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(54) **Title**: RAZOR

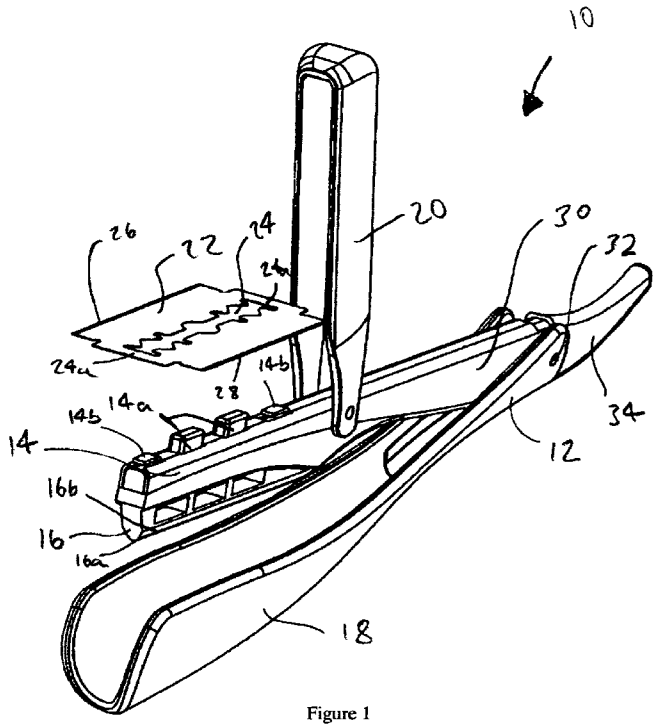

Figure 1

(57) **Abstract**: The present invention relates to razors, especially those of the straight- razor type, often colloquially referred to as a "cut-throat" razor. The present invention provides a straight razor that can be used with known safety blades and generally comprises a handle, a blade mounting, and a blade retainer, the blade retainer and blade mounting being selectable from a first position which allows a blade to be mounted on the razor and a second position wherein the blade is retained by the razor.

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Razor

Field of the Invention

The present invention relates to razors, especially those of the straight-razor type, often colloquially referred to as a "cut-throat" razor.

Background to the Invention

Prior to the invention of the safety razor, the straight razor was in popular use for shaving and the cutting of hair. The main disadvantage of the safety razor was the skill it required to wield: both in safely cutting hair/bristle and in sharpening the razor between uses using a strop.

The straight razor does have some advantages over the modern safety razor, including multi-blade cartridge type razors.

The advantages of using a single blade are that there is less irritation on the skin because only one blade moves across the skin causing less friction on the surface of the skin. Further, with modern multi blades systems the first blade pulls the hair up with the second and third blade cutting (this principle is known as "Hysteresis"). This causes the cut hair to retract to below the epidermis (the outer layer of skin) which causes the skin to close over the hair follicles and so doing inhibits the smooth growth of the hair trough the epidermis and is the main cause of ingrown hairs and other skin problems. Moreover, a single blade is much easier to rinse and keep clean, mitigating bacteria growth which can occur in the multi-blade systems.

Statement of Invention

According to the present invention there is provided a straight razor comprising a handle, a blade mounting, and a blade retainer, the blade retainer and blade mounting being selectable from a first position which allows a blade to be mounted on the razor and a second position wherein the blade is retained by the razor.

Preferably the blade mounting includes a blade guide. Alternatively, the blade retainer may include a blade guide.

Preferably the blade guide includes a tapered leading edge, such that when a blade is mounted on the straight razor, the tapered leading edge extends beyond the sharpened edge of the blade.

The tapered edge thus presents the portion of skin to be shaved at a constant angle to the sharpened edge whilst the user holds the tapered edge wholly and substantially in contact with said skin.

Preferably the tapered leading edge is arranged such that skin to be shaved is presented at an angle to the sharpened edge of the blade, more preferably an angle of substantially 30 degrees.

Preferably the blade retainer is rotatably mounted on the blade mounting. More preferably the blade retainer is rotatably mounted around the blade mounting, whereby in said second position the blade mounting is located substantially within a channel located in the blade retainer.

Preferably the blade mounting and handle are rotatably mounted on one another, more preferably at the substantially towards a distal end of each.

Preferably the blade mounting and blade retainer are arranged such that they cooperate to deform a substantially flat blade to be mounted into a generally U-shaped formation when blade mounting and blade retainer are in the second position.

Preferably the blade mounting and blade retainer include interference locking means, more preferably by means of corresponding lips located on each.

Preferably the blade mounting includes mounting protrusions and mounting tabs that cooperate to hold a blade to be mounted in place whilst the blade mounting and blade retainer are in the first position. They also preferably prevent the blade from being forced off the blade mounting whilst the blade mounting and blade retainer are being moved to the second position.

Brief Description of the Drawings

An embodiment of the invention will now be described, by way of example only with reference to the accompanying figures, in which:

Figure 1 is an isometric view of a razor according to the present invention;

Figures 2 to 5 are similar isometric views of the razor of figure 1 showing successive stages in the mounting of a razor blade;

Figures 6 & 7 are side detail views of the razor of figure 1;

Figure 8 is an elevation detail view of the razor of figure 1; and

Figure 9 is a side view of the razor of figure 1 in a fully closed position.

Detailed Description

Figure 1 shows a razor 10 comprising a handle portion 12, a blade mounting 14, a blade guide 16, a cover 18, and a blade retainer 20. Figure 1 shows a standard safety razor blade 22 about to be mounted in position on the blade mounting 14.

The razor blade 22 is a well known type and available from many manufactures. It includes a central mounting slot 24 and, in this particular case, includes two sharpened edges 26 & 28. At either side of the smaller dimension of the central mounting slot 24, are two webbing portions 24a.

It is of a type used widely with traditional safety razors, though these have largely been supplanted by the more modern cartridge-type blades. One advantage of these traditional blades is that they tend to be cheaper than a cartridge or a fully disposable safety razor. Moreover, they tend to be formed of a single material, such as a stainless steel especially "razor blade steel", unlike cartridges which are usually formed from several materials, including plastics materials and a stainless steel. Therefore, this type of traditional blade is much easier to recycle than a cartridge-type blade.

The blade mounting 14 and blade guide 16, are located on the distal end of an elongate member 30 and the elongate member 30 is rotatably mounted to the handle portion 12 via a pivot point 32. The pivot point can

be of formed by any suitable mechanism, but in this case is a pin and hole arrangement i.e. the handle portion form a channel for receiving the elongate member 30 with two lugs extending in parallel from a base of the channel. The lugs each have a small bore through them. The elongate member 30 is received within the channel and has a corresponding bore. A pin is inserted through the lug bores and elongate member bore allowing the handle portion 12 and elongate member 30 to pivot with respect to one another.

Pivoting of the handle portion 12 and elongate member 30 is limited at two relative degrees, the limits being reached when the elongate member 30 is fully enclosed within the handle portion 12 at one limit and by the provision of an elongate member protrusion 34.

The elongate member protrusion 34 is shaped to be thumb operated and comfortable for such use. The user, holding the handle portion 12 within the palm of their hand, can exert a force to the elongate member protrusion 34 with their thumb thereby forcing the elongate member 30 to pivot and deploy the blade into a shaving position.

The blade mounting 14 includes mounting protrusions 14a, which extend from the surface of the blade mounting 14 (itself the distal portion of the elongate member 30), the opposite surface of which extends the blade guide 16. Also extending from the blade mounting are mounting tabs 14b.

The blade guide 16 is of a prismatic shape, and at its distal portion forms a leading edge 16a. The leading edge 16a is formed from two tapering edges 16b.

The blade retainer 20 is of a generally U-shaped configuration, and also rotatably mounted to the elongate member 30. In this particular embodiment, a similar pin and bore configuration is used for the mounting. The blade retainer 20 is shaped and dimensioned such that its central channel is of sufficient dimensions to allow the portion of the elongate member 30 that incorporates the blade mounting 14 and blade guide 16 to be contained within it.

Referring to Figures 2 to 5, these show the sequence by which a razor blade 22 is mounted into the razor 10 to allow it to be used for shaving.

Figure 2 shows the razor blade 22 about to be mounted on the blade mounting 14. The blade 22 is inserted such that the mounting protrusions 14a extend through the mounting slot 24, and the webbing portions 24a are trapped between the elongate member 30 and the mounting tabs 14b. Once initially mounted the blade 22 is still flat i.e. contained within one plane and the sharpened edges 26 & 28 extend perpendicularly from the general plane of the blade guide 16.

Turning to figure 3, the blade retainer 20 is pivoted downwards towards the blade 22. The blade 22 contains two lines of weakness (not shown) parallel to the sharpened edges 26 & 28, and each located on the blade 22 between a corresponding sharpened edge 26,28 and the mounting slot 24.

Eventually, the blade retainer 20 contacts the blade 22, at about the position of the lines of weakness on the blade 22. The user will encounter some resistance, but this may be overcome and, by doing so, the lines of weakness will cause the blade 22 to be deformed into a largely U-shaped

configuration, with the sharpened edges 26 & 28 being deployed now parallel to the general plane of the blade guide 16.

Figure 4 shows the configuration of the razor 10 in a usable state, i.e. with the blade 22 deployed for shaving. The blade retainer 20 is dimensioned such that the blade 22 is effectively sandwiched between the blade retainer 20 and the elongate member 30. A suitably tight fit between these three elements is used in the present embodiment to maintain the blade 22 safely within this position by a combination of friction and the natural resilience of the three elements.

Lastly, figure 5 is a view showing the blade retainer 20 rotated away from the blade 22, showing the deformation of the blade 22 and the U-shaped configuration. The user would, of course, carry out this operation upon periodic replacement of the blade 22.

Figures 6, 7 and 8 show some further details of the blade 22 in position.

Figure 6 shows an additional locking means to safely hold the blade 22 in position. The blade retainer 20 has a protruding lip 20a. The elongate member 30 also has a corresponding protruding lip 30a. These cause interference fit to be formed when snapped into position. Thus the blade 22 is held in position sandwiched between blade retainer 20 and elongate member 30 by a combination of friction of the three elements, the three elements natural resistance and the interference fit of the two protruding lips 20a, 30a.

Figure 7 shows some further detail of the blade 22 deformed and mounted on the blade mounting 14, with the mounting protrusions 14a extending through the mounting slot 24.

Figure 8 is a detailed end view of the razor 10 and the blade 22 in its deployed position. As can be seen, the sharpened edges 26 & 28 are positioned either side of the blade guide 16. Where the sharpened edges 26 & 28 terminate, the two tapering edges 16b of the leading edge 16a of the blade guide 16 continues a distance further away from the elongate member 30.

The plane (not shown) of the sharpened edges 26 & 28 are generally parallel to a general plane 10a of the razor 10. The plane 16c of the tapering edges 16b is at an angle to the razor plane 10a, in this case 30 degrees.

In use, the user presents the skin to be shaved to the tapering edge 16b, generally parallel to one another. In this orientation, the corresponding sharpened edge 26,28 is presented at an angle of 30 degrees to the skin, known to be an optimal angle for shaving. By providing this guide, the user is less likely to accidently cut himself with the razor. Should the user alter the angle at which the razor is presented to the skin, the sharpened edge 26,28 will lift away from the skin, as the skin will form a pivot with the leading edge 16a. Therefore, this guide mitigates some of the safety disadvantages associated with prior art safety razors.

Turning lastly to f.igure 9, the razor 10 is provided with a flat portion 10b on the handle 18. This flat portion 10b allows the razor 10 to be placed on, for example, a bathroom shelf and remain in the position shown in figure 9.

Modifications and improvements may be incorporated without departing from the scope of the invention. For example, the blade mount may be a

U-shaped channel on an elongate member, and the blade retainer may be a simple insert that the user forces into this channel with a blade being placed between the channel and the blade retainer. The blade retainer in this arrangement may include the guide means and tapered edge. Further the blade retainer in this arrangement may not be attached to the razor, merely being held in place by friction, or a similar lip-locking design as described above.

Claims

1. A straight razor comprising a handle, a blade mounting, and a blade retainer, the blade retainer and blade mounting being selectable from a first position which allows a blade to be mounted on the razor and a second position wherein the blade is retained by the razor.

2. A straight razor of claim 1 wherein the blade mounting includes a blade guide.

3. A straight razor of claim 1 wherein the blade retainer includes a blade guide.

4. A straight razor of claims 2 or 3 wherein the blade guide includes a tapered leading edge, such that when a blade is mounted on the straight razor, the tapered leading edge extends beyond the sharpened edge of the blade.

5. A straight razor of claims 4 wherein the tapered leading edge is arranged such that skin to be shaved is presented at an angle to the sharpened edge of the blade, more preferably an angle of substantially 30 degrees.

6. A straight razor of any preceding claim wherein the blade retainer is rotatably mounted on the blade mounting.

7. A straight razor of any preceding claim wherein the blade retainer is rotatably mounted around the blade mounting, whereby in said second position the blade mounting is located substantially within a channel located in the blade retainer.

8. A straight razor of any preceding claim wherein the blade mounting and handle are rotatably mounted on one another, more preferably at the substantially towards a distal end of each.

9. A straight razor of any preceding claim wherein the blade mounting and blade retainer are arranged such that they cooperate to deform a substantially flat blade to be mounted into a generally U-shaped formation when blade mounting and blade retainer are in the second position.

10. A straight razor of any preceding claim wherein the blade mounting and blade retainer include interference locking means, more preferably by means of corresponding lips located on each.

11. A straight razor of any preceding claim wherein the blade mounting includes mounting protrusions and mounting tabs that cooperate to hold a blade to be mounted in place whilst the blade mounting and blade retainer are in the first position. They also preferably prevent the blade from being forced off the blade mounting whilst the blade mounting and blade retainer are being moved to the second position.

12. A straight razor substantially as hereinbefore described with reference to the attached drawings.

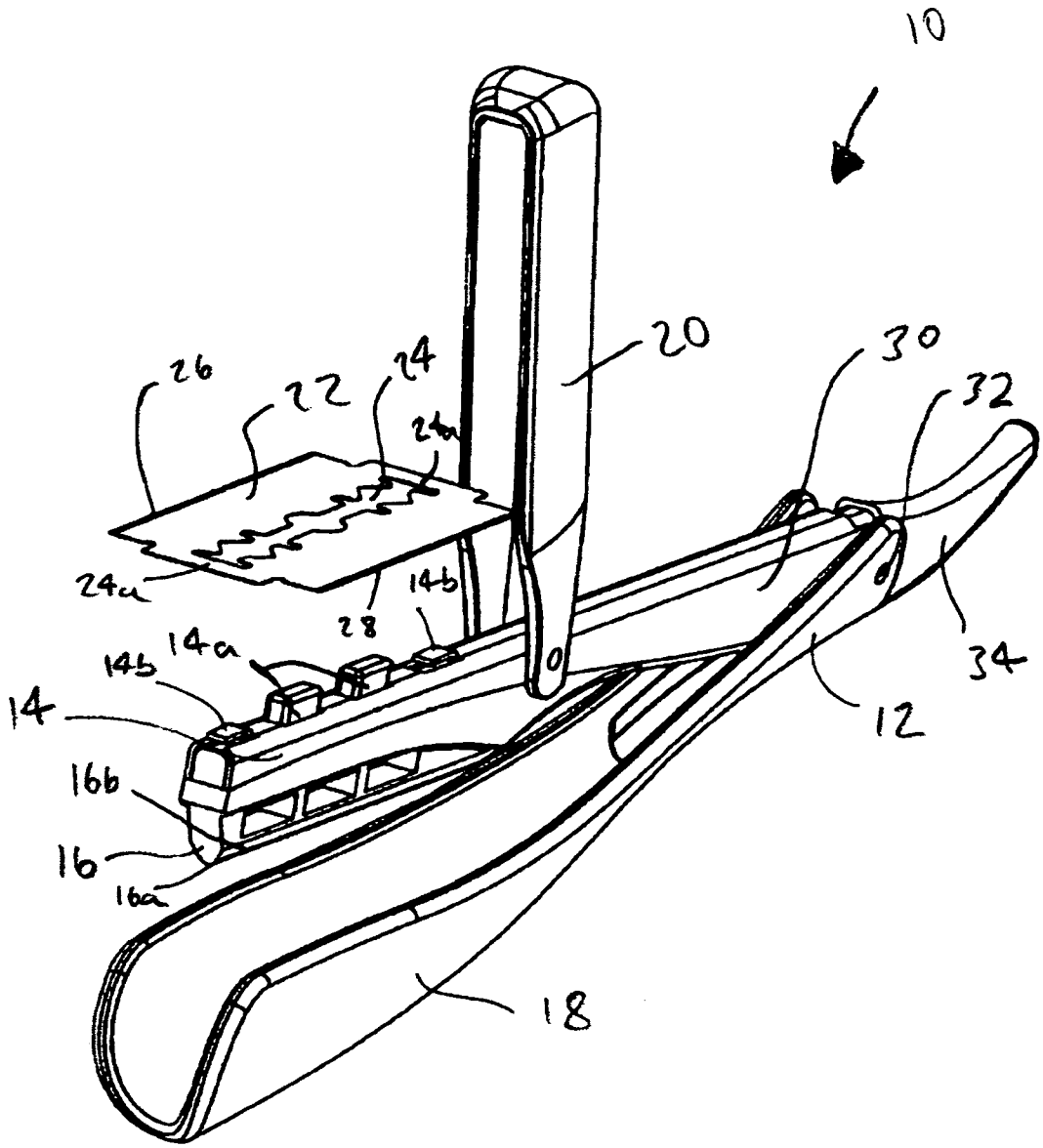

Figure 1

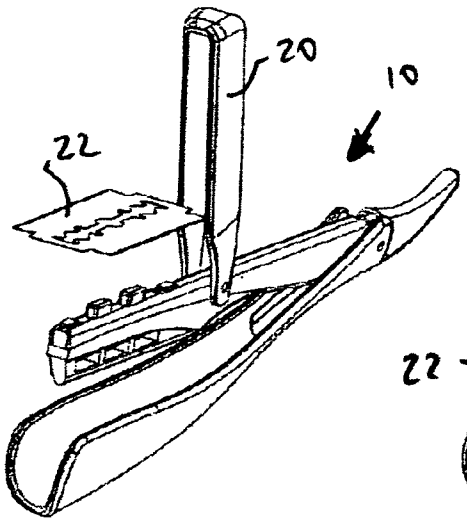

figure 2

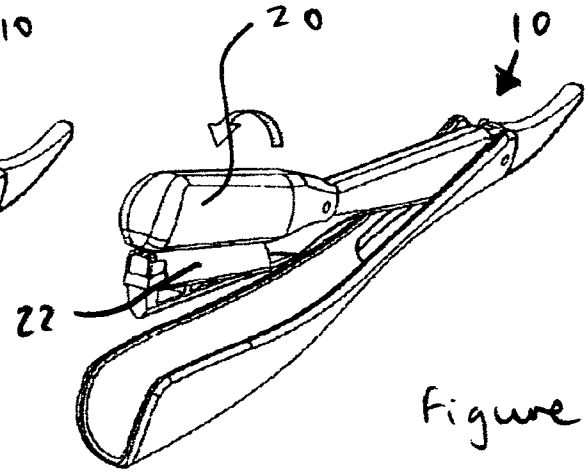

Figure 3

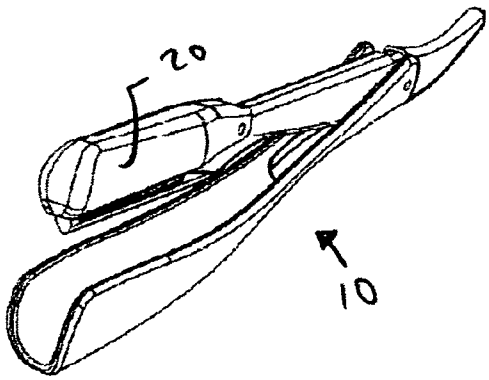

Figure 4

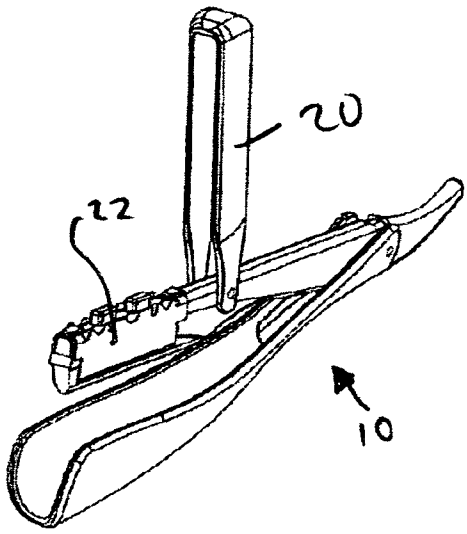

Figure 5

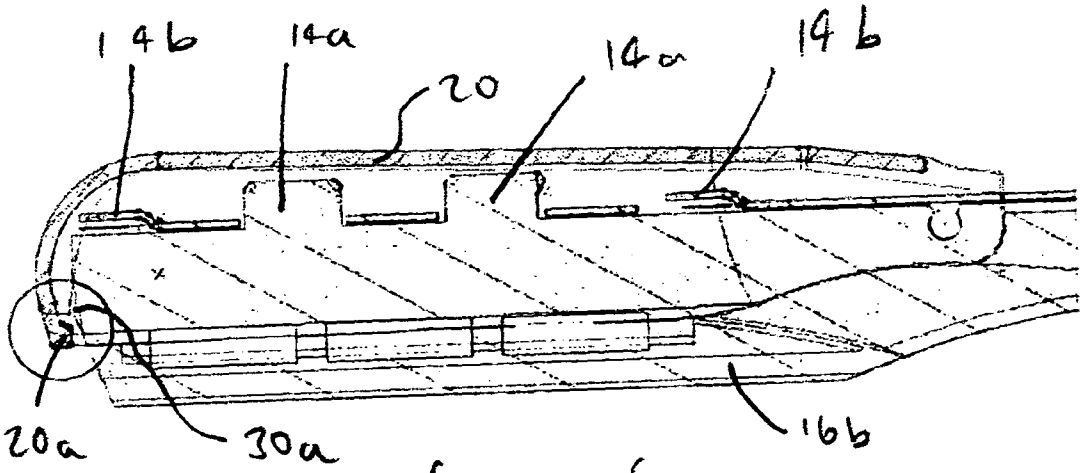

Figure 6

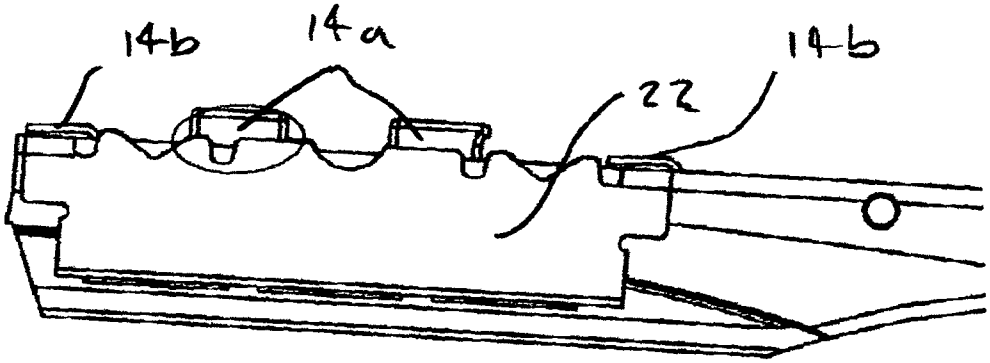

Figure 7

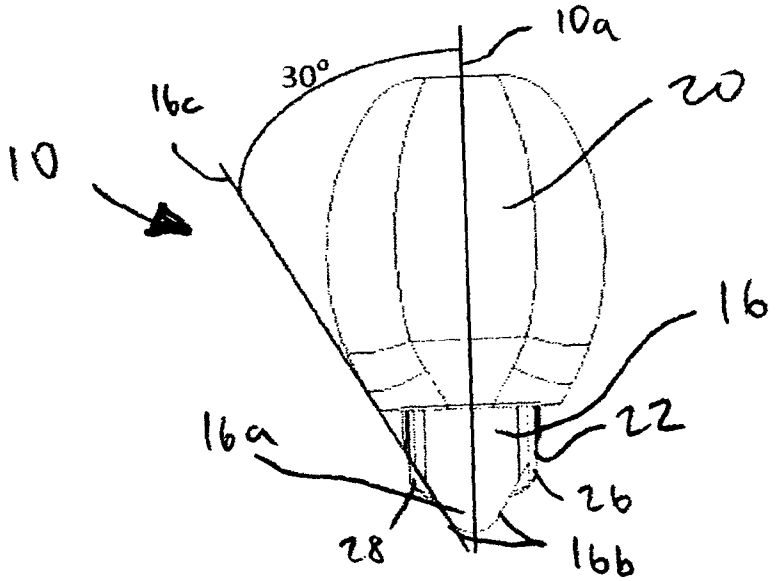

Figure 8

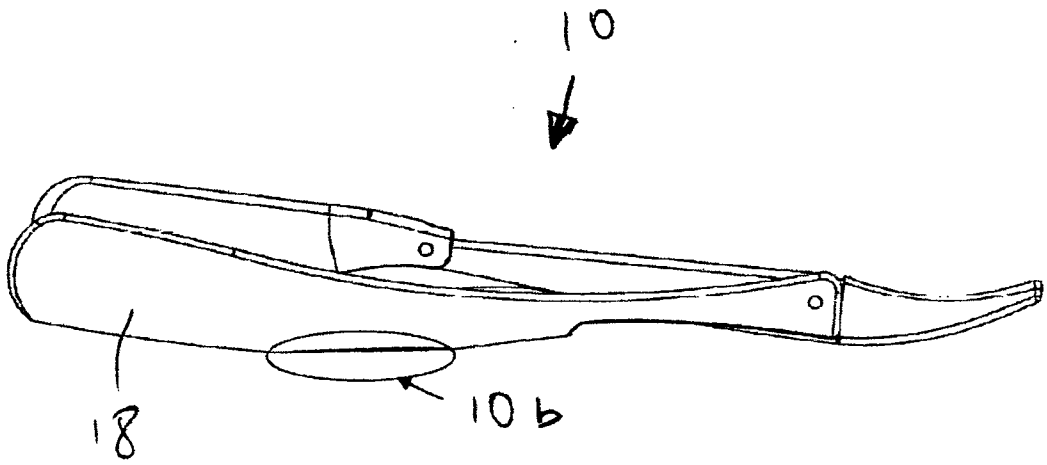

Figure 9

INTERNATIONAL SEARCH REPORT

International application No
PCT/IE2011/000023

A. CLASSIFICATION OF SUBJECT MATTER
INV. B26B21/08 B26B21/10
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)
B26B

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 practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 388 467 A (WERNER MARTIN) 18 June 1968 (1968-06-18) the whole document -----	1-12
X	EP 1 356 900 A1 (KITANO HARUYUKI [JP]) 29 October 2003 (2003-10-29) the whole document -----	1-12
X	GB 365 149 A (STEPHEN ARNOLD MARPLES) 11 January 1932 (1932-01-11) the whole document -----	1-12

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
4 July 2011	11/07/2011

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Cardan, Cosmin

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IE2011/000023

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