

## THE JOINT EXAMINATION BOARD

## PAPER P3

## 5 PREPARATION OF SPECIFICATIONS FOR UNITED KINGDOM AND OVERSEAS PATENTS

17th November 2000

10:00 a.m. - 2:00 p.m.

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

15

1. Check the contents of this envelope. You should have *four (4) pages* of question paper including these instructions, *two (2) sets of the drawings (one with and one without legends) each set being of two (2) numbered sheets, 3 pages of extract from EP-A-0 123 456 with two (2) sheets of drawings and making (13) pages/sheets in all.*

20

2. In the appropriate boxes at the top of each sheet please enter the designation of the paper (P3), the question number and your examination number. You should write only on one side of the paper using **BLACK** ink. Please do NOT staple pages together. You must NOT write your name anywhere in the answers.

25

3. **NO** printed matter or other written material may be taken into the examination room.

30

4. Answers **MUST be legible**. If the examiners cannot read a candidate's answer then no marks will be awarded.

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Your client writes:

As you know beverage dispense systems, mostly for dispensing beers, typically comprise a metal keg, of stainless steel or aluminium, having a neck in the top of the keg. A valve assembly fits into the keg neck and has a dispense tube, or spear, that descends inside the keg from the valve to near the keg bottom. A releasable coupling connects to and opens the valve assembly which permits gas, usually carbon dioxide, to flow under pressure into the top of the keg.

This gas pressure within the keg can force the beverage to flow up the spear, through the valve assembly and coupling into a line that leads from the cellar to the bar. The line terminates with a dispense valve which is operated to dispense beverage from the line.

With such a system, the keg is under gas pressure even after it has been disconnected from the system. Normally this is of no consequence as the, then empty, keg is returned to the brewer to be depressurised, washed and refilled. However, unauthorised tampering with a pressurised keg can be very dangerous as the valve assembly could be ejected with considerable force from the keg.

We have developed a solution to this problem, which is particularly advantageous in that it can be fitted to existing dispense valves.

Our new safety device is shown in the accompanying drawing wherein Figs. 1 to 4 are sectional views of the safety device attached to a dispense tube and valve assembly and successively illustrate:-

- Fig.1 insertion of the assembly into the neck of a normally orientated keg;  
Fig.2 the normal, operating position of the anti-expulsion safety device in the keg;  
Fig.3 the device acting to prevent accidental removal of the assembly;  
Fig.4 the assembly prior to removal from an inverted keg (this figure is drawn  
5 upside down);  
and  
Fig.5 is a plan of the safety device.

The safety device is readily mountable on a spear, acts to prevent ejection of a spear and  
10 valve assembly from a normally orientated keg, but permits removal of the spear and valve  
assembly from the keg by a special technique, as opposed to a special tool. When the keg is  
in its normal, beverage-dispensing orientation, the butterfly members will pivot within the  
keg under their own weight radially away from the dispense valve assembly until they are  
stopped, in which position they would foul the keg neck on normal removal of the dispense  
15 valve assembly, and, if the keg is inverted, the butterflies will under their own weight pivot  
back to lie against the dispense valve assembly and permit removal of the dispense valve  
assembly from the keg. The dispense valve assembly can be readily inserted into a normally  
orientated keg as the butterflies will pivot upwards on meeting the keg neck and drop back  
once it has passed through the neck. Clearly, regular removal of the dispense valve  
20 assembly would not normally be done until the keg is empty and thus the safety device of  
the present invention can also function as an anti-tamper device.

The butterflies have the advantage that removal of an upright dispense tube by "canting" it  
is made more difficult and more importantly, impact forces generated by accidental, gas-  
25 induced expulsion of the dispense valve assembly are absorbed by the butterflies and  
balanced about the dispense valve assembly; although the safety device could work with a  
single pivotable anti-expulsion member.

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Each butterfly consists of an elongate plate with upturned, strengthening side walls; one side wall is provided with an outturned tab near one end whilst the opposed side wall is provided with a corresponding aperture. The two plates are interconnected with the tab of one plate introduced into the aperture of the other plate to form a pair of diametrically opposed butterflies pivotable about the tabs on the common axis of the apertures. A carrier, to grip a dispense tube of given diameter, is used to attach the butterflies, the carrier having a pair of stirrups extending axially away from the carrier. The diametrically opposed free ends of the stirrups are apertured to receive the plate tabs and lie radially between the side walls of the interconnected plates.

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Will you please draft me a patent specification with claims for filing at the British Patent Office.

A search reveals European Patent Specification No. 0 123 456 - A1, relevant extracts of which are copied herewith.

Your effort will be marked:

Claims: 70%, Specific Description: 15%, Preamble leading to the specific description: 15%.

You need not supply an Abstract.

Fig.1.

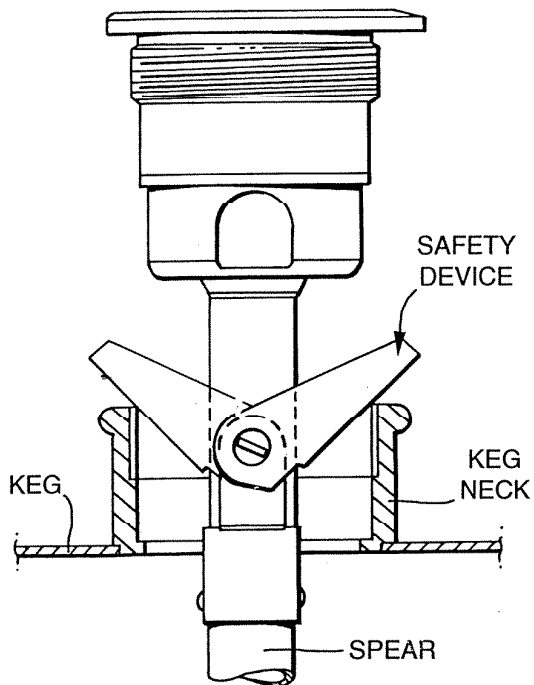


Fig.2.

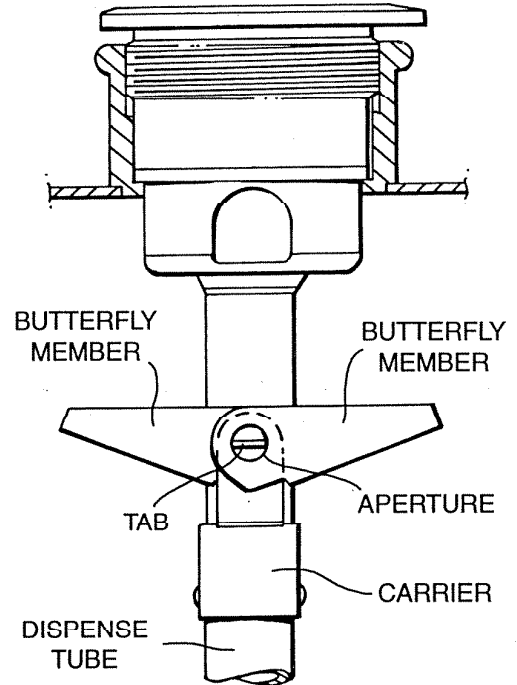


Fig.3.

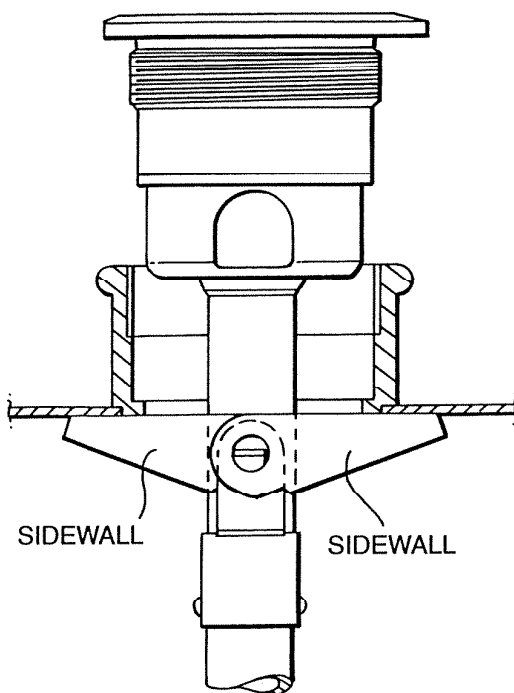


Fig.4.

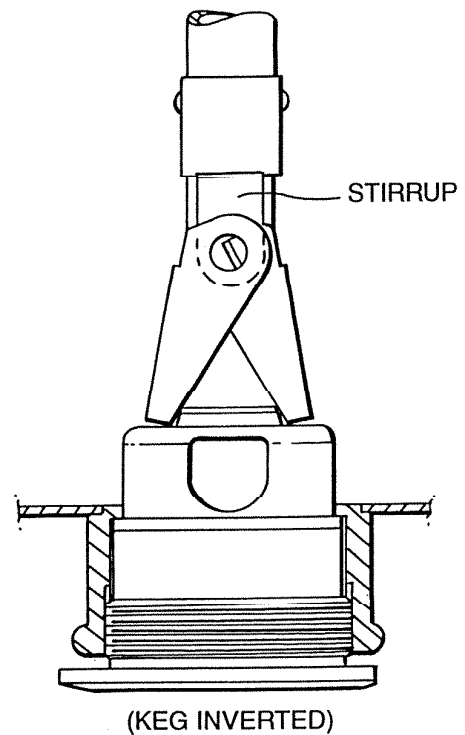
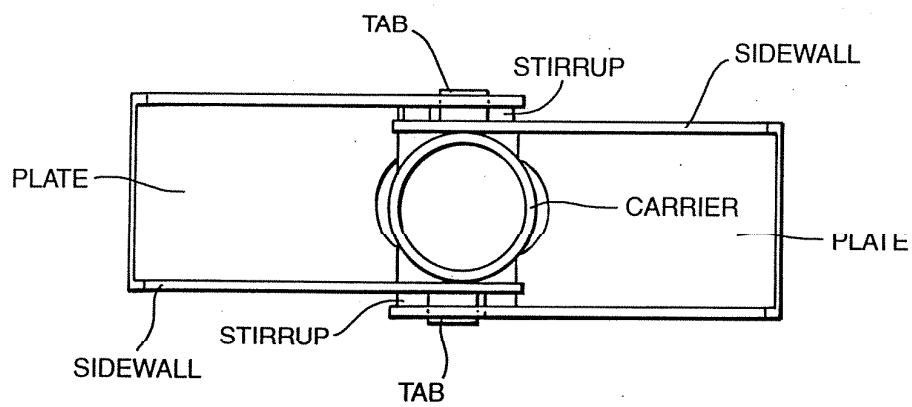


Fig.5.



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Fig.1.

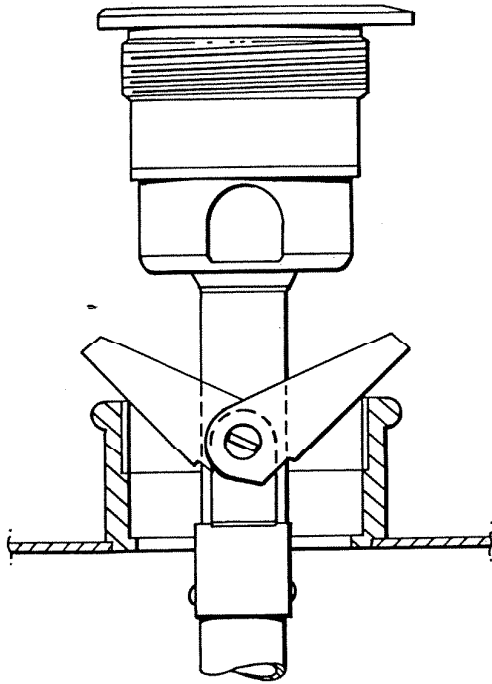


Fig.2.

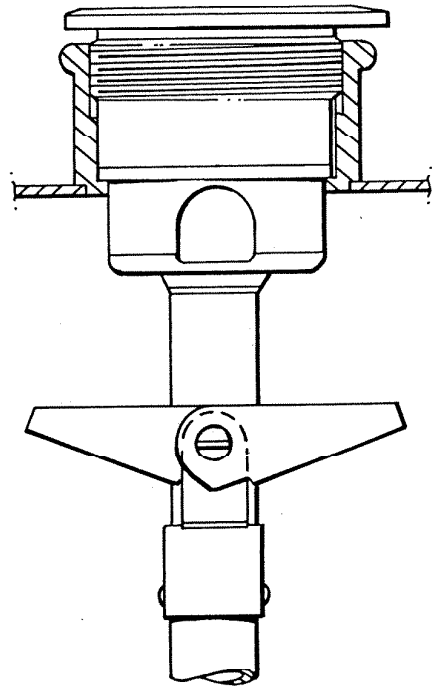


Fig.3.

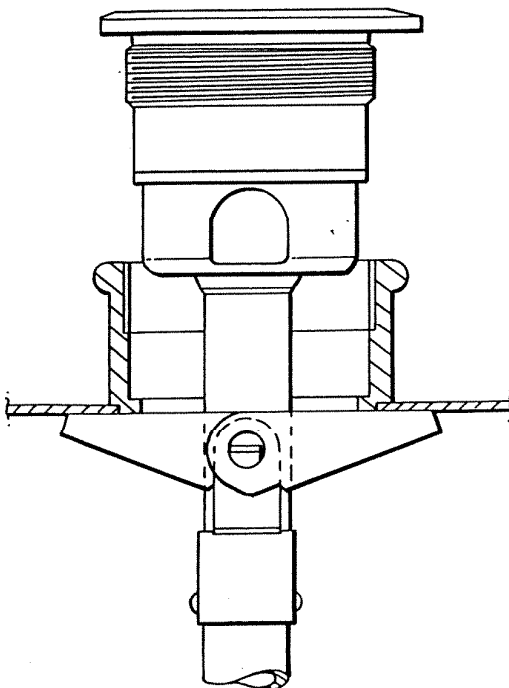
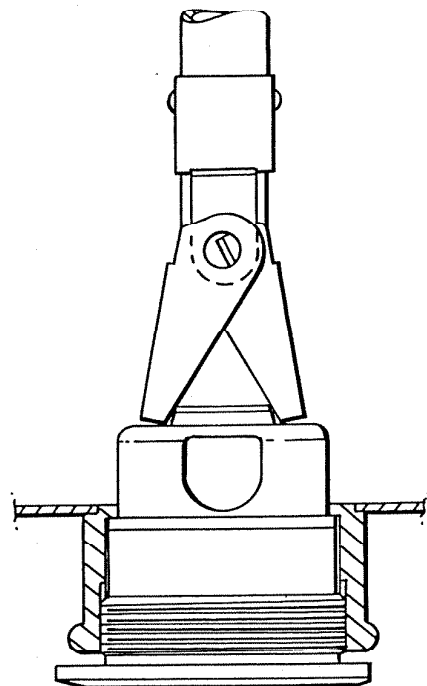
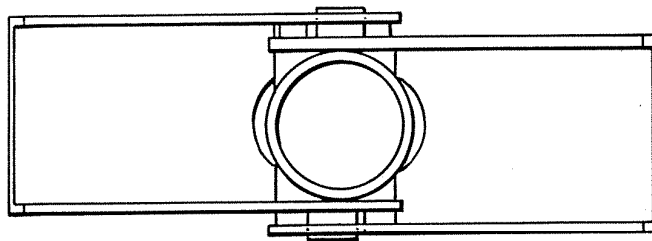


Fig.4.



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Fig.5.





**Safety Device for an Extractor Tube Assembly in a Beverage Container**

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This invention relates to an improvement in and a safety device for an extractor tube assembly used in a beverage container and is particularly concerned with the adaptation of an existing extractor tube assembly to render same more safe and tamper proof.

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The invention is primarily concerned with an extractor tube of the kind which is mounted in a fitting securable within the outlet of a beverage container and in which the extractor tube is displaceable downwardly into the container against a spring during broaching of the container.

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According to this invention there is provided a modification to the extractor tube used in a beverage container the modification comprising the provision of an abutment member secured to the extractor tube and extending laterally thereof adjacent the outlet of the container, the member having a major lateral dimension greater than the container outlet opening and a minor lateral diametric dimension less than the container outlet opening, the member being positioned along the length of the extractor tube such that removal of the fitting carrying the extractor tube is not normally possible by virtue of the member abutting the outlet but wherein the extractor tube may be displaced downwardly whereby the extractor tube assembly may be canted to allow the member to pass through the aperture of the outlet.

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In a preferred embodiment the member comprises a plate. The major and minor dimensions will lie generally at right angles to each other.

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To enable the invention to be more clearly understood reference is now made to the accompanying drawings showing an embodiment and modification thereof by way of examples and the method of operation.

Referring to the drawings,

Figure 1 shows in diagrammatic side view an extractor tube and fitting located within the outlet of a beverage container.

Figure 2 shows the fitting when unscrewed to the limit from the outlet.

5 Figure 3 shows the fitting when unscrewed and subject to manipulation to enable the extractor tube fitting to be removed.

Figure 4 shows in plan view the plate secured to the extractor tube.

Referring to Figures 1 and 2 of the drawings, a beverage container 1 has an outlet  
10 aperture defined by an upstanding collar 2 which receives an extractor tube fitting 3. The fitting comprises a top portion which engages the outlet 2 by means of screw threading 3a, a valve assembly (not shown in detail) and an extractor tube 4 which extends nearly to the bottom of the container. The valve assembly operates in a  
15 manner which is known and during the course of broaching the container through fitment of a suitable coupling head the extractor tube 4 is depressed against spring 5 and displaced downwardly. Welded or otherwise affixed to the extractor tube is an abutment member comprising a plate 6 which constitutes an improvement according to the present invention.

20 Referring to Figure 4, the plate has a diametric dimension A which is greater than the outlet opening aperture and a diametric dimension B which is less than the outlet opening aperture. The profile of the plate is therefore generally of an elliptical form.

When the fitting 3 is removed by unscrewing same from the outlet collar 2, the  
25 assembly may be withdrawn only as far as the position shown in Figure 2 whereby the plate 6 abuts the inside of the outlet aperture. The assembly cannot be withdrawn any further than this and the plate therefore provides a safety feature which prevents the assembly being propelled out of the container when under gas pressure. It also hinders rapid removal of the contents of the container. This applies even if the extractor tube  
30 is displaced to the open position by a coupling head.

However, if it is required to remove the extractor tube and valve fitting for servicing and replacement then by application of an adapter piece to a normal coupling head

(not shown) or by using a suitable special coupling head tool (not shown) the extractor tube may be depressed against the spring 5 to the limit as shown in Figure 3 wherein the coils become spring bound. When in this position sufficient clearance is provided between the fitting and outlet to enable the whole extractor tube assembly to be canted as shown thereby to allow the plate to pass through the outlet aperture.

The positioning of the plate 6 is arranged so that if the extractor tube is depressed using the normal coupling head insufficient clearance is provided to enable the fitting to be canted sufficiently for the plate 6 to be passed through the outlet aperture.

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PRIOR ART

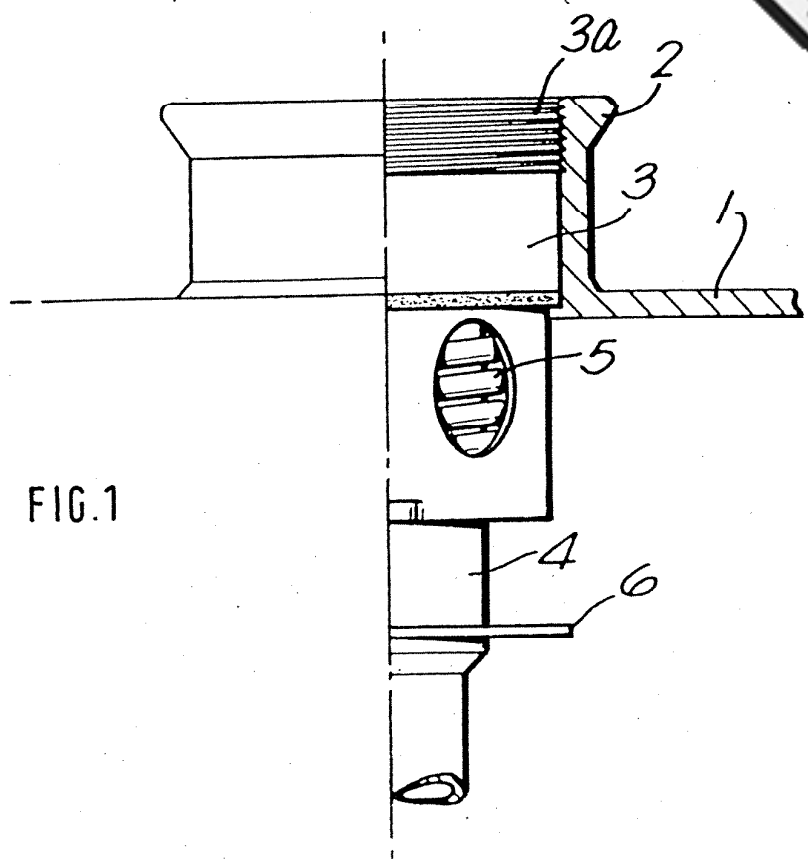


FIG. 1

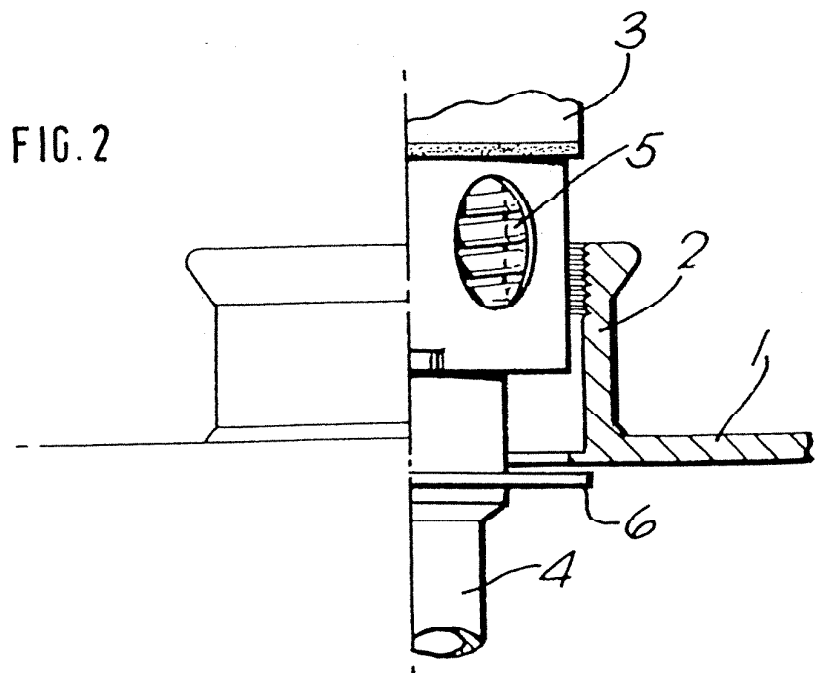


FIG. 2

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PRIOR ART

FIG. 3

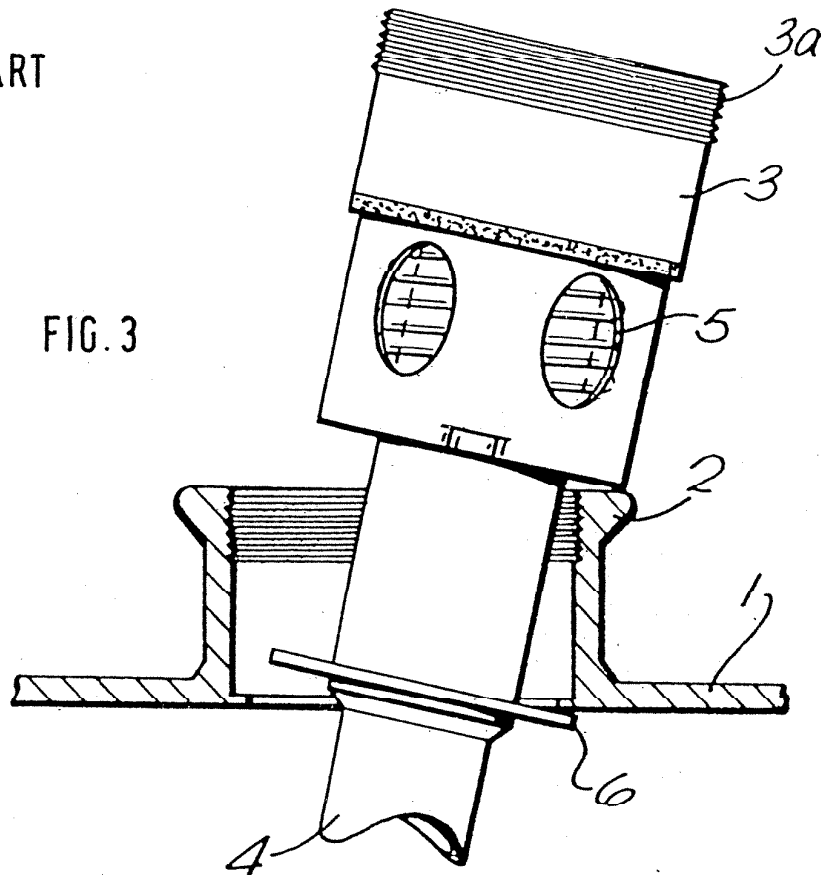


FIG. 4

