

**THE JOINT EXAMINATION BOARD**

**PAPER P4**

**AMENDMENT OF SPECIFICATIONS FOR UNITED KINGDOM PATENT  
APPLICATIONS IN PROSECUTION, REVOCATION PROCEEDINGS OR OTHERWISE**

**26th APRIL, 1995**

**10.00 A.M. - 1.00 P.M.**

Please read the following instructions carefully. This is a **THREE HOUR** paper.

1. In the appropriate boxes at the top of each sheet please enter the designation of the paper, the question number, and your Examination number. Write on one side of the paper only using **BLACK** ink. You must **NOT** staple pages together. You must **NOT** state your name anywhere in the answers.
2. **NO** printed matter or other written material may be taken into the examination room.
3. Answers **MUST** be legible. If the examiners cannot read a candidate's answer no marks will be awarded.

## INSTRUCTIONS TO CANDIDATES

In this paper, you should assume that a United Kingdom patent application comprising the attached specification has been filed and that the UK Patent Office has issued the attached Official Letter.

You should accept the facts given in the paper and base your answer upon these facts. In particular, you should not make use of any special knowledge that you may have of the subject matter of the invention and should assume that the prior art referred to is in fact exhaustive.

Your task is to prepare the following:

1. a draft letter to the UK Patent Office in response to the attached Official Letter including amended claims if appropriate; and
2. a memorandum consisting of notes to provide the basis of advice and comment to your client. These notes should be restricted to patent matters. You are not required to consider any other matters such as copyright or design protection.

You should bear in mind when drafting your response that the claims should afford the maximum valid protection that is available.

If you believe that one or more divisional applications should be filed, your draft letter should include an independent claim for the or each divisional. You should also indicate your grounds for considering any such claims acceptable. You need not, however, propose an introduction for any divisional application(s)

**Please note that, for the purposes of this examination question, you are not required to propose any amendments to the description of the patent application.**

LETTER FROM CLIENT

Thank you for your recent letter enclosing the Official Letter from the Patent Office and the associated patents.

By way of background, I am pleased to report that the EASICLOSE device which is described in this patent application is enjoying considerable success in the market-place. Following a positive reaction from the general public, we now have several large contracts to make the air freshener containers which I am sure you will have seen on sale in supermarkets. Apparently people like to be able to leave the containers in a room and open them on special occasions such as after parties.

We have been using the success of the air freshener containers to develop the other applications for the EASICLOSE device. Since we last spoke, we have started to manufacture and sell sink fittings and this looks like being a very important market for us. In addition, we have in the last few weeks concluded licensing deals with two major manufacturers in the UK to make and sell bottle tops. All in all a great success especially when you think it all comes from one patent! In fact, I recall saying to you at the time we filed that I was surprised we could get one patent for these three different articles.

In view of the above you will understand that we are keen to get the best protection for each of the articles. For example, in the last few months, we have become aware of exact replicas of our sink fittings being offered for sale and these are causing us considerable difficulties in developing this business. Furthermore we will likely have to protect the interests of our licensees in the bottle top market eventually.

As regards the Official Letter, I passed it on to our development people for comment. Whilst we do not understand all of the legal jargon, our reaction is that most of this prior art should not be a problem. The US patent seems to be just a conventional plug and chain arrangement which you see in most kitchens and bathrooms. GB 1468959 appears to describe a rubber bung in which the knob on the top is pushed down into the aperture. This is quite different from our bottle top and seems a poor design as it could be quite difficult to pull the knob out especially if your fingernails were long.

The other patent (GB 2344355) is of some concern to us as it is much closer and works in a very similar way to the EASICLOSE sink fitting. However the spring/washer arrangement would be rather labour-intensive to make and it has the disadvantage that the spring could become corroded after prolonged use. Also the mechanism could become fouled by grease or particles of food from dirty dishwasher. These latter technical disadvantages would, of course, not be a problem for the other applications we claim and in fact I have had reports that one of our rivals is going to start making air freshener containers like ours but with this sort of closure device. I suppose they must have read this patent too.

I hope the above is of assistance to you. We have replied promptly to your letter since we want to give you time to do a good job. Please however send me a draft of your suggested reply before it is sent to the Patent Office.

Your ref:1995/P4  
Application No: GB 9399999.9  
Applicant:Your Client

Examiner: Derek Hejhogs  
Tel: 01633 XXXXXX  
Date of Report:17 January  
Page 1/1

Latest date for reply: 18 July 1995

Patents Act 1977  
Examination Report under Section 18(3)

### Novelty

1. It appears to the examiner, as a result of a search under Section 17, that the application does not comply with the requirements of Section 1(1)(a) in that the invention, so far as claimed in claims 1 to 8 of the application, is not new having regard to the matter contained in the patent specifications or other documents cited below:-

GB 2344355A  
GB 1468959A  
US 3111222A

### INVENTIVE STEP

2. It appears to the examiner that the application does not comply with the requirements of Section 1(1)(b) in that the invention, so far as claimed in claims 1 to 8 of the application, does not involve an inventive step having regard to the matter contained in the patent specifications or other documents cited below:-

GB 2344355A\*  
GB 1468959A  
US 3111222A

In the case of the cited matter marked \* however, no amendment will be necessary if you show to the satisfaction of the Comptroller that the priority date (as defined in Section 5) of your invention is not later than the publication date of the cited matter, as provided by Section 3.

3. In amending the specification care should be taken to make sure that the claims relate to a single inventive concept.

Yours faithfully,

GB Patent Application No 9399999.9

Filing Date: 24 March 1993  
(no priority claimed)

### CLOSURE DEVICE

The present invention is concerned with a closure device which is suitable for the quick opening or closing of an aperture.

According to the invention, a closure device comprises a base and a lid, the lid being resiliently deformable and capable of flexing between stable first and second configurations, in the first configuration the lid bearing upon or surrounding the base so as to form a seal, and in the second configuration the seal being broken.

The lid is suitably comprised of a resiliently deformable disk which can be centrally mounted on the base. The disk can in principle be any shape which allows it to flex reversibly. However trials have shown that substantially circular disks are the best for flexing and less prone to fracture after a period of use.

Preferably, sealing or breaking of the seal is effected by reversal of the form of the lid. The base and the lid may together form a sealable container which may be charged with material, e.g. material for exposure to the atmosphere when the lid is open. In the case of an air freshener, the material may be a disk or annulus of fragrant solid material. Alternatively, the base may be formed as an insert for an aperture to be closed or opened, in which case the base may be a sleeve for insertion in an aperture such that the rim of the lid projects over the bore of the sleeve so as to seal by bearing on the periphery of the sleeve or on a surround of an aperture in which the sleeve is inserted.

Preferably, the lid is connected to a resilient cross-member or bridge integrally moulded, bonded or other wise formed as one with the base. The lid is most conveniently joined to the bridge at a point substantially central of the aperture.

A variety of apertures can be opened or closed using the closure device of the invention. For example, the aperture can be one for gaining access to the interior of a container to enable the contents thereof, which may be solid or liquid, to be removed or, in the case of vapourisable or vapour-emitting contents, to escape. As an alternative example, the aperture could be the plug hole in a sink and the closure device a drain plug assembly. A particularly useful embodiment of the closure device is one which is incorporated into an assembly which allows release of air freshening vapours into a room.

Preferred embodiments of the invention will now be described in greater detail, by way of illustration only, with reference to the accompanying drawings, in which:

Figure 1 is an exploded view showing in axial section the components forming a container such as an air freshener container,

Figure 2 is a cross section of the base on the line II-II of Figure 1,

Figure 3 is a side elevation showing the container open,

Figure 4 is a side elevation showing the container closed,

Figure 5 is in axial section a device forming a drain plug assembly for a sink or the like,

Figure 6 shows the base of the device of Figure 5 in perspective, and

Figure 7 shows in axial section a device forming a bottle top or like closure.

In the embodiment of the invention shown in Figures 1 to 4, the closure device comprises a circular base 10 and a circular dished lid 11 of similar diameter both moulded from a plastic material, which is advantageously polypropylene or polyethylene, or a material of similar mechanical properties.

The base 10 has moulded, bonded or otherwise made in one with it a resilient bridge shown as an upwardly curved narrow strip 12 of plastic material. The strip is of triangular cross-section and has at its centre an upwardly projecting boss 13. This arrangement has the advantage that it can be manufactured easily and in great quantity by conventional moulding techniques. Instead of a strip, the bridge could be a three-legged or other spider.

The lid 11 has at its centre a boss 14 with a socket 15 to receive as a spigot the boss 13 on the base 10. This is likewise easy to fabricate by moulding.

When the device is closed and hence sealed, the lid 11 bears by its rim axially on the corresponding rim of the base 10. The lid 11 has a degree of resilience such that, for opening the device, application of pressure at its centre causes it to reverse its form from an externally convex to an externally concave shape. Normally the mechanical characteristics of the lid 11 will be such that reversal of its form back to the original configuration can be effected by the application of pressure to the periphery thereof when it is desired to re-close the lid 11 against the rim of the base 10.

The container charge in this example is of air-freshener material and is shown as a thin circular solid disk 16 with a hole 17 at its centre to engage over the boss 13.

To open the closed container, finger pressure is applied to the central area of the lid 11 so depressing the centre of the bridge. Since the rims of the base 10 and lid 11 are in contact, upward reaction pressure generated at the rim of the lid 11 by this finger pressure causes the rim to move upwards relative to its centre and the lid reverses its dish shaped form from externally convex to externally concave (Figure 3).

In another embodiment of the invention, shown in Figures 5 and 6, the lid and base are so constructed that the device forms a drain plug assembly for a bath, sink or like outlet. In this example the base comprises a sleeve 21 which fits into an outlet 20 and has integral hooks 22 which provide a means of retention by positively engaging with an outlet grid 23 thereby preventing accidental removal. The remaining parts are substantially the same as in the embodiment of Figures 1 to 4, but it will be noticed that the lid 11 bears by its rim on the surround of the outlet 20, radially beyond the base 21.

In a final embodiment shown in Figure 7, the device is designed to close the filling or discharge aperture of a sealable container, for example the neck of a bottle, jar or the like. In this case the base 25 is a sleeve which fits in the bottle neck 26 and has a flange 27 at its upper edge to overlie the rim of the bottle neck. The lid 28 in the closed position bears on the flange 27 and for additional security the lid 28 and flange 27 can be provided with corresponding elements (not shown) which co-operate together to form a snap fit for additional security. The lid is shown as having the preferable feature of a tear-off strip 29 which is removed when first opening the bottle; thereafter the bottle is opened and closed by reversing the shape of the lid 28 as explained earlier.

The particular design of bottle closure device described in the previous paragraph has the advantage that it allows a user to open the bottle with one hand. Thus the user merely grasps the neck of the bottle between his fingers and the palm of his hand and applies downward pressure on the lid 28 with his thumb to effect opening.

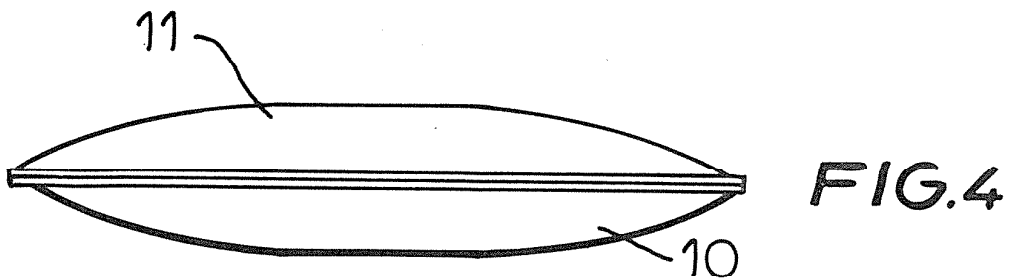
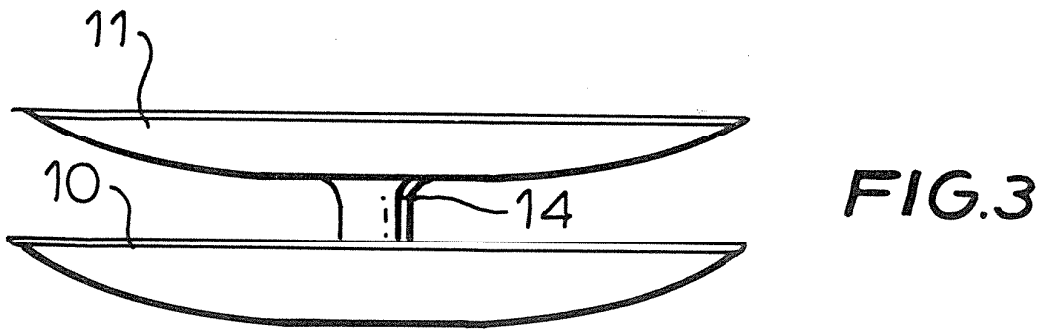
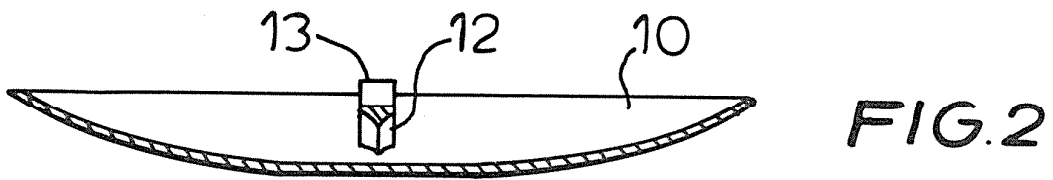
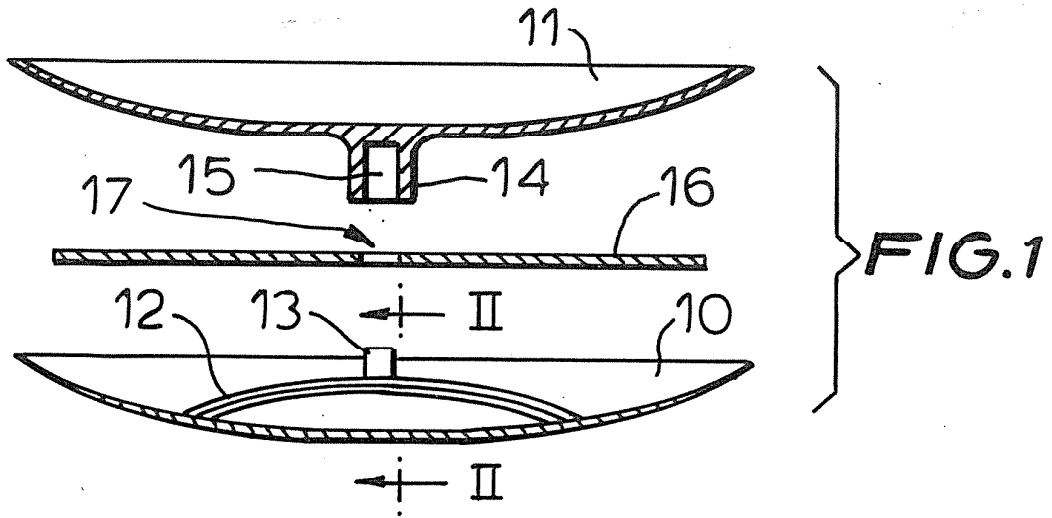
#### Claims

1. A closure device comprising a base and a lid, the lid being resiliently deformable and capable of flexing between stable first and second configurations, in the first configuration the lid bearing upon or surrounding the base so as to form a seal and in the second configuration the seal being broken.
2. A closure device as claimed in claim 1 wherein sealing or breaking of the seal is effected by reversal of the form of the lid.
3. A closure device as claimed in claim 1 or claim 2 in which the lid and base together form a container.
4. A closure device as claimed in claim 3 wherein the container is charged with an annulus of solid material for exposure to the air when the lid is opened.
5. A closure device as claimed in claim 1 or claim 2 wherein the base is formed as an insert for an aperture to be closed or opened.
6. A closure device as claimed in claim 5 wherein the base is a sleeve for insertion into the aperture and the rim of the lid projects over the bore of the sleeve so as to

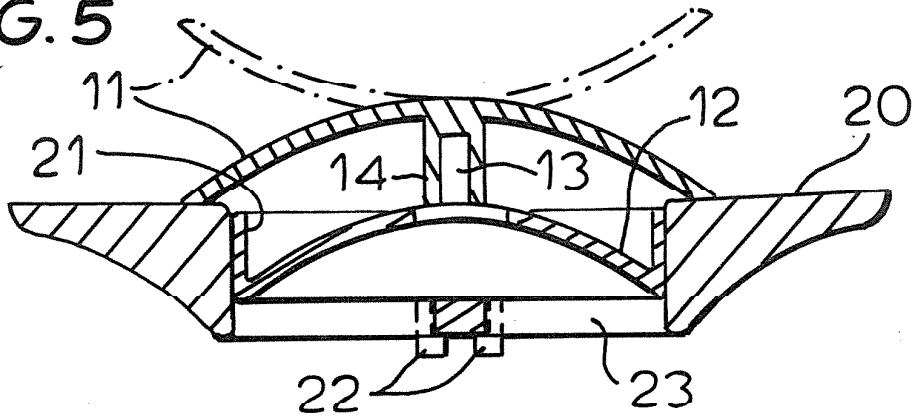


seal by bearing on the periphery of the sleeve or on a surround of an aperture in which the sleeve is inserted.

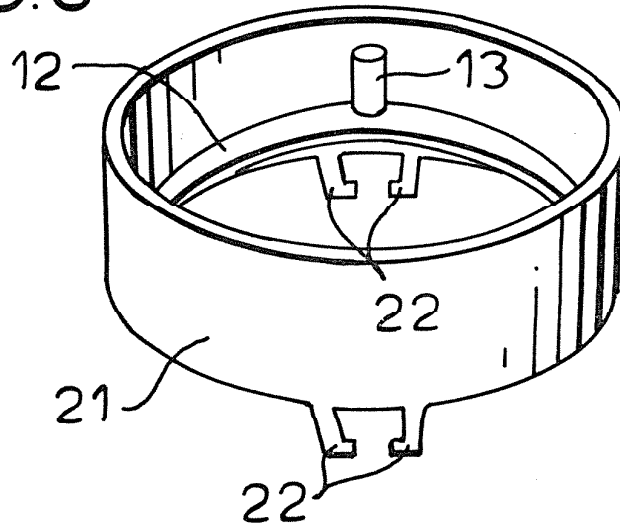
7. A closure device as claimed in any preceding claim wherein the lid is moulded from a flexible plastic material such as polypropylene or polyethylene.
8. A closure device substantially as hereinbefore described and as illustrated in the accompanying Figures 1 to 4.
9. A closure device substantially as hereinbefore described and as illustrated in the accompanying Figures 5 and 6.
10. A closure device substantially as hereinbefore described and as illustrated in the accompanying Figure 7.



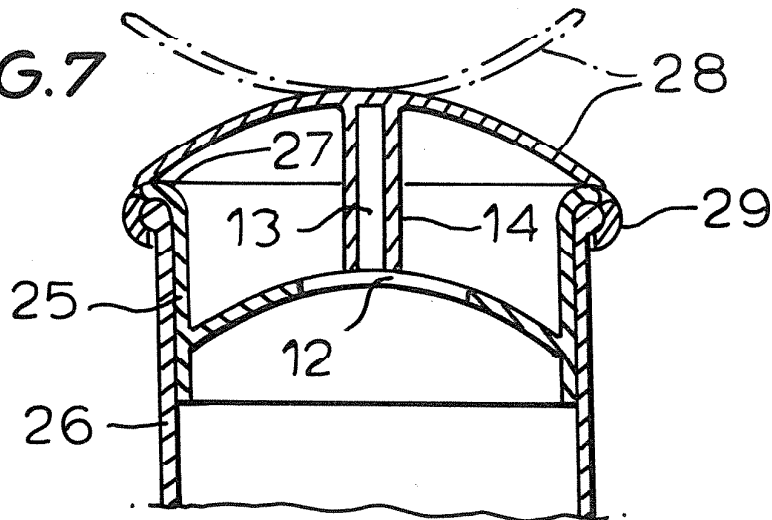
**FIG. 5**



**FIG. 6**



**FIG. 7**



GB Patent Application 2344355 A1(extract)

Filed: 8th August 1992

Published: 8th February 1994

### DIAPHRAGM TYPE DRAIN PLUG

This invention relates to a plug assembly for installation in domestic bath tubs, wash basins, and sinks.

In the past conventional closures for sinks and the like comprised a tapered plug of rubber or like material which could be forced into the plug hole where it remained secured by friction until it was removed manually. Manual removal was facilitated by connecting the plug to a metal chain which could be pulled on. The other end of the chain was typically attached to a fitting on the sink thereby ensuring that the plug did not become accidentally lost.

A problem with this particular design of closure is that in many instances, e.g. when a sink is being used for washing-up, accidental disturbance of the connecting chain can cause the plug to be pulled out of the plug hole causing unwanted drainage of the contents of the sink. Additionally, scouring of the surface of the sink by the metal chain over a period of time leads to a deterioration in its appearance.

The following new design of closure overcomes the disadvantages set out above whilst still providing a leak-proof seal.

Figure 1 illustrates a drain plug assembly according to the present invention which can either be used as a sink fitting per se or as an insert to an existing fitting. The drain plug itself consists of a diaphragm 9 mounted on a stem 2 which normally extends into a cylinder or sleeve 3 of a drain element 6. The drain element 6 is moulded from a rigid plastics material. The cylinder 3 is integral with the body 1 of the drain element 6. A spring 4 is retained in the cylinder 3 by a sleeve 16 on the stem 2. The stem 2 has a head 14 at its top for retaining the diaphragm 9 in position. The stem 2 extends through the sleeve 16, the spring 4 and an aperture 12 in the base of the cylinder 3. The sleeve 16 is provided with a shoulder 13 which bears against the spring 4. The lower end of the stem 2 is step cut and slotted or is provided with a hole for facilitating the mounting of a washer, snap ring or cotter pin 8 for limiting the upward movement of the stem 2 in the cylinder 3 and holding the lower circular edge of the diaphragm 9 pressed tightly against a lip portion 5 of the drain socket body 1.

Diaphragm 9 is a normally dome-shaped member which is convex in cross-section and is formed of a flexible, elastic material such as rubber or certain commonly available types of plastic. The thickness of the diaphragm 9 at its outer edge is greater than that at the centre so as to enable the diaphragm 9 to collapse from a convex to a

concave cross-section as a downward force is applied manually to the centre of the plug. Thereafter, the concave configuration does not change until a downward force is applied to the edge regions of the plug.

As shown in Figure 1, the diaphragm 9 is depicted in its normal or closed position with its edges bearing axially upon the lip portion 5 of the drain socket body 1, because of the action of the stem 2. The spring 4 serves to keep the stem 2 in its original uppermost position or to restore it to such a position after pressure is released from the top of the plug during use. Thus, the spring enables the diaphragm 9 to be held in a stable position on any occasion. The water contained in the sink additionally exerts a hydraulic pressure on the diaphragm 9 to hold its edge against the lip portion 5 of the socket body 1.

As shown in Figure 2, draining is effected by first pushing down with one finger on the central portion of diaphragm 9, thereby causing its edge portion to flex upwards into a concave cross-sectional configuration (as shown by the dotted lines in Figure 2). Thereafter, when the pushing force is released, the diaphragm 9 is urged upwards into its uppermost position by the action of spring 4. The plug is then sufficiently open to allow draining of the sink.

Upon completion of the draining, the diaphragm 9 can easily be restored to its initial position by applying downward force, e.g. finger pressure, to its edge portion.

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FIG. 1

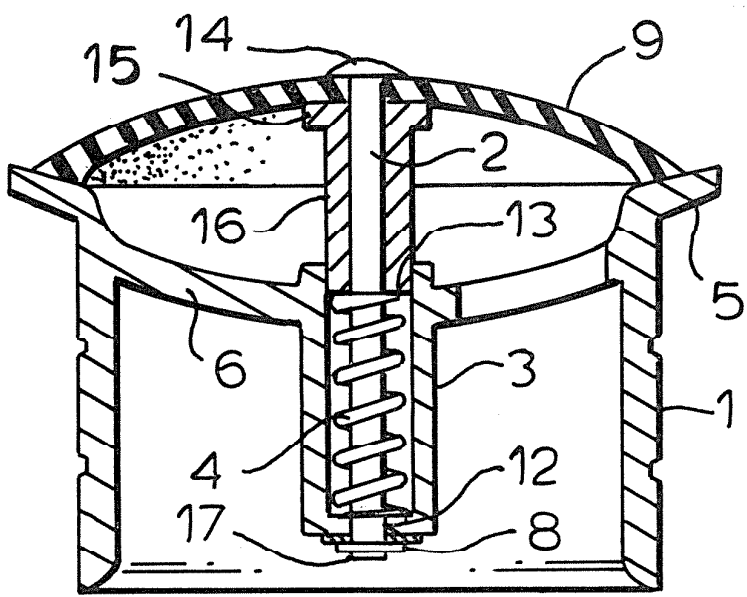
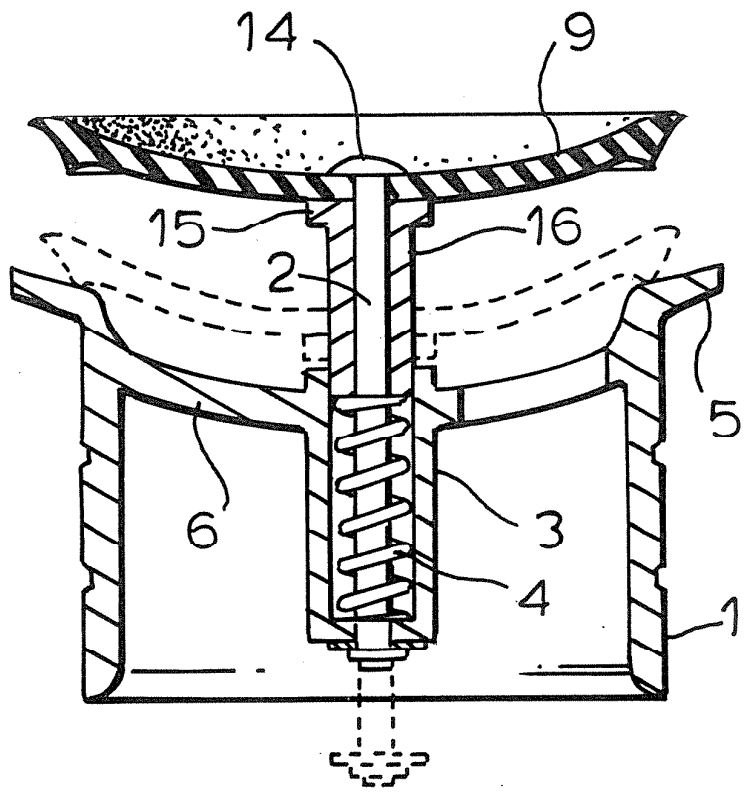


FIG. 2



GB Patent 1468959 (extract)

Published: 18th December 1972

### BOTTLE STOPPER

My invention relates to a new type of stopper for closing bottles, Thermos flasks, jars and the like which makes a tight seal in the discharge orifice and has the advantage that its top does not stand proud when in use.

The stopper is necessarily made of a material such as rubber as it is necessary for it to be elastic and springy so as to be deformable in service. In the drawings, 2 represents the orifice of a Thermos flask in which there is a bushing 3 provided with a flange 4 and 5. The main body of the stopper comprises a cup 6 having a thin bottom flange 7 and a thickened top rim 8. The top rim 8 is connected to a conical top portion 9 which terminates at 10 in a knob 11.

The conical top portion 9 where it joins the cup 6 is provided with a thickened inwardly projecting ring shaped portion 12.

Figures 1 and 2 show the relative positions of the orifice and stopper respectively before and after the orifice is sealed. In going from the position shown in Figure 1 to that shown in Figure 2, the projection 12 moves from the position shown in Figure 4 to that shown in Figure 5 thereby forcing the outside surface of the top rim 8 through radial expansion into a radial sealing arrangement with the internal surface of the flange 5.

The stopper is snapped into place by pushing the knob 11 into the orifice so that the conical portion 9 is moved from the position shown in Figure 1 to that shown in Figure 2. In this position the knob 11 is no longer proud of the top of the orifice. Movement of the conical portion 9 in this way causes the desired movement of the projection 12. The stopper is easily removed from the orifice by pulling on the knob 11 thereby causing the conical portion 9 to snap back into the unsealed position shown in Figure 1 and the projection 12 to the position shown in Figure 4.

FIG. 1

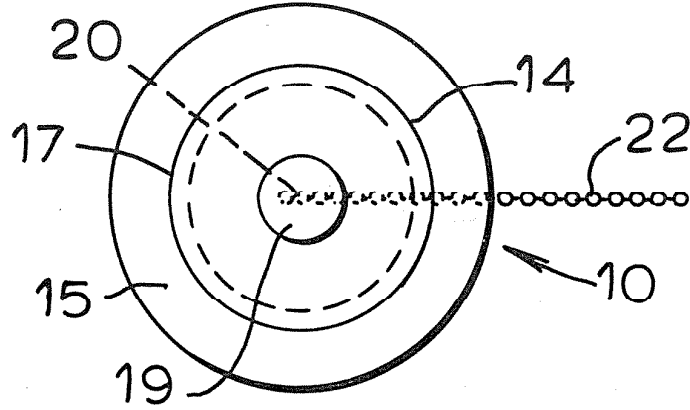


FIG. 2

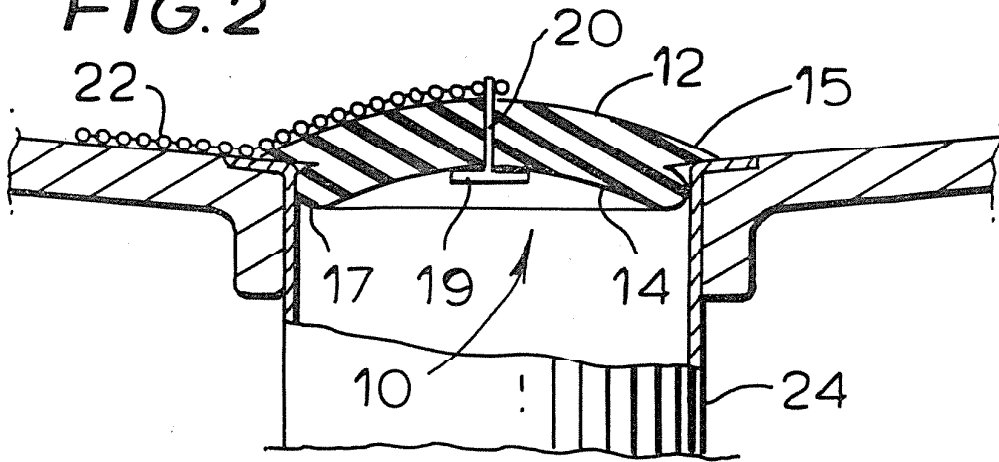
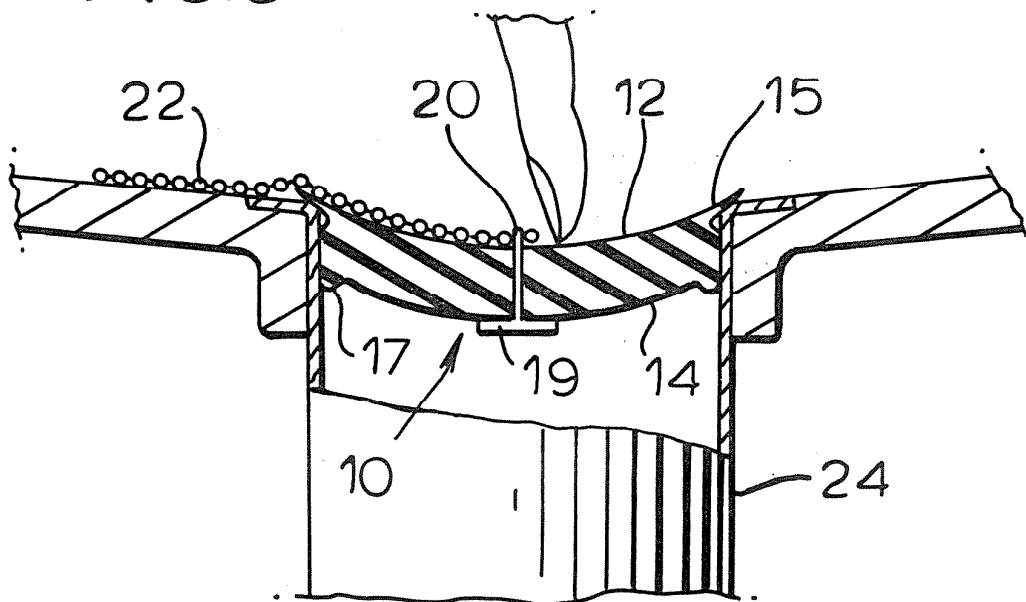


FIG. 3





DRAIN PLUG

This invention relates to a drain plug which is maintained in positive engagement with the inside side walls of a drain pipe during use and can be readily released whenever desired.

Referring to the attached drawings, the drain plug 10 comprises a resilient main body portion having a normally convex upper surface 12 and a normally concave lower surface 14. In the disengaged position, the drain plug 10 has a radially outwardly extending flange 15 integral with the upper surface of the main body portion and a radially extending beaded lip 17 adjacent to the lower surface thereof. The circumferential portion of said lip is normally arcuate in shape. A washer 19 is integral with one end of a centrally located rod 20 that extends through the main body portion, the opposite free end of which is attached to a flexible chain 22.

In use, the beaded lip 17 is approximately the same size in external diameter as the internal diameter of the drain pipe 24, while the flange 15 is of slightly larger diameter than the internal diameter of the drain pipe 24. The drain plug 10 is placed loosely into the drain pipe 24 in the initial position shown in Figure 2. By then merely depressing the main body portion by exerting downward finger pressure upon the top surface 12, the drain plug 10 is distorted into the sealing position shown in Figure 3. In this operative position, the beaded lip 17 becomes distorted into a vertical cylindrical surface and exerts a radial pressure upon the adjacent inside surface of the drain pipe 24 thereby generating a radial sealing action which prevents outward flow of water under the flange 15 into the drain. At the same time the flange 15 overlies the top of the drain pipe 24 thereby preventing the drain plug 10 from being depressed too far into the drain pipe 24. After use it is only necessary to exert a slight pull upon the chain 22 to remove the drain plug 10 thereby breaking the seal and allowing water to drain out.

FIG.1

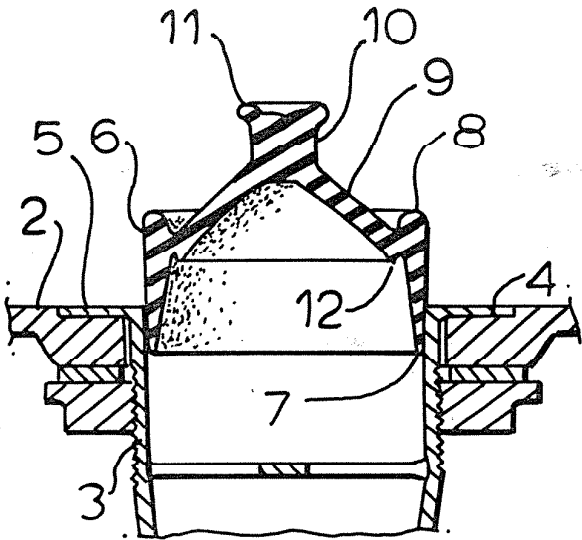


FIG.3

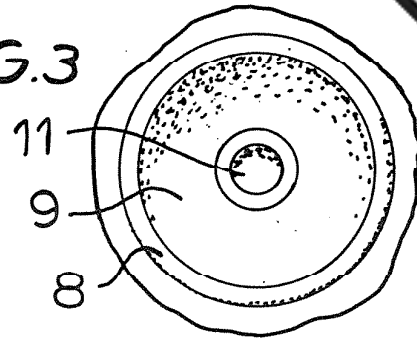


FIG.2

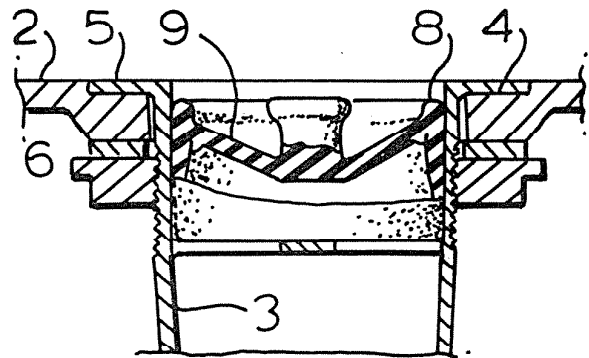


FIG.4

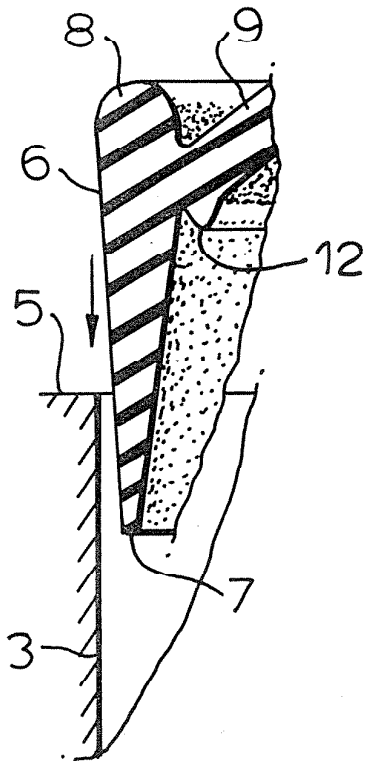


FIG.5

