

Nov. 16, 1943.

W. K. DAVIS

2,334,253

LIQUID DISPENSER

Filed March 13, 1942

2 Sheets-Sheet 1

**Fig. 1.**

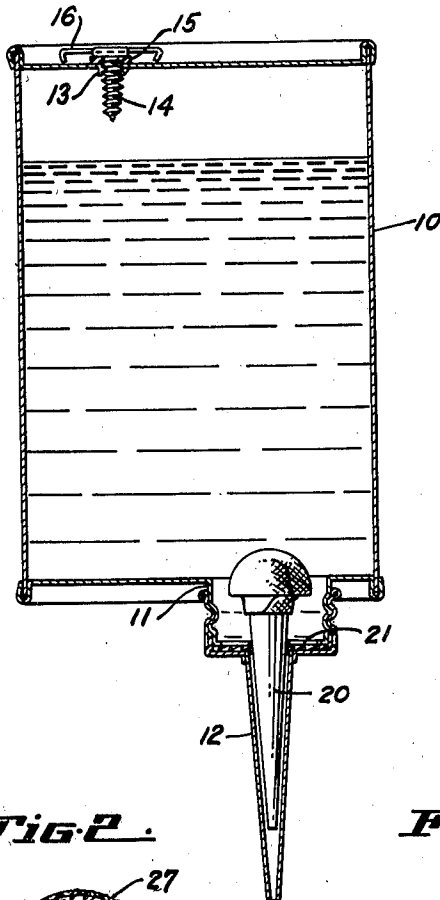


**Fig. 4.**

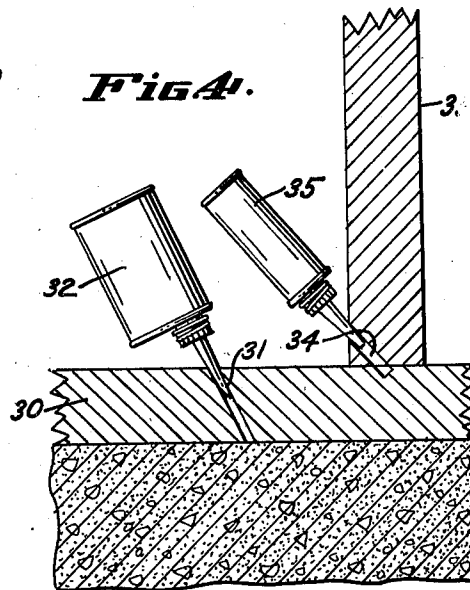


**Fig. 2.**

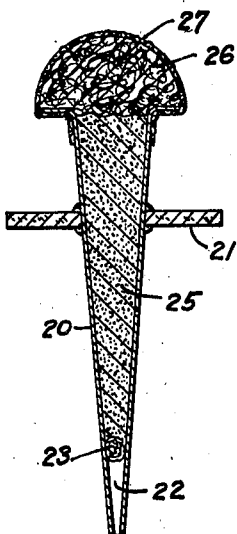
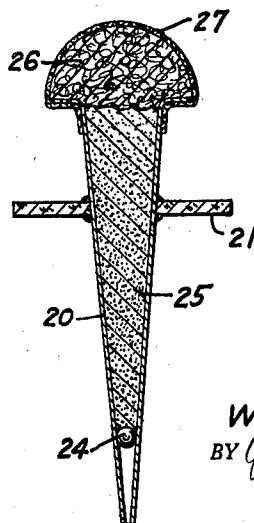


**Fig. 3.**



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**Fig. 5.**

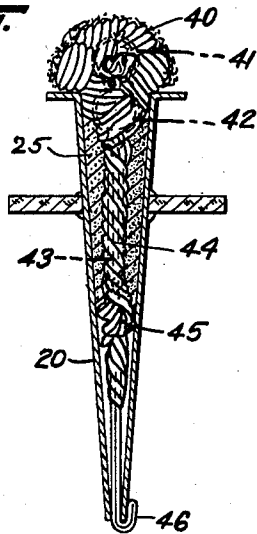


**Fig. 6.**

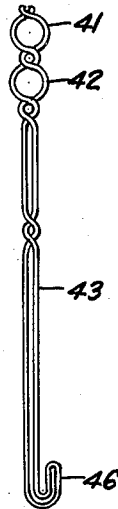
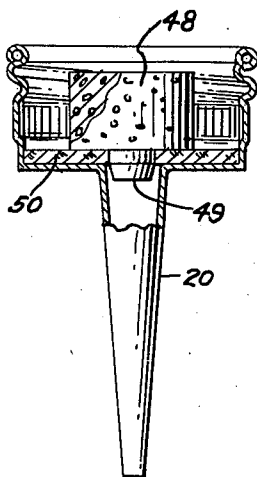


**Fig. 7.**



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## UNITED STATES PATENT OFFICE

2,334,253

## LIQUID DISPENSER

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Application March 13, 1942, Serial No. 434,466

8 Claims. (Cl. 221-67)

This invention relates to liquid dispensers for use in connection with the control of wood-infesting pests, such as termites and other wood borers, and fungus growths.

One of the primary objects of this invention is to provide a liquid-dispensing means which will slowly feed, as by seepage, chemicals of the pest control type to permit wide dispersion and deep penetration thereof into infested areas.

It is a further object of this invention to provide a drip regulator for containers of the spout or nozzle dispensing type which will be extremely inexpensive to manufacture, which may be conveniently removed for refilling, and which will require substantially no attention once fitted to such a dispensing container and placed in position for the purpose intended.

Another object of this invention is the provision of liquid dispensing means which may be used as an accessory to or as an assembled part of conventional containers having a dispensing spout or nozzle, and it is a further object of the invention to provide an accessory of a type which may be readily applied to such containers without structural alteration thereof.

Other objects of the invention will become more apparent as this specification proceeds, and the novelty of the invention will be particularly pointed out in the appended claims.

In the drawings forming a part hereof:

Figure 1 is a vertical sectional view through a container to which the drip regulator of this invention has been applied.

Figure 2 is an enlarged sectional view of the drip regulator forming the subject matter hereof.

Figure 3 is a vertical sectional view showing a modification of the drip regulator illustrated in Figure 2.

Figure 4 is a detailed view showing methods of using the subject matter of Figure 1.

Figure 5 is a vertical sectional view showing a second modification of the drip regulator of Figure 2.

Figure 6 is a side elevation of the wire retainer member utilized in the subject matter of Figure 5, and

Figure 7 is a vertical sectional view of a third modification of the drip regulator shown in Figure 2.

In terms of general inclusion, the objects of this invention are attained through the use of an auxiliary spout, adapted to be fitted within the conventional dispensing spout or nozzle of a container, which auxiliary spout has associated therewith means for filtering and regulating the

feed of the liquid to be dispensed to such an extent that structural wood may readily absorb it whereby wood-infesting pests may be repelled and killed.

The numeral 10 indicates a conventional tin container having a threaded neck 11 and a dispensing nozzle 12 in threaded engagement therewith. Dispensers of this character are generally inverted, as illustrated in Figure 4, when utilized in drip-feed operations; and for that reason, I have shown the container 10 as provided with the air-inlet control means illustrated in Figure 1. The bottom of can 10 is punctured, as at 13, and a screw 14 having a washer 15 of rubber, synthetic rubber or like material, is inserted therein in threaded engagement with the can bottom. A wire 16 has been peened or otherwise secured in the slot of the head of screw 14 to provide a finger grip. Thus, when screw 14 has been driven home, washer 15 effects an airtight seal of the bottom of the container, whereas loosening of screw 14 permits entry of air into the container in regulatable quantities.

The auxiliary spout 20 corresponds in shape to the conventional spout 12, and it is provided with a washer 21 cemented or otherwise secured in position in spaced relation to the intake end of the spout. As will be noted from Figure 1, the washer 21 is adapted to fit snugly within the cap portion of the conventional spout 12 to seal off all flow therethrough except such liquids as pass through the intake end of spout 20.

It is important that the intake end of the flow-impeding means or regulator be thus raised above any surrounding area on which sediment is likely to collect, for obviously a coating of sediment would materially impair the efficiency of any flow-regulating means. For example, by raising the intake end of the regulator 20 above the bottom of the neck 11 (when the container 10 is inverted as in Figure 1), sediment may be bypassed into the neck, which, with washer 21, will then serve as a sump.

As shown in Figure 2, I place a filamentary tangled mass 23 of steel wool or like flow-impeding material in the auxiliary spout 20 adjacent the discharge end 22. While steel wool or like material in ball-like form is satisfactory for the purpose intended, it is possible to use other flow-impeding means such as those hereinafter referred to.

Spout 20 is next filled with a finely sifted sand particles 25. A larger ball of steel wool or like material 26 is disposed over the intake end of the nozzle 20, and this is covered with a fine mesh

material such as the cloth 27 to form an intake head. The ends of the cloth 27 are then twisted about the nozzle 20 and cemented or otherwise secured into position.

From the foregoing description, it will be appreciated that pest-control liquids contained in the can 10 will flow downwardly through the can neck 11 and into the cap portion of the nozzle 12 against the washer 21 and the surface of the cloth covering 27. The liquids will seep successively through the cloth 27, the steel wool ball 26, the sand 25, and the smaller steel wool ball 23; and this succession of flow-impeding materials will act not only as a filtering means but will serve to regulate the flow of the liquid from the discharge end 22 of spout 20 and out through the discharge end of can spout 12. By varying the quantity and character of the steel wool balls 23 and 26 and the sand 25, adjustments may be made to meet variances in pest problems and materials to be dispensed. In dispensing pest control liquids of the penetrating type, it is highly desirable that the liquid be not only fed slowly but filtered to such an extent that the pores of the structural wood being treated may absorb such liquids; and it is clear that the subject matter hereof fills that need.

In Figure 4 a typical use of a dispenser of the type embodying the invention forming the subject matter hereof is illustrated. Here both the wooden mud sill 30 and studding 33 are being treated with pest-control liquids of the penetration type to repel attack by and kill insects of the wood borer type, as well as prevent fungus growths. An inclined bore 31 has been made in wooden sill 30 to receive the spout of the dispenser can 32. In studding 33, a diagonal bore 34 has been made toward the butt end to receive the spout of can 35. In each instance the pest control liquids will be fed slowly for deep penetration into the pores of the wood members 30 and 33. By using a plurality of the dispensers at spaced intervals in the manner indicated in Figure 4, adequate coverage of all areas infested or likely to be infested may be attained. Moreover, if desired, additional dispensers may be placed elsewhere in buildings. For example, they may be applied to the sheathing and any area likely to be infested.

The modification shown in Figures 5 and 6 has certain advantages over the device of Figures 1 to 3, inclusive, particularly, in assembly. Here a yarn, such as cotton yarn 40, is twisted about and through the two loops 41 and 42 of a wire 43 to form an enlarged knot or tuft which will bear against and project from the intake end of auxiliary spout 20. Additionally, one or more strands 44 of yarn 40 may be drawn down the length of wire 43 and knotted or twisted thereabout, as at 45, to serve as a wick. In assembling this modified structure, the lower end of wire 43 is inserted, and sand is poured into auxiliary spout 20 above the knot or twist 45. The lower end of wire 43 is then pulled downwardly to move the yarn tuft at the opposite end into position at the intake end of spout 20, and the wire 43 is then bent upwardly from the end of the spout in the form of a hook 46. As will be noted from Figure 5, the yarn tuft is quite ragged and gives an effective screening surface for entry of the liquid.

In the modification shown in Figure 7, a cast plug 48 of a porous composition such as sand and plaster of paris is employed. The plug 48 is provided with a reduced portion 49 adapted to enter the spout 20 and the shoulder of the plug rests

upon, and may preferably be cemented to, a washer 50. An assembly of the plug 48 and washer 50 is seated in the threaded cap portion of auxiliary spout 20 whereby plug 48 serves as an effective flow-impeding means for the liquid insecticide and/or fungicide.

Selected forms of the invention have been shown and described herein for purposes of illustration only and, since the invention may take other forms, protection is sought according to the scope of the appended claims.

The invention claimed is:

1. A flow regulator for liquid dispensing receptacles of the type having a unitary and detachable screw cap and discharge spout, comprising, an auxiliary spout adapted to be partly inserted within the main discharge spout, a washer fixed on the auxiliary spout for holding same in spaced relation within and sealing the intake end of the main spout, and liquid flow-impeding means carried by said auxiliary spout.
2. A flow regulator for liquid dispensing receptacles of the type having a unitary and detachable screw cap and discharge spout, comprising, an auxiliary spout for insertion within the main discharge spout, a washer fixed on the auxiliary spout for holding the same in spaced relation within the main spout with its intake end raised above that of the main spout, said washer sealing the intake end of the main spout, and liquid flow-impeding means carried by said auxiliary spout.
3. A flow regulator for liquid dispensing receptacles of the type having a unitary and detachable screw cap and discharge spout, comprising, an auxiliary spout for insertion within the main discharge spout, a washer member carried by the auxiliary spout for holding the same in spaced relation within the main spout with its intake end raised above that of the main spout, said auxiliary spout washer member forming a closure for the intake end of the main spout, and liquid-flow impeding means carried by said auxiliary spout.
4. A flow regulator for liquid dispensing receptacles of the type having a unitary and detachable screw cap and discharge spout, comprising, an auxiliary spout for insertion within the main discharge spout, a washer closure means for the intake end of the main spout fixed on the auxiliary spout below its intake end, and liquid flow-impeding means carried by said auxiliary spout.
5. In a liquid dispenser, the combination of a receptacle having a threaded neck portion, a screw cap of the spout discharge type threadably engaging the neck portion of the receptacle, an auxiliary spout held in spaced relation within the spout of the screw cap by washer means fixed on said auxiliary spout and sealing the intake end of the screw cap spout, and liquid-flow impeding means carried by the auxiliary spout.
6. A flow regulator for liquid dispensing receptacles of the type employing a discharge spout, comprising, an auxiliary spout adapted to be inserted within the main discharge spout, means carried by the auxiliary spout for holding the same in spaced relation within the main spout, a filamentary tangled mass at the intake end of the auxiliary spout, a quantity of sand within the auxiliary spout, and means adjacent the discharge end of the auxiliary spout to block passage of the sand but permit impeded flow of the liquids when the receptacle is inverted.
7. A flow regulator for liquid dispensing receptacles of the type having a unitary and detach-

able screw cap and discharge spout, comprising, an auxiliary spout for insertion within the main discharge spout, closure means for the intake end of the main spout in the form of a washer fixed on the auxiliary spout below its intake end, and a filamentary tangled mass disposed at the intake end of the auxiliary spout.

8. A flow regulator for liquid dispensing receptacles of the type employing a discharge spout, comprising, an auxiliary spout adapted to be inserted within the main discharge spout, means

carried by the auxiliary spout for holding the same in spaced relation within the main spout, a filamentary tangled mass at the intake end of the auxiliary spout, a meshed covering for the filamentary tangled mass, a quantity of sand within the auxiliary spout, and means adjacent the discharge end of the auxiliary spout to block passage of the sand but permit impeded flow of the liquids when the receptacle is inverted.

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