on the lower end of the container.

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In summary, the dispenser 1 gives users a safe and reliable way to keep dental floss on their person, ensuring its available when needed e.g. after every meals or snacks. If the keychain 9 is removed, the dispenser 1 can be used like a traditional dispenser

and stored in a user's bathroom. The dispenser 1 has an innovative, sliding, open/close lid with cutting action on closing which makes the process of dispensing dental floss much easier (slide open, pull desired length of floss and slide close). By having the dispenser 1 attached to a keyring or belt loop, it is less likely to be forgotten or misplaced.

A second embodiment floss dispenser 30 will now be described with reference to Figures 4 and 5, which show closed and open positions respectively. This floss dispenser 30 is similar to that of the first embodiment, save for the details that follow.

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A cap 31 of the dispenser 30 is similarly slidably mounted on the container 3, but has a recess 32 within its underside; the container upper surface has a deeper recess 33 formed by the shape of its upper wall to define a cavity 34 between the two when in the closed position. Within this cavity 34 is housed a guide lever 35 pivotably mounted to side walls of the recess 33 (not shown). The guide lever 35 is a hollow tube, being generally L-shaped.

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At one end of the guide lever 35 is a contact portion 36. Further along the guide lever 35, close to the aperture 37 from which floss emerges from the container 3, is an inlet 38 which communicates with an internal channel. This channel extends to the other end, where there is an outlet 39 at or near the tip. The floss is fed from the spool 19, through an intermediate channel 40, and then through the inlet 38 and channel of the guide lever 35. The floss emerges from the outlet 39.

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Referring specifically to Figure 4, it will be seen that the guide lever 35 is wholly enclosed within the cavity 34 when the cap 31 is closed relative to the container 3. The upwardly projecting contact portion 36 sits within the recess 32 and is retained therein. The outlet 39 in this position sits adjacent the left-most wall 41 of the lower recess 33, just beneath its uppermost edge. Referring to Figure 5, when the cap 31 is slidably moved to the open position, the left-hand wall of the recess 32 moves the contact portion 36 and rotates the guide lever 35 clockwise, so that the outlet 39 is raised out of the cavity 34. In this position, therefore, floss is made easily accessible to a user, who can withdraw the required length of the floss. Cutting is then effected by closing the cap 31 back to the Figure 4 position, causing the guide lever 35 to

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rotate counter clockwise. The withdrawn floss which will lap over the left-most edge 43 is automatically cut by the blade 44 carried on the edge or underside of the cap 31.

- 5 The guide lever 35 may be biased to the Figure 5 position by a spring member, but this is not essential.

10 Figures 6 and 7 show perspective views of the second embodiment dispenser 30, in exploded and assembled forms respectively. It will be seen from Figure 6 in particular that the slidable attachment of the cap 31 to an end cap 21 is employed, as are various features present in the first embodiment. The primary difference is the provision of the guide lever 35 within a shaped recess 33 which pivots in response to reciprocal opening and closing movement of the sliding cap 31.

- 15 This embodiment offers an alternative solution to the first embodiment.

It will be appreciated that the above described embodiments are purely illustrative and are not limiting on the scope of the invention as should be apparent to persons skilled in the art upon reading the present application.

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Moreover, the disclosure of the present application should be understood to include any novel features or any novel combination of features either explicitly or implicitly disclosed herein or any generalization thereof and during the prosecution of the present application or of any application derived therefrom, new claims may be
25 formulated to cover any such features and/or combination of such features.

30

Claims

1. A thread dispenser, comprising a container for housing a quantity of thread,
5 the container having an exterior dispensing surface comprising an aperture through
which thread in use can emerge from the container, and a cap connected to the
container so as to move over the dispensing surface, between an open position and
a closed position, the cap edge or underside having a blade provided thereon that
cuts the thread when the cap moves from the open position to the closed position.
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2. A thread dispenser according to claim 1, wherein the dispensing surface
comprises a recess extending from the aperture towards, but not all the way to, an
edge of said surface and wherein the cap is arranged to slidably move over the
recess such that the blade in use cuts the thread as it passes over the end of the
15 recess.
3. A thread dispenser according to claim 2, further comprising a guiding element
for guiding thread as it emerges from the dispensing surface aperture to an outlet
end, the guiding element being pivotably attached to the container, and located at
20 least partially within the recess, and which rotates upon movement of the cap from
the closed position to the open position so that the outlet end is raised above the
recess, and which rotates in the opposite direction upon reverse movement of the
cap so that the outlet end is positioned adjacent the end of the channel.
- 25 4. A thread dispenser according to claim 3, wherein the guiding element is
tubular for guiding the thread within, and has a distal end which in use is contacted
by the cap as it moves between the open and closed positions.
- 30 5. A thread dispenser according to claim 3 or claim 4, wherein the dispensing
surface recess and the underside of the cap are shaped so that the guiding element
is enclosed within the dispenser when in the closed position.

6. A thread dispenser according to any preceding claim, wherein the cap is connected to the container by means of at least one sliding connectors arranged parallel to the recess.

5 7. A thread dispenser according to any preceding claim, comprising a spool within the container.

8. A thread dispenser according to any preceding claim, further comprising a key-chain connector attached to the container.

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9. A thread dispenser according to claim 8, wherein the key-chain connector is removable.

10. A thread dispenser according to any preceding claim, being a dental floss
15 dispenser, with a quantity of dental floss stored within the container.

11. A thread dispenser, comprising a container for housing a quantity of thread, the container having a substantially flat external wall through which is provided an aperture for thread to emerge from the interior of the container; and a cap slidably
20 connected to the container so that it can move in a reciprocal manner, along the plane of the external wall, between open and closed positions, wherein the external wall of the container has an elongate channel extending from the aperture towards a terminating point near to the edge of the wall, and wherein the edge or underside of the cap carries a blade that, as it passes over the terminating point of the recess
25 towards the closed position, effects cutting of the thread.

12. A thread dispenser, comprising a container for housing a quantity of thread, the container having a recessed upper surface within which recess is pivotably attached a guide lever for guiding thread from the container to an outlet end of the
30 lever, and a cap carrying a blade on its edge or underside, which cap is slidably connected to the container so that it can move in a reciprocal manner between open and closed positions over the recess, wherein the guide lever is arranged such that its outlet end is moved upwards by movement of the cap towards the open position, and downwards by movement of the cap towards the closed position, whereby

during movement towards the closed position, the outlet end of the guide lever is positioned adjacent a side wall of the recess as the blade passes over it.

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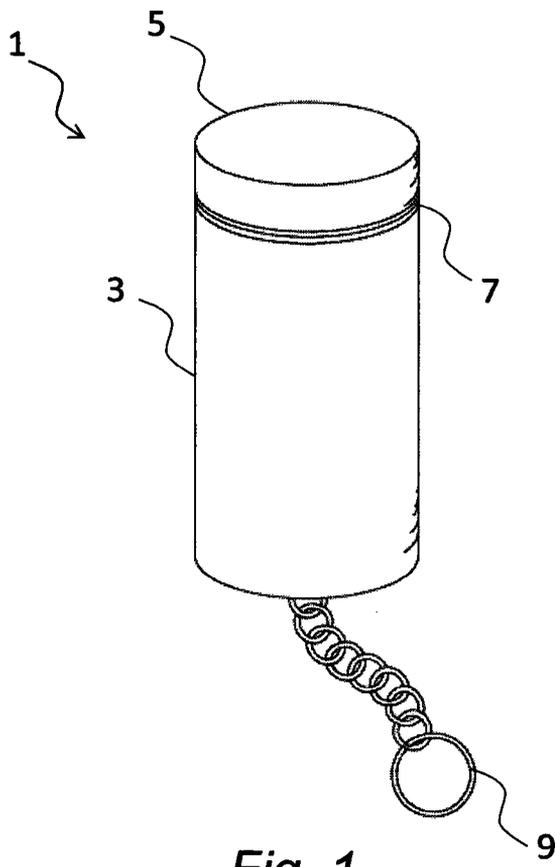


Fig. 1

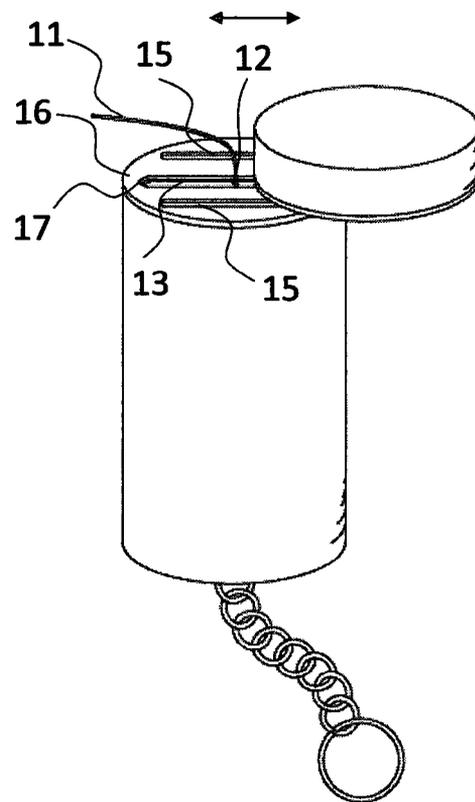


Fig. 2

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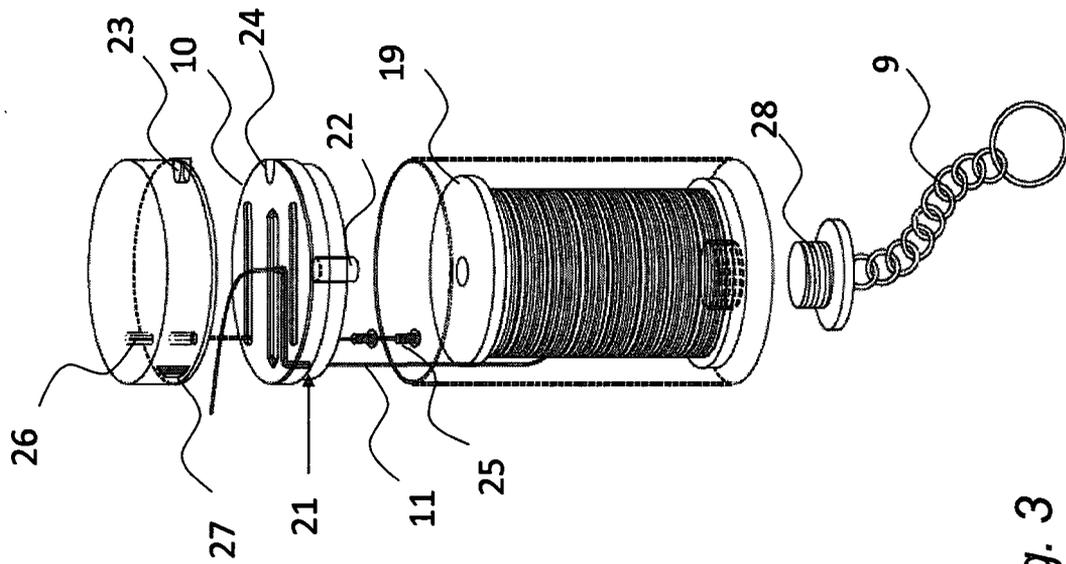


Fig. 3

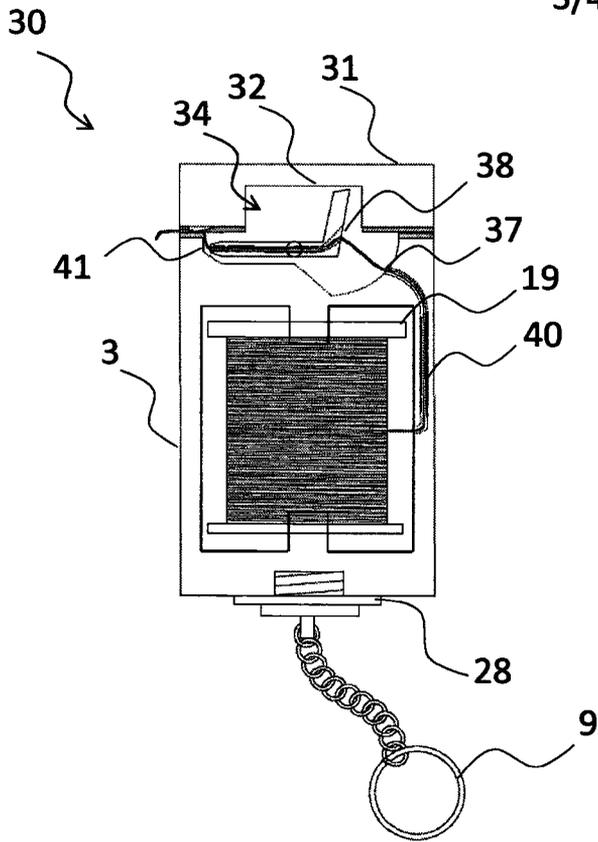


Fig. 4

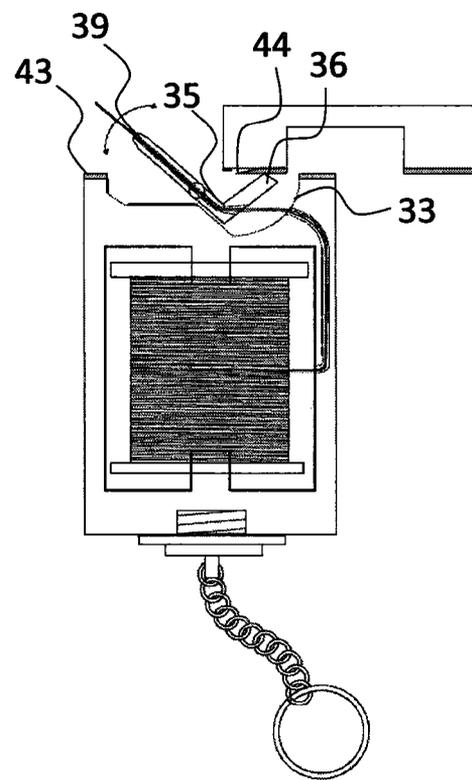
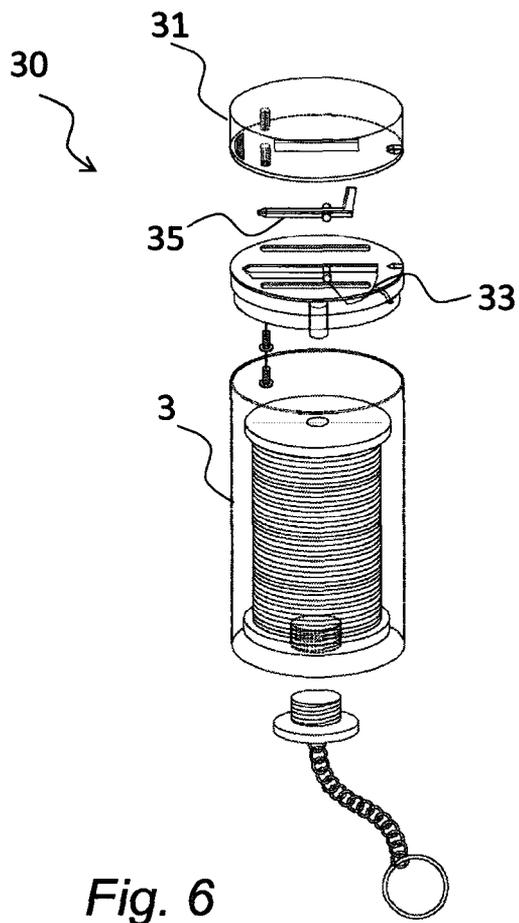
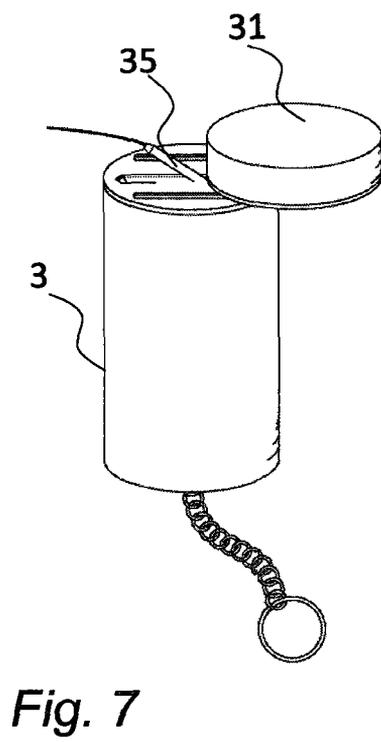


Fig. 5



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INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2016/000165

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61C15/04
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
A61C B65D B65H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/211263 A1 (KUO YOUTI) 29 September 2005 (2005-09-29)	1,7,10
Y	abstract; figures 7-12 paragraphs [0035] - [0038]	8,9
Y	US 2007/209953 A1 (CONTE FRANK) 13 September 2007 (2007-09-13)	8,9
	abstract; figures 1,5 paragraph [0041]	
A	WO 2007/012221 A1 (FAN SHENGFA) 1 February 2007 (2007-02-01)	1
	abstract; figures 6-9	
A	GB 2 416 985 A (RUST STEWART) 15 February 2006 (2006-02-15)	1
	abstract; figure 1 page 2, line 29 - page 3, line 7	
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search 8 December 2016	Date of mailing of the international search report 16/12/2016
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Tempels, Marco
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INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2016/000165

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2004/093717 A1 (KERNOT CHRISTOPHER JOSEPH) 4 November 2004 (2004-11-04) abstract; figures 1-3 -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2016/000165

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