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SPIGOT FOR DISCHARGING LIQUID FROM CONTAINERS

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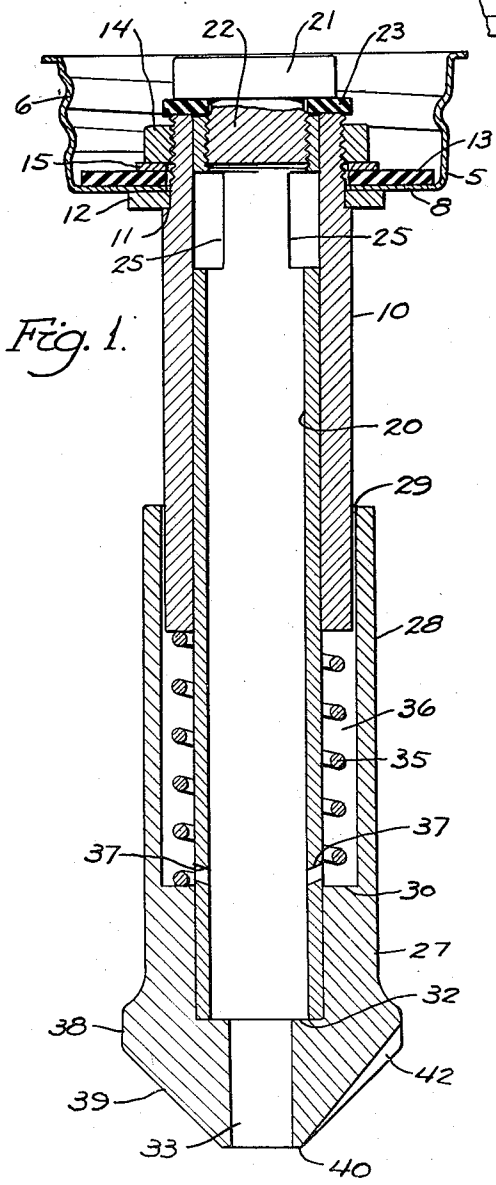


Fig. 1.

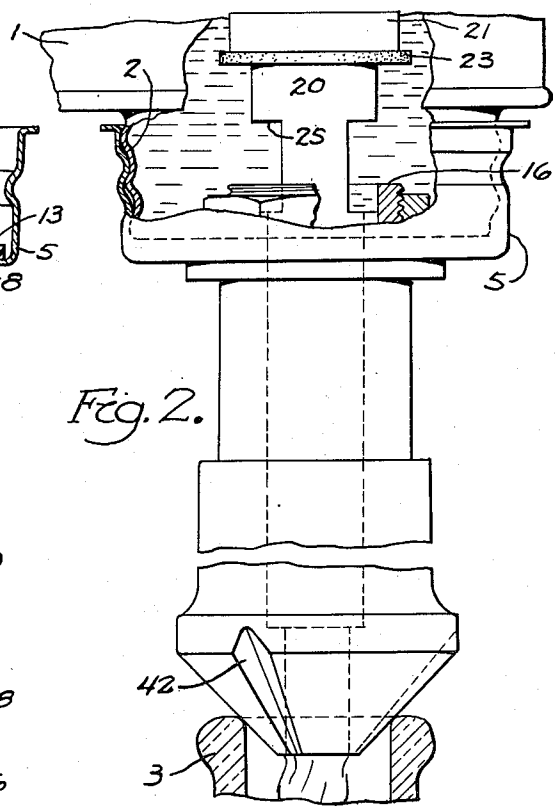


Fig. 2.

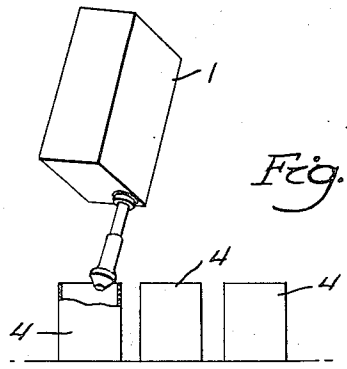


Fig. 3.

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SPIGOT FOR DISCHARGING LIQUID FROM CONTAINERS

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1 Claim. (Cl. 222—514)

1

This invention relates to a spigot for the discharge of liquid from a container.

The object of the invention is to provide an improved spigot structure which can be attached to a suitable container and which can be used and normally positioned so that the spigot is lowermost relative to the container. The spigot is normally closed so that the contents of the container are maintained in a sealed condition and the spigot may be opened by a simple lineal movement of one of the members, preferably against the action of yieldable means, such as a spring. The spigot is arranged so that the liquid may be discharged into a small necked vessel, such as a bottle. Further, suitable vents are provided to permit drainage of the liquid from all parts of the spigot and to supply air for breaking a vacuum lock in the container. The device can be used in a continuous manner with a sequence of more or less metered discharges.

A spigot constructed in accordance with the invention is disclosed in the accompanying drawing:

Fig. 1 is a cross sectional view of the spigot structure.

Fig. 2 is a view partly in section and partly in side elevation showing the spigot in open position and showing the same applied to a small necked receptacle.

Fig. 3 is a small view of diagrammatic nature illustrating one manner of use.

The spigot is arranged for detachable connection to a container or can, such as the container shown at 1. This container is illustrated as having an opening provided with an extending neck 2 fashioned with a screw thread formation. A container or receptacle into which liquid may be discharged is shown at 3, this representation being a bottle, while other containers or cans are shown at 4 in Fig. 3.

The spigot, as shown on the drawings, is provided with a base or cap member 5 of sheet metal construction and fashioned with a thread formation 6 and this cap is adapted to be applied to the neck 2 as shown in Fig. 2. Of course, insofar as the invention is concerned, the cap 6 may vary depending upon the containers to which the spigot is to be applied.

The cap or base 5 is provided with a bottom portion 8 with an aperture therein, and extending through the aperture is a tubular member 10. This member has a shoulder 11 for receiving a washer 12 positioned on one side of the bottom portion 8 and a washer or gasket 13 is positioned on the other side as indicated. The upper end

2

of the tubular member is screw threaded for the reception of a nut 14 which, when applied, clamps the bottom portion 8 of the cap and holds the parts assembled. Preferably, a washer 15 is positioned between the nut and the gasket 13. The upper end of the tubular member 10 projects above the nut 14 and it is accurately formed to provide a valve seat 16.

Slidably mounted with the tubular member 10 is a second tubular member 20. A plug or closure member having a head 21 and a threaded extension 22 is threaded into the upper end of the tube 20 and the head 21 clamps a sealing valve washer 23 in position between the head 21 and the end of the tube 20. The washer 23 projects outwardly so as to seat on the end 16 of the tubular member 20. The tube 20 has its wall cut away to provide ports 25 and these are positioned spaced from the end of the tube 20 so as to lie under the plug 22.

The opposite end of the tubular member 20 projects beyond the member 10, as shown in Fig. 1, and secured to its projecting end is a spigot head 27. This head has a tubular part 28 slidably mounted over the tube 20 so that there is adequate clearance for free movement, there being a slight clearance shown at 29, and the head has an interior shoulder 30 adjacent its end portion. This head portion may be press fitted or otherwise attached to the end of the tube 20 and the end of the tube 20 may abut a shoulder 32. The extreme end of the head has a discharge orifice 33 preferably of smaller dimensions than the interior diameter of the tube 20. Positioned in chamber 36 between the end of the tube 10 and the shoulder 30 is a coil spring 35 which normally urges the spigot head downwardly as Fig. 1 is viewed, and thus seats the valve washer 23 on the end 16 of the tubular member 10. The tubular member 20 is provided with one or more vent apertures 37 preferably positioned immediately adjacent and above the shoulder 30 when the washer 23 is seated at 16.

The spigot head has an end portion, preferably slightly enlarged as shown at 38, and which tapers or inclines as at 39 to a relatively small dimension at its end 40. The tapered frustoconical wall 39 is provided with a number of grooves, advantageously three in number, as shown at 42, for venting purposes.

This spigot structure may be used in various industries where liquid substance, such as paint, varnish, lacquer, ink, oils, and similar materials, are supplied in containers, and which are to be used in relatively small quantities from time to

time. The spigot may be attached to a container of such a material and may remain attached thereto until the container is empty. Indeed, a container to which the spigot is attached may be maintained or stored in inverted position. The contents therein is maintained sealed at all normal times by reason of the valve washer **23** seating on the valve seat **16**. For the discharge of liquid contents from the can the head member **27** is shifted upwardly against the action of the spring, as shown in Fig. 2. This shift may be accomplished by engaging the spigot head with the hand or by engaging the end of the spigot head with the container. This movement pushes the tube **20** upwardly so that the contents of the can may flow through the ports **25** and downwardly through the tubular member **20** and out the orifice **23**. If a small necked container, such as a bottle, is employed, it may be engaged with the tapered head as shown in Fig. 2, and as the liquid contents flows into the bottle the displaced air may readily pass out of the bottle through the grooves **42**. A container may be manipulated to supply liquid material to one of several receptacles **4** as shown in Fig. 3.

This spigot has the characteristic of discharging a quantity of liquid in a substantially measured or metered manner. Assuming the container to which the spigot is attached is disposed in inverted position, and that the spigot head is elevated to open the ports **25**, a column of liquid flows down through the tube **20** and out the orifice **33** until such time as the flow stops by reason of the formation of a partial vacuum in the container. A substantially metered amount of liquid has been discharged. The operator may then allow the spigot head to descend to close the valve **23—16**. On the other hand, if the spigot head is maintained in elevated position, as shown in Fig. 2, the partial vacuum in the container is broken and then there will be a second discharge of liquid. This breaking of the vacuum may occur or to be initiated by passage of air through the clearance **29** and thence upwardly by passing through the ports **37** and then upwardly into the container or bath. The size of the ports **37** has a definite controlling action on the flow of liquid through the orifice. There is no discharge of liquid during this action but the rush of air into the container is audibly distinct. At this time the discharge orifice **33** may remain obturated with liquid. After this breathing action of air entering the container, the second discharge of liquid takes place. Accordingly, the entire contents of the can may be discharged by a sequence of discharges by merely maintaining the spigot in open condition. When the spigot is closed, the air entering through the clearance **29** permits of complete drainage of the tube **20** and the ports **37** permit of drainage from the chamber **36**.

I claim:

A spigot for the discharge of liquid from a container comprising, a cap adapted to be secured to the container to cover an opening therein, a first tubular member passing through the cap and secured thereto so that one end opens within the container with the major portion thereof projecting to the outside of the container, the inner end portion of the tubular member having a valve seat, a second tubular member slidably mounted within the first tubular member, a valve member carried at the inner end of the second tubular member and positioned to engage said seat, the second tubular member having a port in its wall located to lie within the first tubular member when the valve member is on said seat, whereby the spigot is closed, the outer end of the second tubular member projecting beyond the first tubular member, a spigot head secured to the projecting end of the second tubular member and having a tubular portion telescopingly engaging over the outside of the first tubular member with clearance, the tubular portion and the inner tubular member providing a chamber defined at one end by the outer end of the first tubular member and its opposite end by the spigot head, the spigot head having a discharge port in registry with the interior of the second tubular member, and a spring positioned in said chamber and re-acting against said outer end of the first tubular member for holding the valve member normally on said seat to close the container and holding the tubular portion of the spigot head spaced from the cap, the head and second tubular member being shiftable against the action of the spring to move the valve member off its seat and to shift the port in the second tubular member beyond the inner end of the first tubular member, said inner tubular member having one or more ports through its side wall for connecting the said chamber with the interior of the second tubular member and located adjacent the end of the chamber remote from said outer end of the first tubular member and defined by the spigot head.

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