

2006

**PATENT ATTORNEYS**

**EXAMINATION**

PAPER D

The New Zealand Law and Practice  
relating to Preparation of Specifications for New Zealand  
Patents

Regulation 158 (1) (d)

Duration: 4 hours (plus 10 minutes for reading)

**Notes to Candidates**

1. When preparing provisional specification for question 1, and the initial part of the specification for question 2, please do not prepare what is commonly known as the title page for the specification.
2. You are to assume that there is no prior art apart from that set out in the questions.

**Question 1**

Your client has developed an invention for application to the closure of wine bottles. The invention allows a cork stopper to be used in such a way as to isolate the contents of the container completely from the stopper.

Your client informs you that known cork stoppers have the disadvantage that they do not completely isolate the contents of the bottle, leading to the problem of corked wine. The most usual solutions to the problem consist in closing the wine bottles with screw caps or with crown caps. However, your client believes that these solutions are undesirable because many consumers prefer to uncork wine bottles.

Your client has found that in order to satisfy consumers' tastes, cork stoppers have been used of which at least the end facing towards the contents of the bottle is covered by a barrier layer of plastics material. This is typically achieved by immersion of an end of the cork in a plastics material. This solution has to be performed by the manufacturer of the stoppers or by the supplier to the bottler, at considerable additional cost. Moreover, the barrier layer which is applied to the stopper beforehand has a different elasticity from that of cork and therefore opposes the desirable ability of the stopper to contract during corking and then to expand in the neck of the bottle.

Your client supplies drawings (Figures 1 to 6) to illustrate his invention, which makes use of the combination of a standard cork stopper and a plastic cap.

Your client has explained that the cap has ribs to help grip the cork stopper.

When the cap, which is drawn along the stopper, enters the neck, a region of the cap is deformed and pressed into the cork stopper. This ensures that the cork stopper draws the cap along when the bottle is uncorked.

As you can see from Figures 5 and 6, the cap acts to isolate the contents of the bottle from the stopper.

In the closure process, the stopper is squeezed between jaws which are arranged above a hole in a support plate. This constricts the stopper to a diameter both smaller than the diameter of the hole and smaller than the inside diameter of the cap.

A thrust element is urged downwardly on the constricted stopper, in the constricted condition, to move this downwards through the hole until it reaches the base wall of the cap. Once this condition has been reached, the stopper continues to move downwards into the neck, drawing the cap along with it to a final, fitted position of the stopper.

Draft a provisional specification for your client. You may use the second copy of Figures 1 to 6 provided with this question paper as part of your provisional specification, should you wish to do so, and hand these in as part of your answer paper.

**50 Marks**

FIG. 1

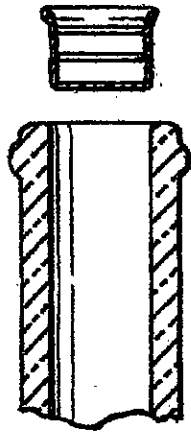


FIG. 2

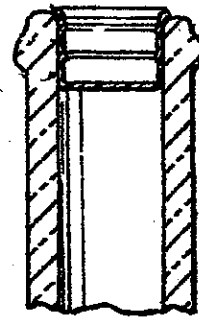


FIG. 3

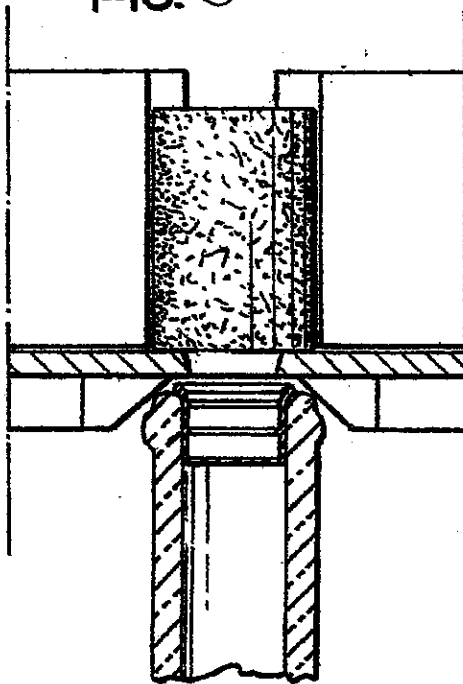


FIG. 4

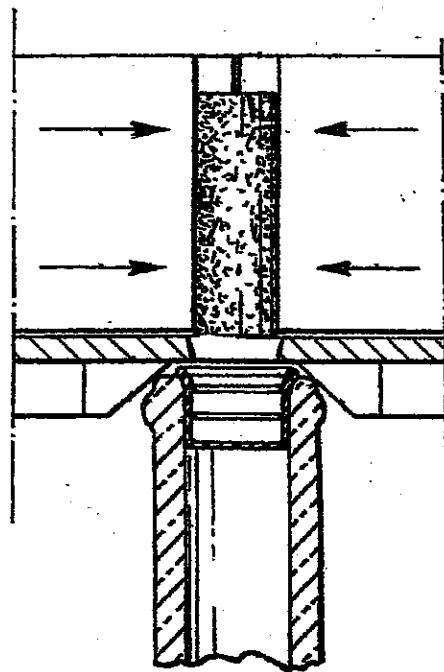


FIG. 5

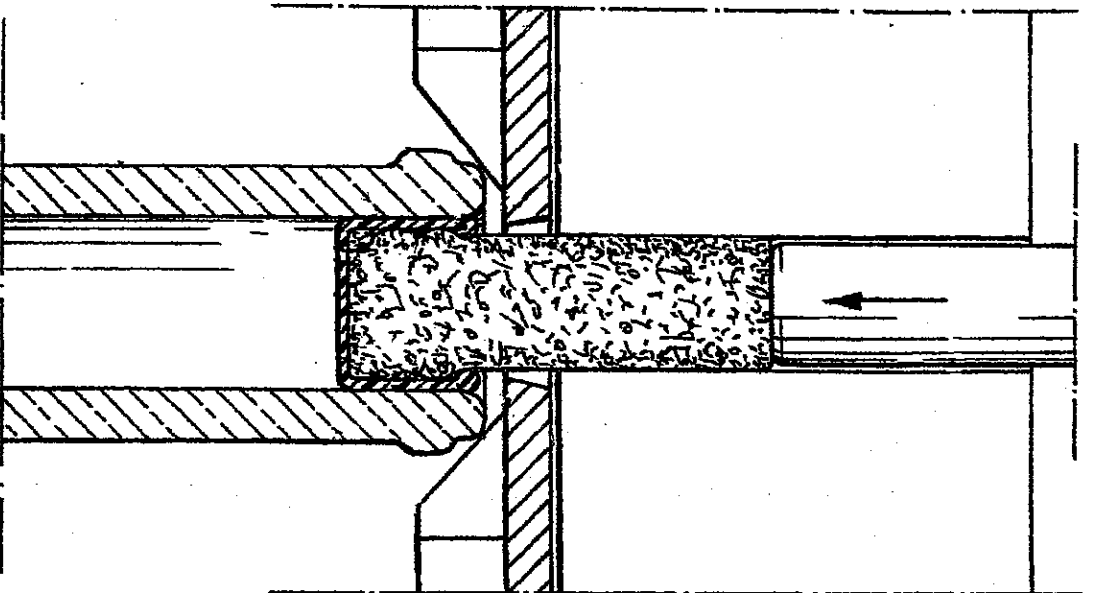
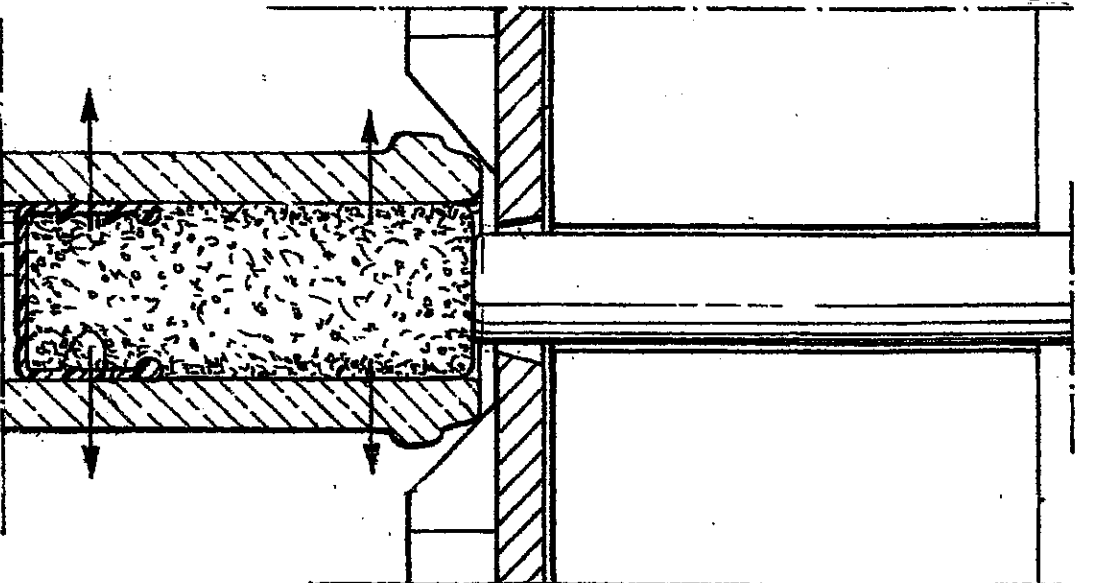


FIG. 6



Question 1 – Second Copy of Figures 1 -6

FIG. 1

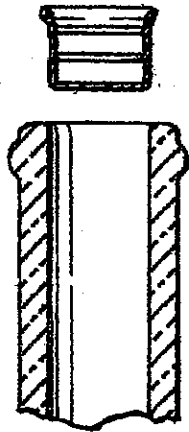


FIG. 2

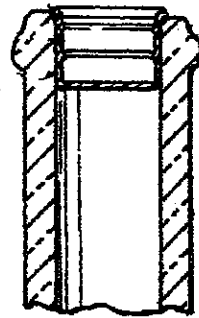


FIG. 3

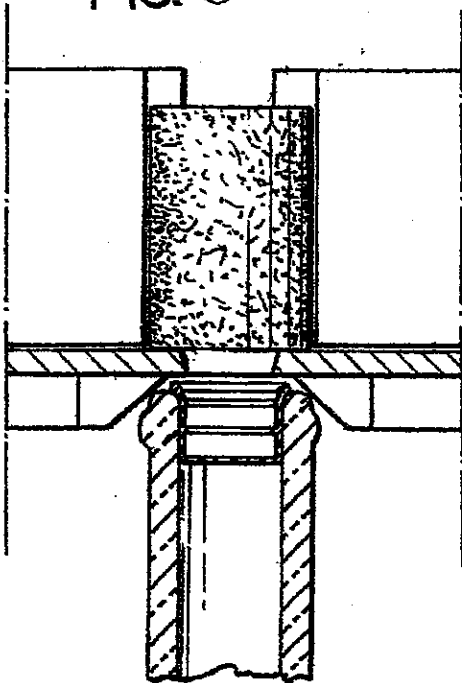


FIG. 4

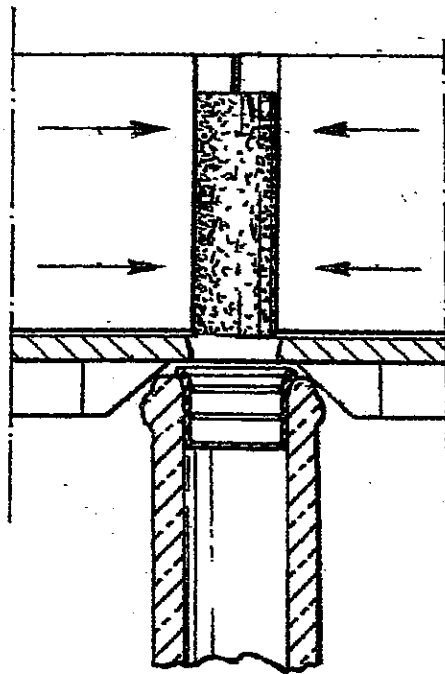


FIG. 5

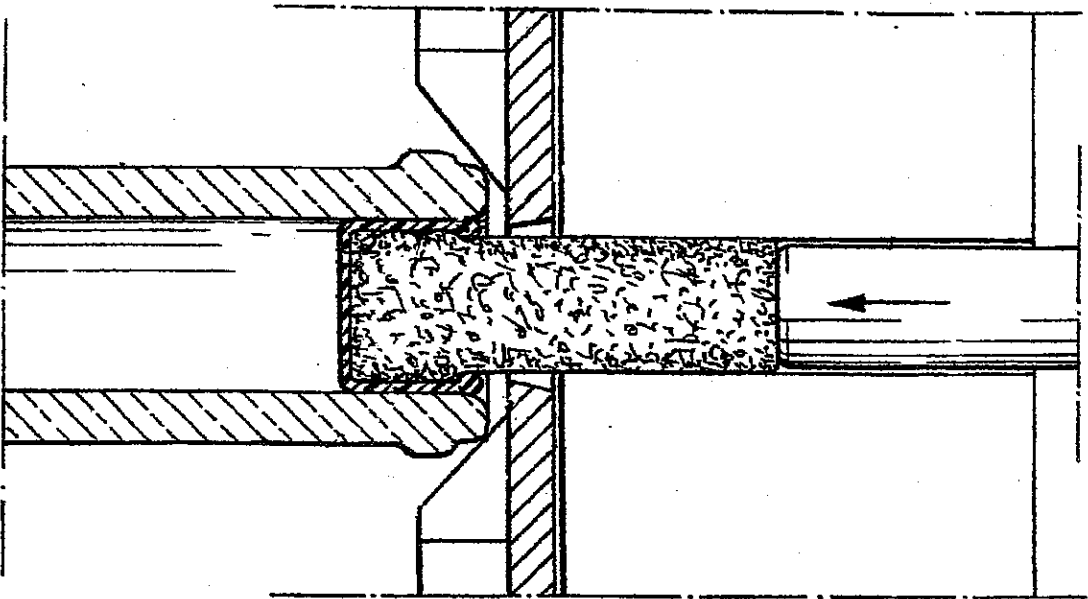
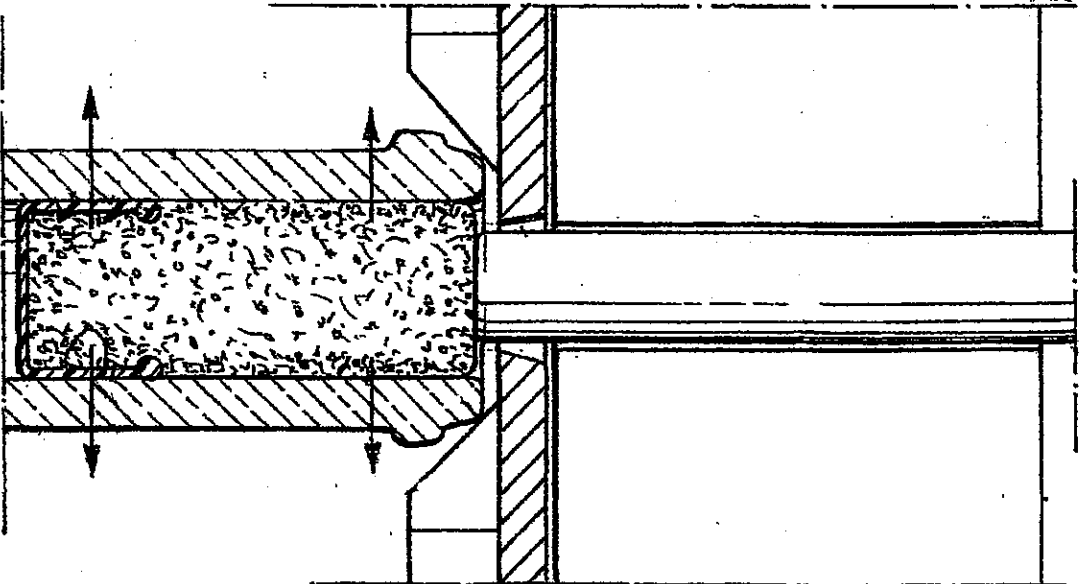


FIG. 6



**Question 2**

Your client has made an invention relating to a cork extractor, for pulling corks from bottle necks. Your client explains that a cork extractor is a device for pulling corks and stoppers from bottle necks and other apertures.

One widely used cork extractor has a screw member connected to a handle which enables the tip of the screw to be twisted into a cork and the cork to be pulled directly outwards from bottle. However, the tight fit of the cork makes these 'straight pull' extractors hard for some people to use.

Your client also tells you about another type of known cork extractor in which the screw member is slidable within a tubular body and is connected to a pair of arms, pivotally secured to the tubular body, by respective worm gear and wheel arrangements. In use, the tubular body is supported on the neck of a bottle and the screw member is twisted into the cork. As the screw member moves into the cork, the arms are driven upwardly and outwardly. Once the screw member is fully home, the lever arms are pushed downward, and because the tubular body is now braced against the bottle neck, the screw member is retracted axially into the tubular body, pulling the cork out with it. This cork extractor is very effective in operation and easy to use, but its relative sophistication and use of gears make it expensive from a production viewpoint.

Your client has developed a cork extractor which is described in the attached description and drawings.

A search has also located two relevant prior published document, being an abstract of NZ678123, and an abstract of NZ679234 which are attached. The abstracts provide all the information you need to be aware of about the prior art.

Prepare:

- 1) The introductory parts for a complete specification, up to but not including the description of the drawings; and

**8 marks**

- 2) A set of claims for the invention that distinguish the invention from the prior art.

**42 marks**

It is not necessary to prepare a description.



## Question 2 – Description

Fig. 1 shows a side view of a cork extractor embodying the present invention; Fig. 2 shows a section along lines Y-Y through the cork extractor of Fig. 1; Fig. 3 shows a detail of the screw member; Figs. 4(a), (b) and (c) show three separate views of the extraction of a cork using the cork extractor of Fig. 1; and, Fig. 5 shows a perspective view of a cork extractor according to a second embodiment of the present invention .

Referring to Figs. 1 and 2 of the accompanying drawings the cork extractor comprises a main body 1 comprising a handle 2 and two essentially oval plate members 3 and 4 secured to opposite sides of the handle 2 in spaced relationship. A slot 5 is provided in each plate member 3, 4 which comprises a substantially curved portion 6, extending from a point close to the perimeter of the plate member 3, 4 to a point near the centre thereof, and a straight portion 7, extending radially inwards from the end of the curved portion 6 close to the perimeter of the plate member 3, 4. Each plate member 3, 4 supports an abutment member 8 on its inwardly facing surface and the abutment member 8 runs alongside the straight portion 7 of the slot 5 and around the end thereof.

A screw member 9 is supported between the two plate members 3 and 4, which is able to slide along the full length of the slot 5 and pivot relative to the main body in the curved portion 6 thereof. In this respect, the screw member 9 comprises a support body 10, shown in detail in Fig. 3, of substantially the same width as the distance between the two plate members 3 and 4. On each side of the support body 10 there is provided a lateral projection or lug 11 which engages in a respective slot 5. In profile the support body 10 compliments the inner edge of the abutment members 8. Thus, when the screw member 9 is slid towards the inner end of the radially extending portion 7 of the slots 5, the support body 10 abuts against the abutment members 8. The abutment members 8 ensure that any twisting moment imported to the screw member 9 as it is screwed into a cork or stopper by rotating the main body 1 are not centered solely on the lugs 11 and the sides of the radially extending portion 7 of the slots 5. Without the additional support to the screw member 9 provided by the abutment members 8, the arms 11 would be liable to shear.

Referring now to Figs. 4(a), (b) and (c) operation of the cork extractor will be described. Initially the support body 10 is slid to the end of the curved portion 6 of slots 5 closest to the perimeter of the plates 3, 4.

In this position the screw member 9 extends beyond the edge of the main body 1. As the screw member 9 is pressed against the top of a cork or stopper 12 the support body 10 slides up the radially extending portion 7 of the slots 5 and abuts against the inner edges of the abutment members 8. The screw member 9 can now be screwed into the cork 12 by rotating the main body 1. As the screw member 9 is screwed into the cork 12 a point is reached where the edges of the plate members 3 and 4 abut against the sides of the aperture in which the cork 12 is retained. At this point, as the main body 1 is rotated further, the support body 10 is drawn down the radially extending portion 7 of the slot 5 until it lies at the junction of the curved portion 6 and the radially extending portion 7, as shown in Fig. 4(a).

Once the screw member 9 is fully screwed into the cork, the cork is extracted in a single movement by rotating the main body 1 about the horizontal axis defined by the lugs 11. In this respect the handle 2 is passed from one side of screw member 9 to the other, as shown in Figs. 4(b) and (c) through an angle of approximately 270 degrees. As the main body 1 rotates about the lugs 11 the lugs 11 track along the curved portion 6 of the slot 5 towards the centre of the plate members 3 and 4, thus causing the screw member 9 to be retracted between the plate members 3 and 4 and drawing the cork 12 out of the orifice in which it is retained. The shape of the plate members 3 and 4 is such as to increase the distance from the inner end of slot 5 to the perimeter of the plates on the side of the handle at which the screw body 9 finishes when rotated to extract a cork. This serves to ensure that a cork screwed onto the screw body is fully withdrawn beyond the perimeter of the plate members 3, 4.

Once the cork 12 has been extracted it is removed from the end of the screw member 9 by sliding the screw member 9 back along the curved portion 6 of the slot 5 to a point where it extends beyond the plate members 3 and 4. In this position the cork 12 can be twisted off the end of screw member 9 by gripping the cork 12 in one hand and twisting the main body 1 with the other.

Referring to fig. 5 of the accompanying drawings there is shown a cork extractor according to a second embodiment of the present invention. In many respects, this is identical to the embodiment of the present invention shown in fig. 1 inasmuch as it comprises a main body 21 having two essentially oval plate members 22 and 23 which are connected in spaced relationship to a handle or lever 24. Located between the two plate members 22 and 23 is a screw member 25 which is connected to a support body 26 (only partially visible). A pair of laterally extending projections or lugs 27 and 28 project from each side of the support body 26 and these lugs 27 and 28 are each received in a respective one of a pair of curved, intersecting slots 29 and 30 provided in each plate member 22 and 23.

The lugs 27 and 28 are each slidable along a respective one of the curved tracks 29

and 30 to progressively withdraw the screw member 25 relative to the perimeter of the main body 21, thereby facilitating withdrawal of a cork or stopper from an orifice.

In use the screw member 25 is screwed into a cork by rotating the main body 21 about the longitudinal axis of the screw member 25. When the screw member 25 is screwed fully into the cork the edges of the plate members 22 and 23 rest against the sides of the orifice in which the cork is received, thereby bracing the cork extractor.

Now the handle 24 is lifted to rotate the plate like members and thereby drive the lugs 27 and 28 along the slots 29 and 30 and thereby withdraw the cork. In the first instance the plate members 22 and 23 rotate about the lugs 27 and the lugs 28 each track their respective slot 29 in the direction of arrow A. When the lugs 28 reach the end of the slot 29 continued movement of the handle results in the plate members 22 and 23 rotating about the lugs 28 which follow slot 31 and the lugs 27 track along their respective slots 30 in the direction of arrow B. When the lugs 27 reach the ends of the slots 30, the screw member 25 lies in the position shown in the dotted line and is fully withdrawn.

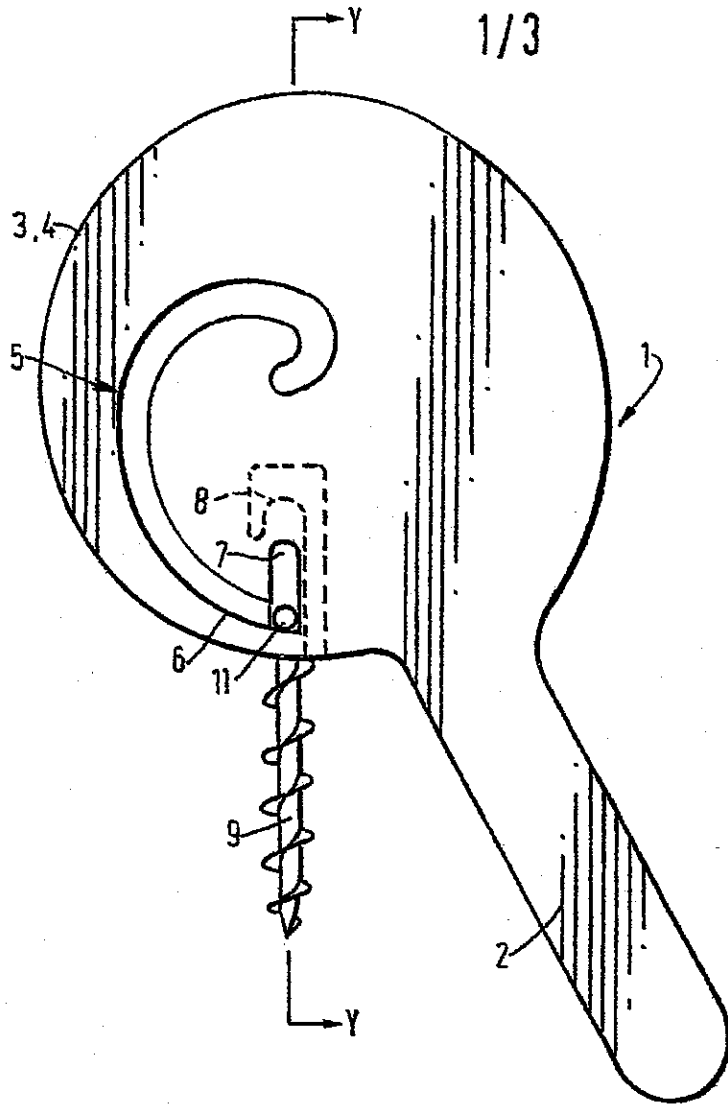


FIG. 1

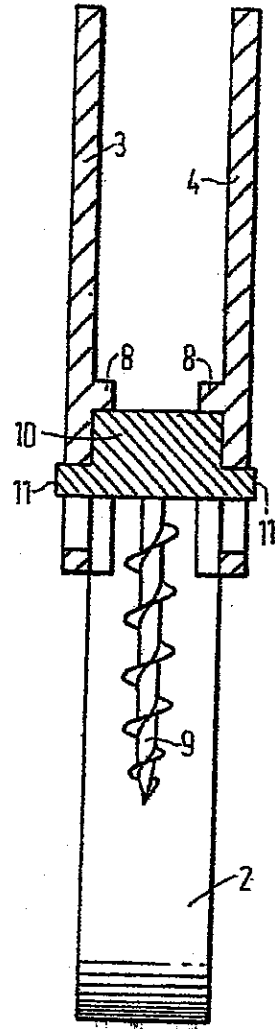


FIG. 2

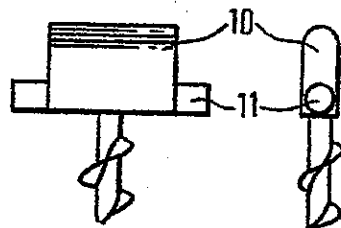


FIG. 3

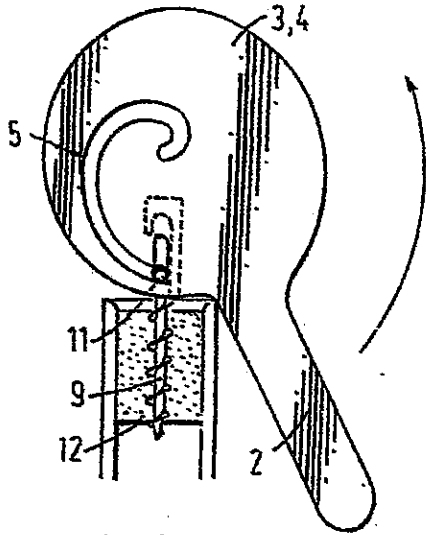


FIG. 4a

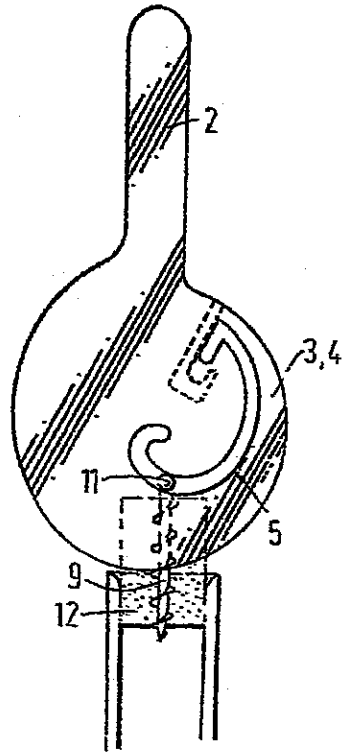


FIG. 4b

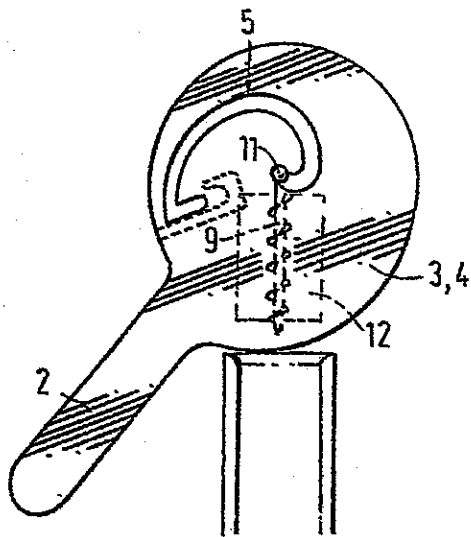


FIG. 4c

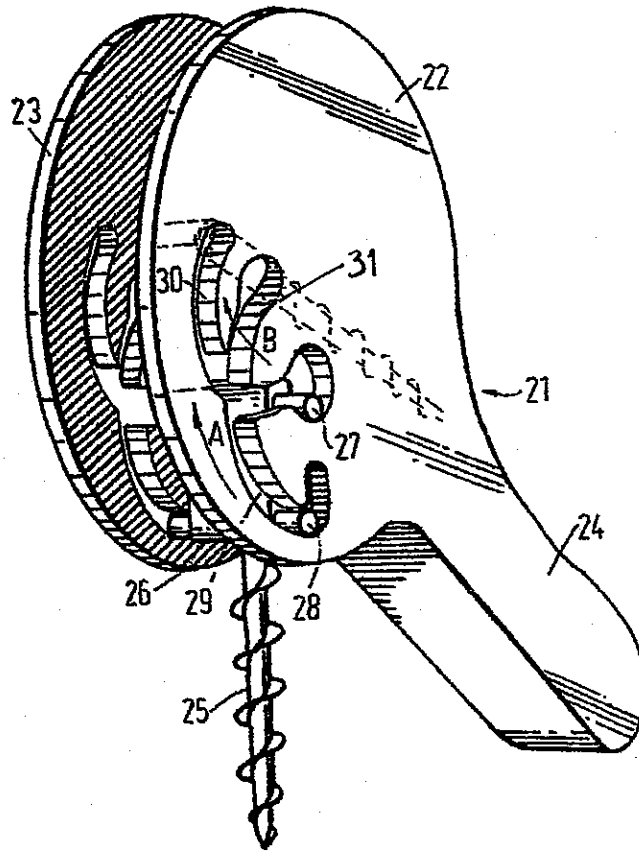


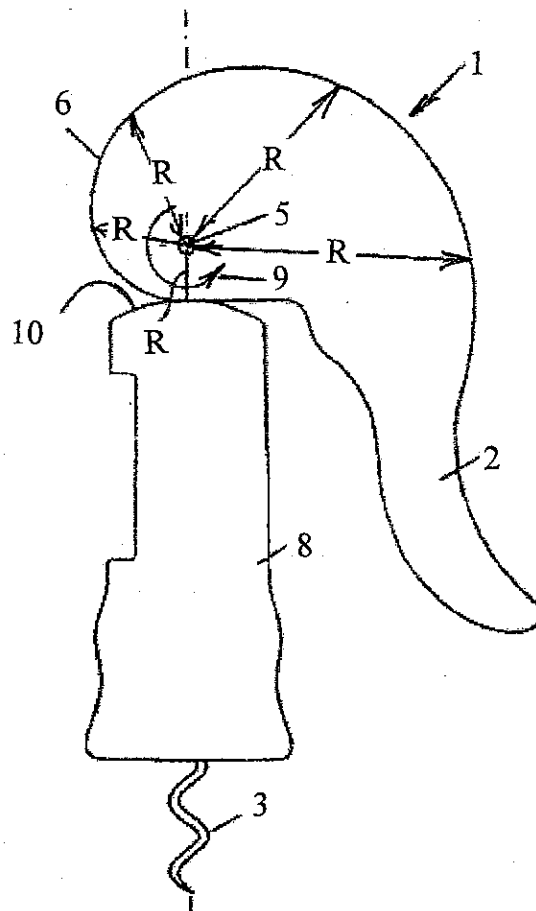
FIG. 5

### ABSTRACT OF NZ678123

A corkscrew 1 has a housing 8 which fits over the mouth of a bottle (not shown). A spindle 3 has a lower end adapted to engage a cork, and an upper end pivoted at point 5 in an actuating lever 2.

The actuating lever 2 has a curved outer surface 6 having a radius  $R$  that varies with respect to the pivot point 5.

Therefore, as the handle 2 is lifted it rotates about point 5 in a direction shown by arrow 9. Surface 6 slides across surface 10 of the housing, and the increasing radius  $R$  forces the spindle in an upward direction.



**ABSTRACT OF NZ679234**

A corkscrew is shown in side elevation in Figure A and end elevation in Figure B having a body 1 with a handle 2. The body includes a number of arcuate slots 3-5. Each slot is adapted to receive a spigot 6 of a screw member 7. In use, the screw member 7 is screwed into a cork located in the neck of a bottle. The spigot is then disposed within first slot 3 as shown in figure A. The handle 2 is then lifted as shown by arrow 8 to rotate the body 1 about the spigot and slide surface 9 of the body over the mouth of the bottle. As the spigot tracks along slot 3 the cork is moved upwardly. The process can be repeated by inserting the spigot in slot 4 and then slot 5 to successively lift the cork from the neck of the bottle until it has been completely removed.

