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P. A. REUTTER

2,045,926

DISPENSER

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Fig. 1

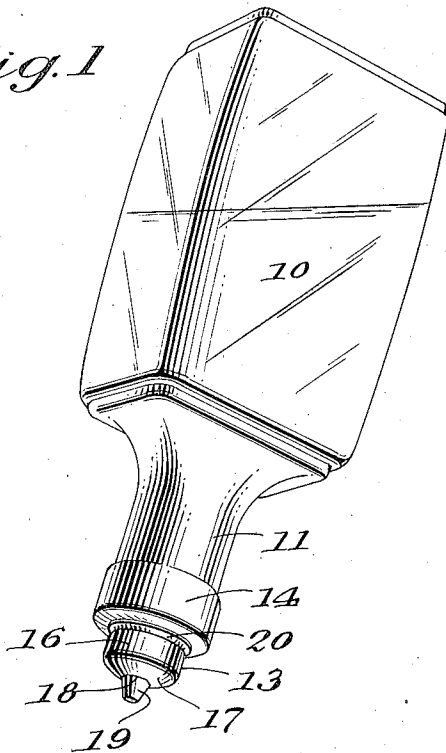


Fig. 2

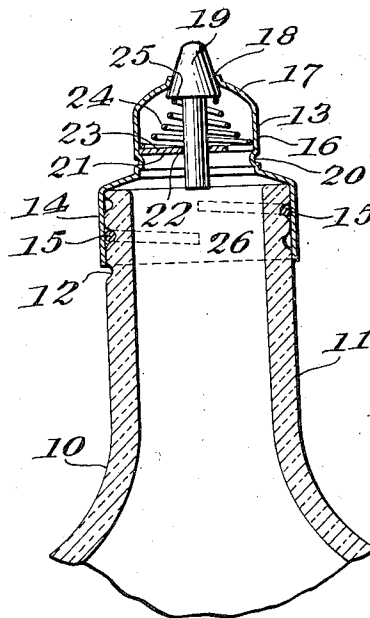


Fig. 3

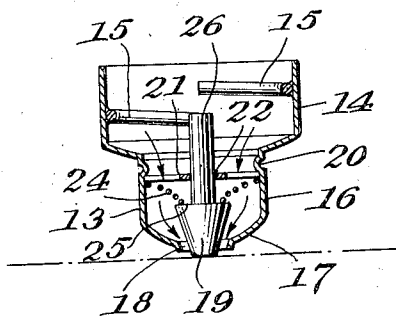
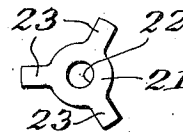


Fig. 4



Inventor:
Philip A. Reutter

By Christian M. Newman
Attorney

UNITED STATES PATENT OFFICE

2,045,926

DISPENSER

Philip A. Reutter, Waterbury, Conn., assignor to
Scovill Manufacturing Company, Waterbury,
Conn., a corporation of Connecticut

Application September 12, 1935, Serial No. 40,244

3 Claims. (Cl. 221-16)

My present invention relates to improvements in dispensers adapted to be used for dispensing liquids, essences and powders of various kinds and more particularly relates to that class of dispenser shown and described in the patent to McAtree, No. 1,731,250, dated October 15, 1929 and belonging to the assignee of this application.

It is the purpose of the invention to improve upon the type of dispenser referred to, by employing an improved form of closure plug which will readily open and close the outlet more or less according to the extent of the operation, further to provide guide means whereby the closure plug will be properly maintained at all times in alignment with the discharge outlet; to provide a cap with an integral annular shoulder and a guide member for the stem of the plug which can readily be positioned in the cap upon the shoulder to form not only a guide for the stem but a support for the spring which actuates the plug.

It is a further object of the invention to provide a simple and efficient form of dispenser including a valve for the purpose specified which is positive in operation and will cause desired quantities of liquid or powder to be discharged at each operation, the quantities so discharged depending upon the extent and duration of the operation. The dispenser also is designed to form a closure for the bottle or container to which it is attached, and in its design represents a simplified structure which can obviously be manufactured sufficiently cheap to warrant its extensive use upon toilet articles to be sold at popular prices. The invention, therefore, consists in the construction and inter-relations and association of parts hereinafter described and more particularly pointed out in the claims as will more readily be understood by reference to the accompanying drawing, forming a part of this specification, and in which

Fig. 1 shows a bottle in an inverted position and provided with my improved combined stopper and dispenser;

Fig. 2 shows a sectional view on a slightly enlarged scale, of the same combined stopper and dispenser in a closed position and applied to the neck of a bottle in an upright position;

Fig. 3 shows a sectional view of the dispenser in an inverted and open position, the bottle being omitted and

Fig. 4 shows a detached plan view of a perforated sheet metal spider that serves as a guide for the shank portion of the plunger.

Referring in detail to the characters of refer-

ence marked upon the drawing 10 indicates a container which in the present instance is in the form of a bottle, 11 the neck portion of the bottle and 12 annular screw threads formed on the peripheral end portion of said neck. The threads obviously form a convenient means for the attachment of the dispenser which is also provided with threads to engage those of the bottle. This form of attaching the dispenser to the container, however, is not essential since other means may be employed without in any way affecting the objects of the invention.

Referring more specifically to the dispenser proper 13 represents the cap which as shown is made of sheet metal and cylindrical in form including a lower relatively large base portion 14 having internal threads 15 for engaging the threads 12 in the neck of the container and an upper smaller cylindrical portion 16 formed integral with the lower larger diameter and further includes a rounded or dome-like top end 17 having a central opening 18 therethrough to receive the conical shaped closure plug 19.

The shell 13 further includes an internal annular shoulder 20 which may be formed integral with the cap in any suitable manner and comprises a seat upon which the spider 21 rests. This spider is preferably of the shape and formed as shown in Fig. 4 having a central hole 22 therethrough and radially extended arms 23 which being formed of sheet metal will readily snap over the annular shoulder when assembling the parts and thus serves to form a bottom rest or support for a spiral spring 24 mounted upon it. The upper and smaller portion of the spring 24 is seated against the annular shoulder 25 of the plug in a way to normally hold it against its seat but is adapted to readily move away when pressure is applied to the exposed end of the plug.

The plug 19 is mounted within the cap and is adapted to be operated central therein and longitudinally with respect to the neck of the bottle. This plug includes a relatively large conical end portion which in part extends through the opening 18 and is normally positioned against the inner edge of said opening and further includes a depending relatively smaller shank portion 26 which is reciprocally mounted in the before mentioned guide hole 22 of the spider and has an annular shoulder 25 formed beneath the head portion.

The mounting of the plug in the spider in combination with the special form of spring employed insures a relatively central longitudinal move-

ment of the plug in a way to form an annular opening around the plug when the same is pressed inwardly, an inward pressure forming a variable annular opening depending upon the amount of pressure exerted on the outer end of the plug leaving the contents of the container free to flow or sift through the openings formed between the arms 23, of the spider, the spring and the annular opening around the plug.

10 Having thus described my invention what I claim and desire to secure by Letters Patent is:

1. A dispenser comprising a closure cap having an orifice therein, a tapered closure plug mounted in the cap and projecting through the orifice and having a rounded end portion and a central depending guide stem of smaller diameter than the plug forming an annular shoulder beneath the plug, a spider secured in the cap and forming a support with openings therein and a central hole therethrough to receive the guide stem, a spiral spring encircling the stem and positioned intermediate the shoulder of the plug and the spider in a manner to normally retain the annular tapered surface of the plug in engagement with the walls of the orifice to close the same, an annular opening being formed around said plug when the same is pressed inwardly, variable inward pressures forming variable annular openings dependent upon the amount of the pressure exerted on the outer end of the plug.

2. A dispenser comprising a closure cap having a discharge opening and an internal annular shoulder, a tapered closure plug mounted in the

cap and projecting through the opening and having a rounded end portion and a central depending guide stem of smaller diameter than the plug forming a shoulder beneath the plug, a sheet metal spider having a central hole therethrough to receive the guide stem and radial arms to engage the annular shoulder, a spiral spring encircling the stem and positioned intermediate the shoulder of the plug and the spider in a manner to normally retain the annular tapered surface of the plug in engagement with the walls of the discharge opening to close the same, an annular opening being formed around said plug when the same is pressed inwardly.

3. A dispenser comprising a closure cap having a discharge opening and an internal annular shoulder, a tapered closure plug mounted in the cap and projecting through the opening and having a rounded end portion and a central depending guide stem of smaller diameter than the upper end portion forming a shoulder, a sheet metal spider having a central hole therethrough to receive the guide stem and radial yieldable arms adapted to be sprung over the annular shoulder of the cap and to rest thereon, a spiral spring encircling the stem and positioned intermediate the shoulder of the plug and the spider in a manner to normally retain the annular tapered surface of the plug in engagement with the walls of the discharge opening to close the same, an annular opening being formed around said plug when the same is pressed inwardly.

PHILIP A. REUTTER.