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(54) **Cutting device**

(57) A cutting device (2) for removal of part of a covering from a wine bottle is provided. The device (2) comprises a frame (4) having an axis (18) and at least one cutting blade (16) carried by a frame (14) for forming a generally circular cut centred on the axis (18) and having a diameter less than the inner diameter of the neck (54)

of a standard wine bottle. The device (2) has means for locating the frame (4) such that the axis (18) is generally coincident with the longitudinal centreline of the neck (54) of a standard wine bottle. The device (2) can be used to remove a circlet from a wax button covering the cork.

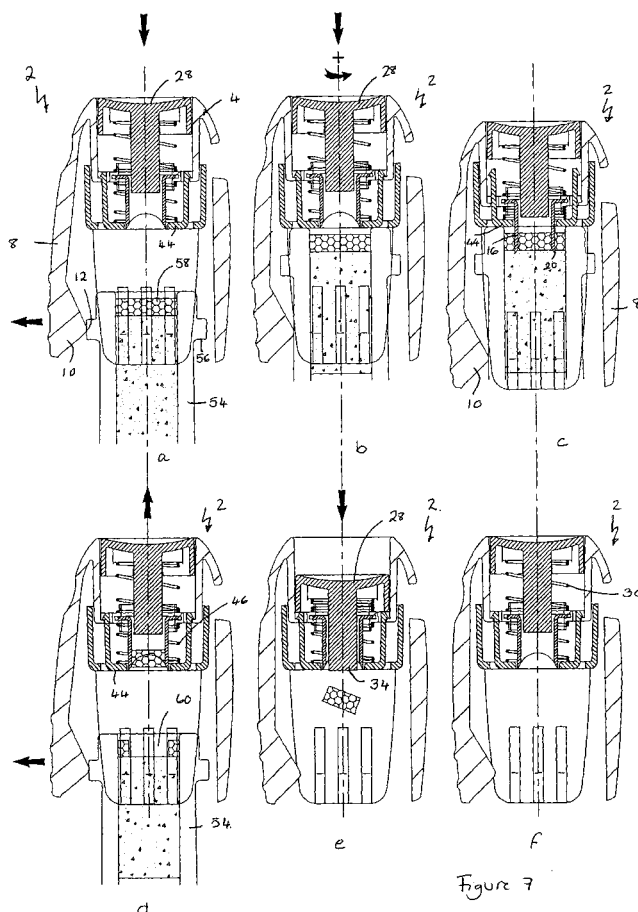


Figure 7

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Description

[0001] The present invention relates to a cutting device for removing a portion of a covering from a wine bottle and in particular to a cutting device for removal of part of a wax seal from above the cork of a wine bottle.

[0002] In the wine bottling industry, it is common practice to cover the top and the upper part of the neck of a bottle with a sheath made of metallic foil or plastic material after a cork has been placed in the bottle. Of recent years however, an alternative practice has arisen of replacing the sheath with a wax button within the bottle neck above the cork. Whilst it is customary to remove a small circlet of the sheath from the top of the bottle neck to provide a clean opening through which the cork can be extracted, the wax button is generally left in place and the corkscrew inserted both through it and the cork. This makes cork extraction more difficult, can cause deterioration of the corkscrew and oftentimes results in the wax button being left part way up of the screw of the corkscrew and then requiring manual removal therefrom.

[0003] Whilst it is possible to remove the wax button with the knife which is often built into a waiter's style corkscrew, the task is time consuming and removal is not always effective. Therefore the wax button is often just left in place with the disadvantages discussed above.

[0004] The sheath which is the customary and more common alternative to a wax button is also often left in place. However this has the disadvantage that, on extraction of the cork from the bottle, rough or jagged edges of the sheath material are left around the wine bottle opening by the cork. The jagged edge is aesthetically undesirable and may cause problems with pouring of the wine. Therefore devices have been developed for severing the sheath. A particularly practical and effective device is described in European Patent 0220850. This comprises a generally rectangular frame carrying at least three, preferably four, cutting blades which, when the sides of the frame are flexed together, engage the sheath and, on rotation of the device, make cuts which intersect to form a complete circular cut. This causes severing of a circlet from the sheath just below the upper edge of the wine bottle neck. The device of European Patent 0220850, whilst very popular for sheaths, cannot be used to remove the wax button provided as an alternative to a sheath and problems can be encountered when the sheath bottle is one which has a circular rim just below the upper edge of the bottle neck as this may be positioned at the natural location of the cutting blades.

[0005] It is an object of the present invention to provide a cutting device for removal of part of the covering from a wine bottle which is capable of removing part of a wax button to provide an ingress point for a corkscrew and so allow the screw to reach the cork directly and without having to pass through wax.

[0006] It is a further object of the present invention to provide a cutting device for removal of part of a covering from a wine bottle which is capable of use with bottles of varying size and shape, particularly in their upper neck region.

[0007] The present invention provides a cutting device for removal of part of a covering from a wine bottle comprising a frame having an axis, at least one cutting blade carried by the frame for forming a generally circular cut centred on the axis and having a diameter less than the inner diameter of the neck of a standard wine bottle, and, means for locating the frame such that the axis is generally coincident with the longitudinal centre line of the neck of a standard wine bottle.

[0008] The device is arranged to be capable of forming a cut within a bottle neck and thus is suitable for removing part of a wax button within the neck. Equally the device could be used to remove a circlet of a sheath encasing the neck, the circlet being smaller than the inside of the wine bottle neck.

[0009] The frame may comprise a cap which, in use, fits over the top of the wine bottle neck and the locating means may comprise at least two legs depending from the cap which, in use, extend down the sides of the wine bottle neck. This arrangement makes the device easy to use by simple fitting it over the wine bottle neck.

[0010] Preferably the legs are resiliently flexible for fitting of the frame on the wine bottle neck and maintaining the frame on the bottle neck with the axis generally coincident with the longitudinal centre line. The resilient flexibility allows the device to accommodate wine bottles of different sizes. Suitably each leg has at least one spline defining a contact edge and the frame has an unflexed position in which the contact edges of the splines engage the sides of the wine bottle neck and a flexed position in which the legs are flexed outwardly to move the contact edges apart. The device is then fitted to a wine bottle by outward flexing of the legs and is maintained in position with the frame axis generally coincident with the longitudinal centre line of the wine bottle neck in the unflexed position. This has the advantage that no force has to be applied to the legs during cutting which facilitates the cutting action particularly when, as is preferred, cutting is achieved by rotating of the frame relative to the bottle neck.

[0011] It has been found that the best results are achieved in terms of accurate location and ability to cope with wide necked bottles if the frame has at least three circumferentially spaced legs, the angle of displacement between each leg and the adjacent legs being less than 180°.

[0012] The frame suitably includes an annular bearing plate centred on the frame axis which, in use, engages the upper edge of the wine bottle neck. The bearing plate provides for flat contact with the upper edge of the wine bottle neck which helps ensure a proper perpendicular cut through the covering of the neck. The cutting blade and the bearing plate may be movable relative

each other when the bearing plate is pressed against the wine bottle neck upper edge to a cutting position in which the blade extends through the bearing plate and may be biased away from the cutting position to a storage position in which the cutting blade is located between the bearing plate and another frame part. This provides for a safety factor in that the blade does not protrude and so cannot cause harm when the device is not in use.

[0013] The cutting blade suitably comprises a cylindrical body shaped at one end to provide at least one cutting edge. A complete circular cutting edge may be provided or a serrated cutting edge. However it has been found that the best results are achieved with wax buttons if the cutting blade end is formed with two diametrically opposed cutting edges. Two cutting edges ensure that not only is the wax button cut but also that the cut portion is removed from the remainder on withdrawal of the device from the bottle neck.

[0014] Operation of the device is facilitated if it includes a pusher movable relative to the cutting blade for removing a cut portion of the covering therefrom. In the embodiment where the blade has a cylindrical body that body is preferably hollow and the pusher moves within the hollow blade body. The frame may have a manually actuable button connected to the pusher for manual movement of the pusher. For operational ease the button may be spring biased in a direction opposite that in which manual pressure is applied to return it on removal of manual pressure.

[0015] The device is capable of easy manufacture and assembly if the button and pusher are integral and the blade is over-moulded into a supporting platform within the frame. The button and integral pusher can be snap-fit above the supporting platform and the bearing plate snap-fit below that platform with springs on either side of the platform for biasing, respectively, the button and the bearing plate.

[0016] If desired, in the embodiment where the device includes legs, cutting blades could be built into the legs to allow cutting of a sheath in the manner of European Patent 0220850.

[0017] The invention will now be further described by way of example with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a device in accordance with the invention;

Figure 2 is an exploded view, partially sectional, showing the parts of the device of Figure 1;

Figure 3 is a top plan view of a frame forming part of the device of Figure 1;

Figure 4 is a bottom plan view of a pusher forming part of the device of Figure 1;

Figure 5 is a section along line A-A of the pusher of Figure 4,

Figure 6 is a top plan view of a bearing plate forming part of the device of Figure 1, and

Figure 7 is a series of sectional views showing operation of the device of Figure 1.

[0018] The cutting device 2 shown in the Figures comprises a frame 4 having an upper generally cap portion 6 with a number of legs 8, preferably three, depending therefrom. Each leg 8 carries at least one spline 10, preferably at least two, which defines a contact edge 12. The connecting portions 13 between the legs 8 and the cap portion 6 are waisted so as to allow the legs 8, splines 10 and hence their contact edges 12 to be moved apart. This flexibility may alternatively be achieved by forming at least the legs 8 from a suitable material.

[0019] Within the body 4 and integrally moulded therewith is a support platform 14. A cutting blade 16 is mounted on the support platform 14 in an aperture thereof which is centred on the axis 18 of the frame 4. The blade 16 is cylindrical and is mounted so that its centre line lies on the axis 18. The lower end of the cylindrical blade 16 is shaped to form two cutting edges 20. The blade 16 may be attached to the support platform 14 by over-moulding it thereinto.

[0020] The support platform 14 is connected to the cap portion 6 by a collar 22. Collar 22 includes three circumferentially spaced cut-outs 24 shown in dotted outline in Figure 3. Support platform 14 is also formed with three circumferentially spaced cut-outs 26 which are offset circumferentially from the collar cut-outs 24.

[0021] A button 28 is positioned above the support platform 14 and biased thereagainst by a spring 30. The button 28 is movable under manual pressure towards the support platform 14 to, in turn, move a pusher 32 carried on the button 28, and preferably integrally formed therewith, through the aperture of the support platform 14 and through the blade 16. As illustrated in Figure 4 the pusher 32 may comprise three webs 34 each at 120° to the other two.

[0022] The button 28, and so also the pusher 32 when integral, is preferably connected to the frame 4 by a snap-fit connection formed by three hooks 36 on the bottom edge of the button 28 which engage in the cut-outs 24 in collar 22. The button 28 is formed with two indents 38 either side of each hook 36 which define three ribs 40 each carrying a hook 36 at their free end. On insertion of the button 28 into the cap portion 6, the ribs 40 flex inwardly as sloped edges 42 of the hooks 36 engage the inner wall of the collar 22. When the hooks 36 are opposite the collar cut-outs 24 they are received therein and the ribs 40 return to their unflexed positions. The button 28 is then captured in the cap portion 6 but can move up and down relative thereto with the hooks 36

travelling in the collar cut-outs 24. These cut-outs 24 are of a length to allow the pusher 32 to move through the blade 16.

[0023] Below the support platform 14 there is provided a bearing plate 44 which is biased relative the support platform 14 by a second spring 46. The bearing plate 44 is movable relative the support platform 14 and hence the remainder of the frame 4 against the bias of the spring 46. It too is preferably connected to the frame 4 by a snap-fit connection which it such as to permit movement against the bias of the spring 46. The snap-fit connection is formed in a similar fashion to that between the button 28 and the frame 4. Thus, the bearing plate 44 has three circumferentially spaced legs 48 extending upwardly therefrom, each carrying a hook 50 at its free end. Apertures 52 adjacent each leg 48 allow flexing of the legs 48 to enable the hooks 50 to be passed through the cut-outs 26 in support platform 14. On return of the legs 48 to their unflexed position, the bearing plate 44 is permanently connected to the support platform 14 but the two are relatively movable.

[0024] The operation of the device 2 is illustrated in Figure 7. The device 2 is first positioned over the neck 54 of a bottle and is then pushed down onto the bottle neck. The legs 8 are sufficiently flexible to move apart to allow the splines 10 to move over the upper edge of the bottle neck 54 and engage with the sides of the neck. The shape of the splines 10 assists in the spreading of the legs 8. The flexibility provided by the waisted connections 13 and/or inherent due to the material of the legs 8 is sufficient that the splines 10 can move past any rim provided on the bottle neck such as that illustrated at 56.

[0025] With the device 2 in position on the bottle neck as shown in Figure 7b, the legs 8 may be unflexed or may be slightly flexed which will help hold the device 2 in place. However, in either case, no manual force is required at this stage on the legs 8.

[0026] The action of pushing the device 2 down onto the bottle neck 54 causes the bearing plate 44 to engage with the upper edge of the bottle neck 54 and then the frame 4 to move further downwardly around the plate 44 and the bottle neck 54 against the bias of spring 46. The blade 16 protrudes from the bearing plate 44 in its displaced position and so into the bottle neck 54. By virtue of the face contact of the bearing plate 44 with the upper edge of the bottle neck 54, the two cutting edges 20 cut perpendicularly into a wax button 58 held within that neck. The device 2 is then rotated so that the cutting edges 20 either alone or in conjunction with the portion of the blade 16 thereabove, form a circular cut through the wax button 58.

[0027] When manual downward pressure is removed from the device 2 on completion of the cutting step, the second spring 46 restores the bearing plate 44 to its original position relative the frame 4 and so below the blade 16. This is illustrated in Figure 7d which shows that the circlet cut from the wax button 58 is retained by

the blade 16. It has been found that whilst one cutting edge 20 will form an adequate cut, the provision of two ensures not only cutting but also retention of the cut circlet by the blade 16. The bearing plate 44 with its face contact with the upper edge of the bottle neck 54 ensures that the circlet is cleanly cut and hence that it leaves a clear opening 60 free from wax through which the screw of a corkscrew can pass.

[0028] As the device 2 is then moved upwardly to remove it from the bottle 54, the legs 8 again flex outwardly and the shape of the splines 10 once more facilitate this flexing.

[0029] The next step, illustrated in Figure 7e, is recovery of the wax circlet. Manual pressure is applied to the button 28 to move it and the pusher 32 downward relative the remainder of the device 2. This causes ejection of the wax circlet from the blade 16. Finally, when manual pressure is removed from the button 28 the first spring 30 restores the button 28 to its original position.

[0030] Removal of the circlet from the wax button 58 therefore comprises four steps: fitting of the device 2 on the bottle neck 54; rotation of the device 2; removal of the device 2 from the bottle neck 54, and recovery of the wax circlet. In carrying out the first three steps, the user has to provide a vertical and a rotational force to the device 2 which is a simple comfortable and natural action because of the shape of the device 2 which is such that it can be comfortably grasped by the hand and be held naturally and comfortably generally in the user's palm. The amount of vertical force which has to be applied is relatively slight because of the flexibility of the legs 8 which allows the device readily to be fitted to and removed from even a large bottle neck. Removal of the wax circlet also requires only a small force which can readily be applied by a user's thumb on the button 28.

[0031] A particularly advantageous feature of the device 2 is that this simplicity of operation is achieved with a device which only involves a small number of parts and which can be easily manufactured and assembled. A preferred assembly process involves first forming the blade 16 and then over-moulding the blade 16 into the frame 4 by positioning the blade 16 in a mould and injecting suitable material to form the frame 4 including the support platform 14 which holds the blade 16. The button 28 and bearing plate 44 are separately moulded with the pusher 32 being integrally formed with the button 28. The button 28 is snap-fit into the frame 4 with the first spring 30 therebetween. The bearing plate 44 is then snap-fit into the frame 4 with the second spring 46 therebetween. Thus, following moulding, assembly is achieved by simply positioning the two springs 30 and 46 and snap-fitting of the button 28 and bearing plate 44 on either side of the support platform 14. Assembly is accordingly a straightforward and rapid process. This, in conjunction with the fact that the moulds for the various parts can be relatively simple in form, makes the device 2 extremely economical to produce.

[0032] Suitable materials for the parts of the device 2

include polycarbonate for the frame 4 as this will give sufficient flexibility to the legs 8 as well as resilience to cause them to return following flexing and polyacetal for the bearing plate 44 as this is a low friction material which will facilitate the relative movement of the bearing plate 44 and the blade 16.

[0033] It will be noted that the bearing plate 44 includes a second collar which surrounds and relatively closely engages the collar 22 on which the support platform 14 is carried. This engagement serves to rigidify the device 2 and also to ensure that the positioning produced by the engagement of the splines with the bottle is properly transmitted to the blade.

[0034] It will be appreciated that the device 2 could be used to cut coverings other than a wax button 58. In particular, the device 2 could be used to cut a circlet from a sheath over a bottle neck. Alternatively the device 2 could cut a sheath around the top of the bottle neck by providing the legs 8 with cutting blades which could be arranged in the manner of the cutter of European Patent 0220850.

[0035] Whilst the device 2 has been described as including the two springs 30 and 46, both of which facilitate operation, it will be appreciated that one or both springs could be omitted. Omission of the first spring 30 could be achieved for example by making the button 2 in the form of those provided for taps for wine boxes and the like, that is, configuring the button 2 such that it is deformed on application of manual pressure to remove the wax circlet and making it of a sufficiently resilient material that it will restore to its natural shape on removal of manual pressure.

[0036] Omission of the second spring 46 will simply require that the blade 16 be positioned relative the bearing plate 44 such that it protrudes therefrom and the wax circlet will then be withdrawn from the remainder of the wax button 58 by the action of removing the device 2 from the bottle neck 54.

[0037] The blade 16 could be configured just as a simple cylinder with a complete cutting edge at the lower end or with a serrated cutting edge at that end. A further alternative is to form the blade 16 with a single cutting edge 20 but, as noted above, the depicted arrangement with two cutting edges 20 is preferred in order to ensure both good cutting and good retention of the wax circlet.

[0038] The device 2 could be positioned on the bottle neck just by two legs 8 or alternatively the body could include a complete skirt with a continuous rib round the interior thereof. However the depicted embodiment with three legs each formed with splines is preferred for ease of manufacture and stable positioning of the device 2 on the bottle neck 54 without need of manual pressure to hold the device 2 in place.

Claims

1. A cutting device for removal of part of a covering

from a wine bottle comprising a frame having an axis, at least one cutting blade carried by a frame for forming a generally circular cut centred on the axis and having a diameter less than the inner diameter of the neck of a standard wine bottle and means for locating the frame such that the axis is generally coincident with the longitudinal centreline of the neck of a standard wine bottle.

2. A cutting device as claimed in Claim 1 wherein the frame comprises a cap which, in use, fits over the top of the wine bottle neck and wherein the locating means comprises at least two legs depending from the cap which, in use, extend down the sides of the wine bottle neck.

3. A cutting device as claimed in Claim 2 wherein the legs are resiliently flexible for fitting of the frame on the wine bottle neck and maintaining the frame on the bottle neck with the axis generally coincident with the longitudinal centreline.

4. A cutting device as claimed in Claim 3 wherein each leg has at least one spline defining a contact edge and wherein the frame has an unflexed position in which the contact edges of the splines engage the sides of the wine bottle and a flexed position in which the legs are flexed outwardly to move the contact edges apart.

5. A cutting device as claimed in any one of Claims 2 to 4 wherein the frame has at least three circumferentially spaced legs, the angular displacement between each leg and the adjacent legs being less than 180°.

6. A cutting device as claimed in any preceding Claim wherein the frame includes an annular bearing plate centred on the frame axis which, in use, engages the upper edge of the wine bottle neck.

7. A cutting device as claimed in Claim 6 wherein the cutting blade and the bearing plate are movable relative each other when the bearing plate is pressed against the wine bottle neck upper edge to a cutting position in which the blade extends through the bearing plate.

8. A cutting device as claimed in Claim 7 including means for providing a bias away from the cutting position to a storage position in which the cutting blade is located between the bearing plate and another frame part.

9. A cutting device as claimed in any preceding Claim wherein the cutting blade has a cylindrical body shaped at one end to provide two diametrically opposed cutting edges.

10. A cutting device as claimed in any preceding Claim including a pusher movable relative to the cutting blade for removing a cut portion of the covering therefrom. 5
11. A cutting device as claimed in Claim 10 when dependent on Claim 9 wherein the blade body is hollow and the pusher moves within the blade body.
12. A cutting device as claimed in either Claim 10 or Claim 11 wherein the frame includes a manually activable button connected to the pusher for manual movement of the pusher. 10
13. A cutting device as claimed in Claim 12 wherein the button and the pusher are integrally formed. 15
14. A cutting device as claimed in either Claim 12 or Claim 13 wherein the button is biased by a spring in a direction opposite to that in which manual pressure is applied. 20

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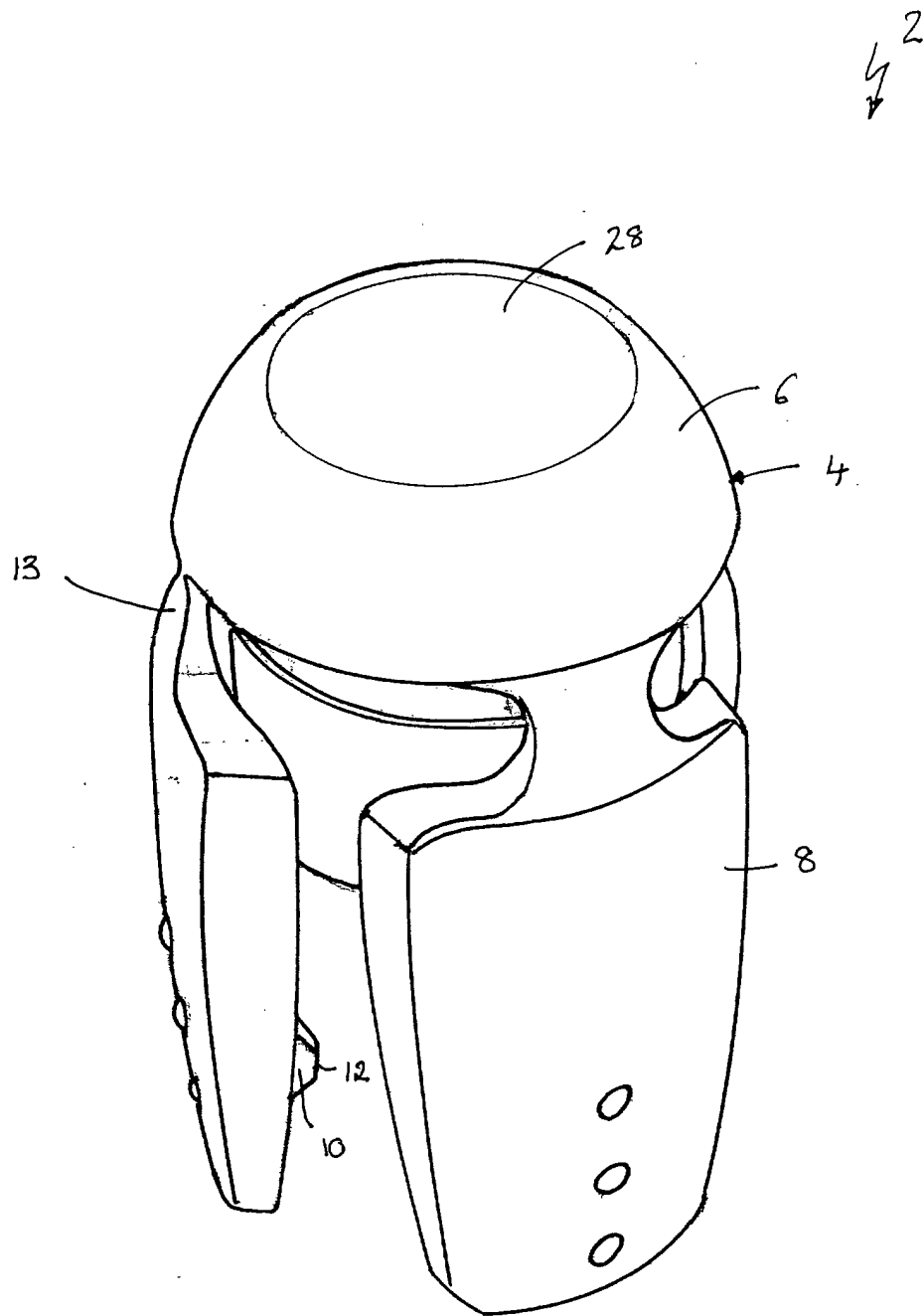


Figure 1

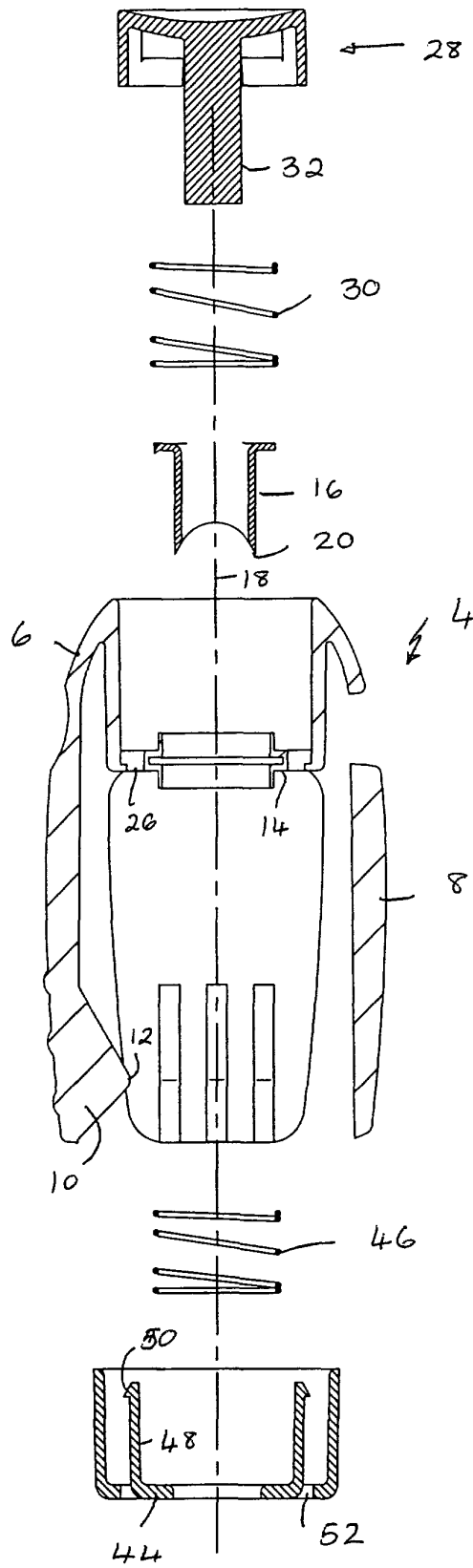


Figure 2

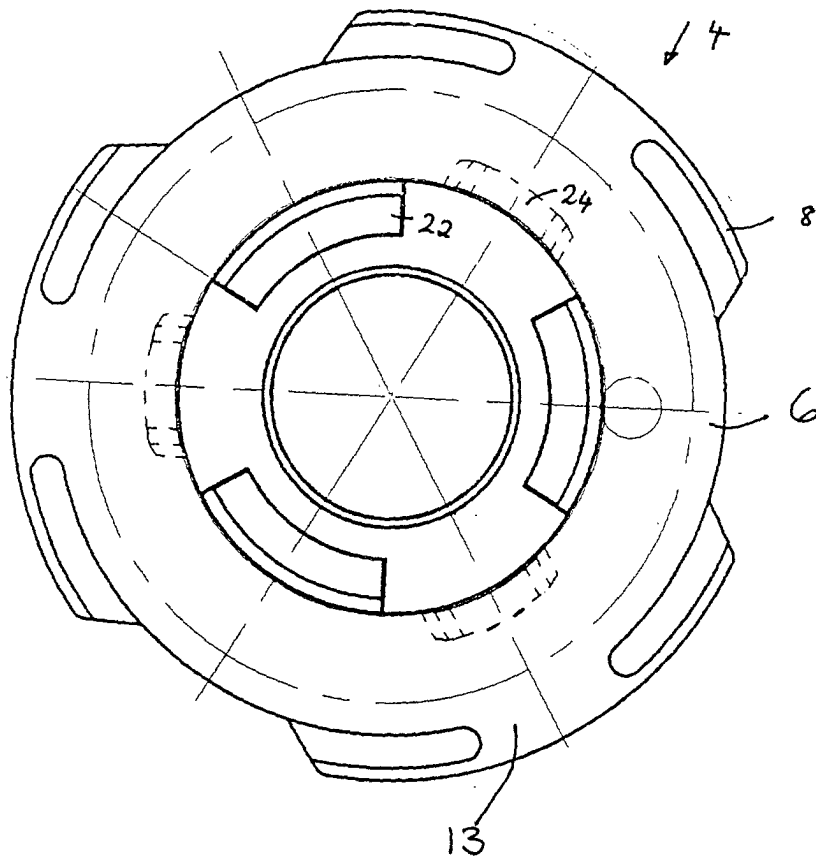


Figure 3

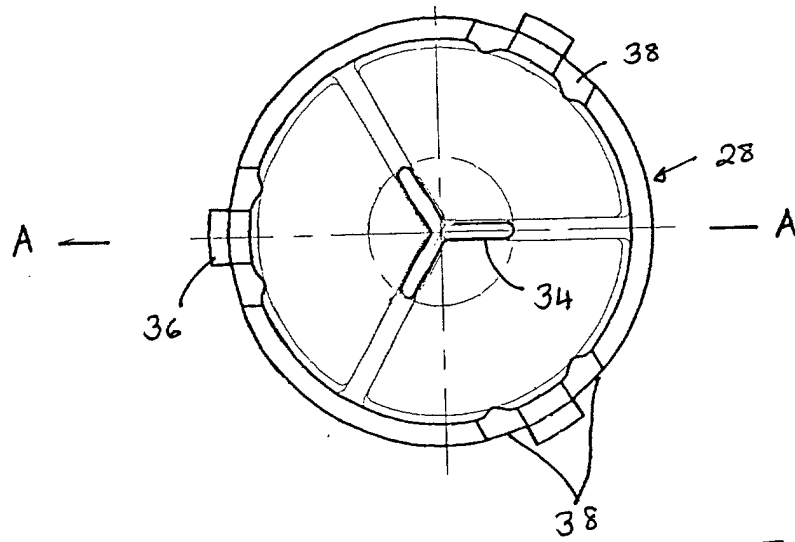


Figure 4

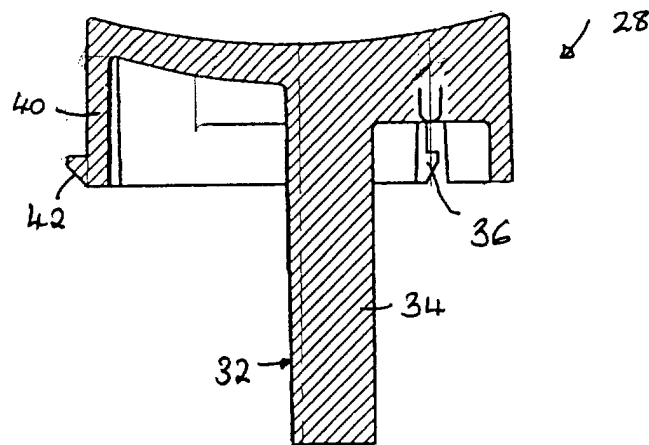


Figure 5

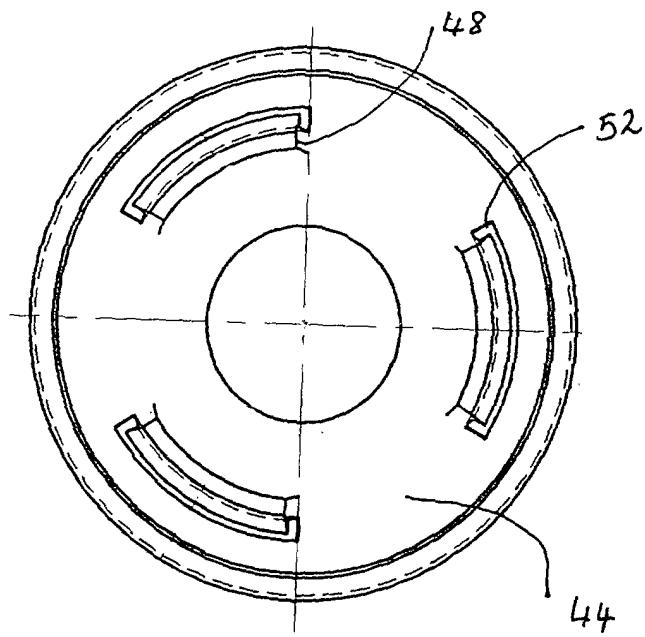


Figure 6

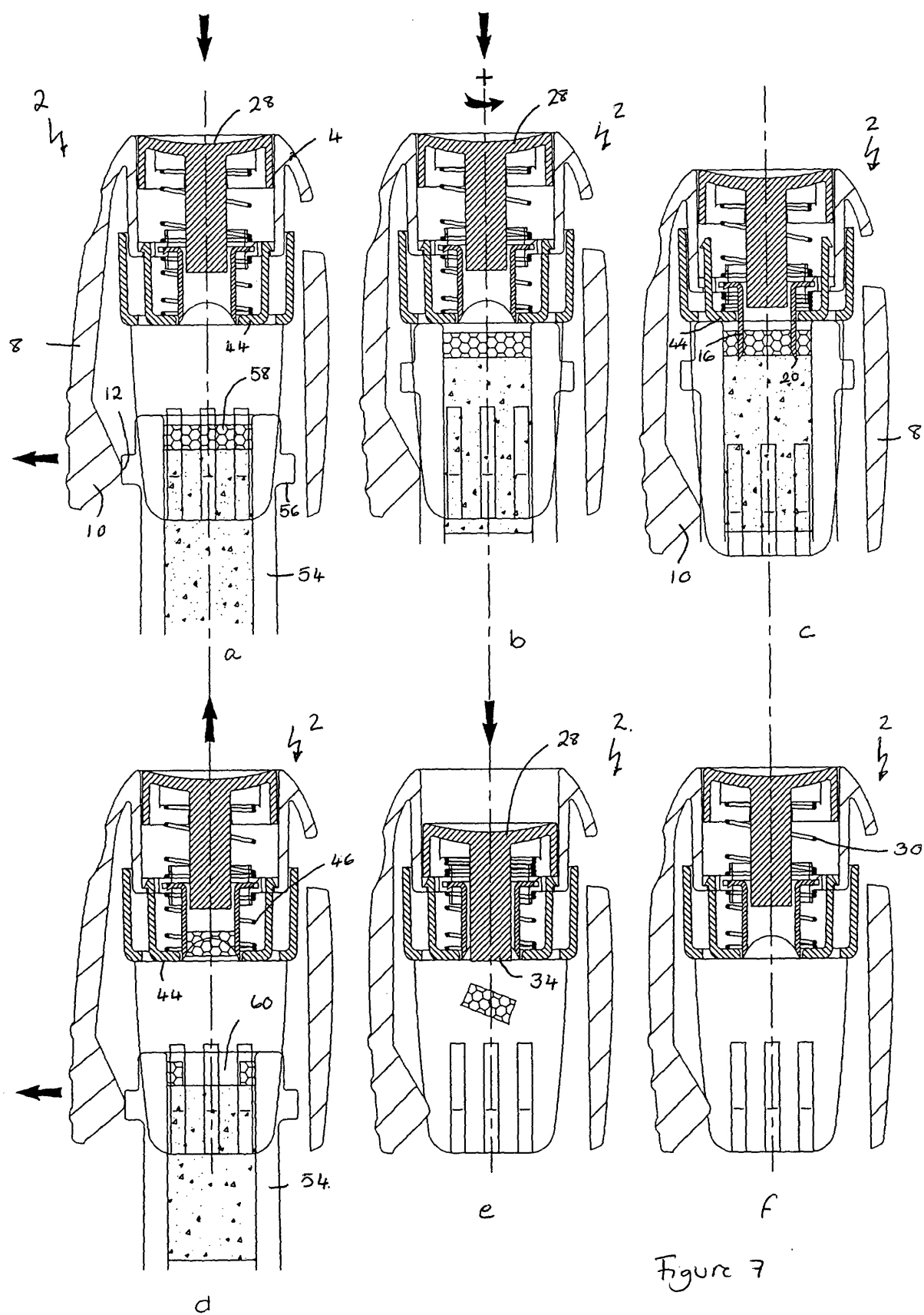


Figure 7



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EUROPEAN SEARCH REPORT

Application Number
EP 00 30 8515

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7) B67B
Place of search THE HAGUE		Date of completion of the search 6 March 2001	Examiner Müller, C
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