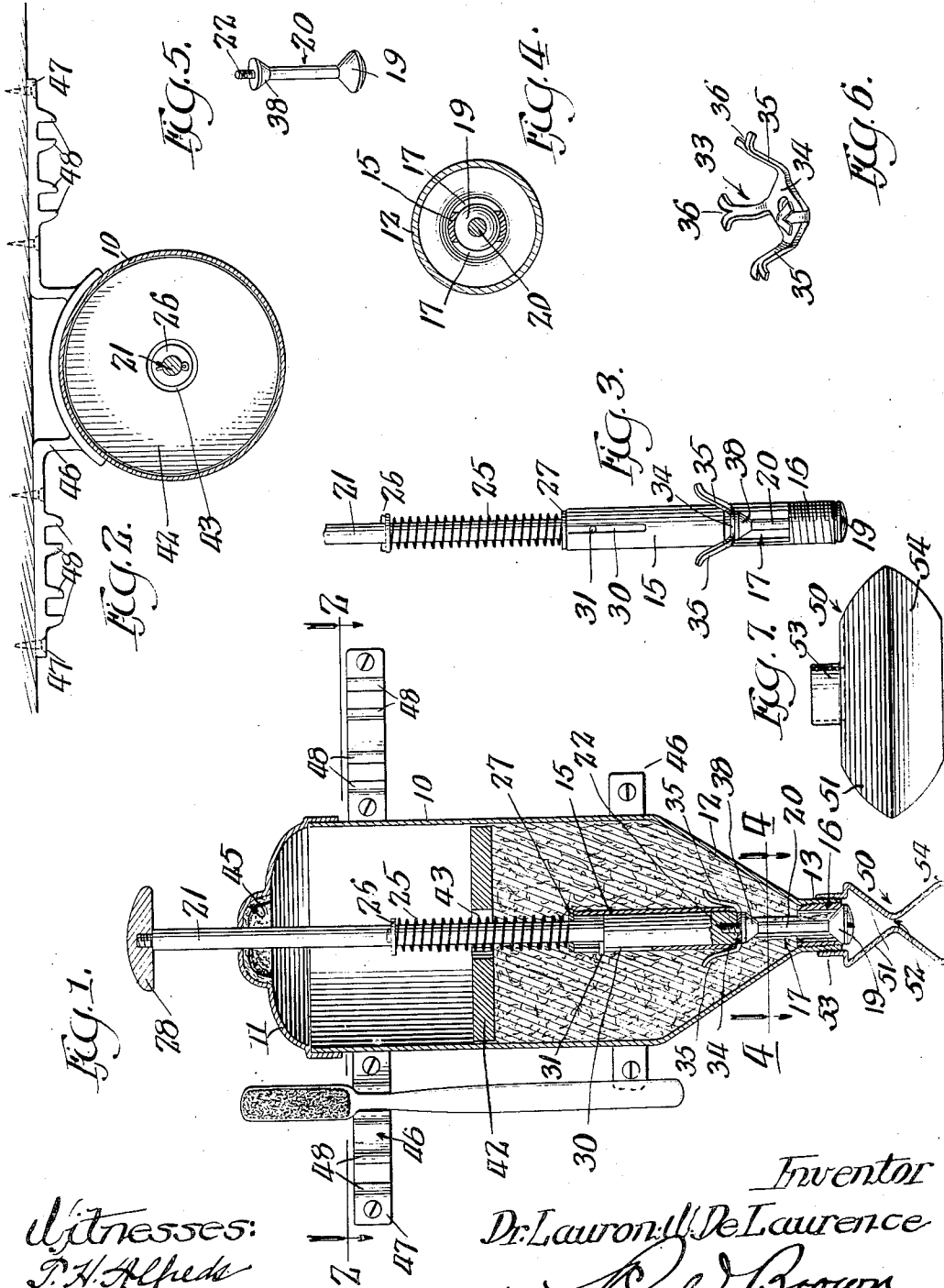


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POWDER DISPENSING RECEPTACLE.
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UNITED STATES PATENT OFFICE.

LAURON W. DE LAURENCE, OF CHICAGO, ILLINOIS.

POWDER-DISPENSING RECEPTACLE.

933,699.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, LAURON W. DE LAURENCE, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Powder-Dispensing Receptacles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates to improvements in powder dispensing receptacles of that type embracing a holder or receptacle for containing the powder and valve mechanism for dispensing small quantities of the powder therefrom as it is used.

The invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

Among the objects of the invention is to produce an extremely simple and effective device of this character which may be made at small cost, and the parts of which are so arranged as to insure the delivery of a small quantity of powder therefrom in each operation of the device and to prevent the caking of the powder therein.

As shown in the drawings:—Figure 1 is a vertical axial section of a dispensing receptacle made in accordance with my invention. Fig. 2 is a horizontal section thereof, taken on the line 2—2 of Fig. 1. Fig. 3 is an illustration of the several parts of the valve mechanism removed from the receptacle or holder. Fig. 4 is a horizontal section on line 4—4 of Fig. 1. Fig. 5 is a detail view of a portion of the two-part valve stem which carries the valve closure. Fig. 6 is a perspective view of an agitator carried by said stem. Fig. 7 is a side elevation of the distributor at the discharge end of the device.

As shown in the drawings, 10 designates a receptacle or holder for the powder, which may be made cylindric, and which is provided at its upper end with a closing cap 11. Said receptacle is formed with a tapered lower end 12 which terminates in a cylindric, interiorly screw-threaded nipple 13.

15 designates an upright tube located centrally within the receptacle. Said tube is provided with an exteriorly screw-threaded lower end 16 which extends into and has screw-threaded engagement with the interiorly screw-threaded nipple 13. The lower

end of the tube constitutes the discharge opening of the device and the tube is provided above its lower end at the bottom of the receptacle with feed openings 17 through which the powder is delivered from the receptacle into the discharge opening. Said feed openings are herein shown as formed by cutting away the tube at the sides thereof.

19 designates an upwardly facing conical valve closure which engages an annular seat at the lower end of the tube 15 to close the discharge opening of the receptacle. The said valve closure 19 is shown as formed on the lower end of the lower member 20 of a two-part valve stem, the upper member 21 of which extends downwardly through an opening in the cap 11, with its lower end sliding in the tube 15. The said members of the stem are connected by a reduced screw-threaded portion 22 on the upper end of the lower member 20 which enters an axial screw-threaded opening in the lower end of the upper member of the stem.

A spiral spring 25 surrounds the stem and is interposed between the upper end of the tube 15, and a pin 26 which extends transversely through the upper member of the stem. Said spring serves to normally hold the valve closure 19 against its seat and permits the closure to be moved off its seat against the action of the spring. As herein shown, the spring bears at its lower end against a washer 27 engaged with the upper end of the tube 15. The upper member of the stem is provided outside the receptacle or holder with a finger piece or knob 28 by which the valve stem may be conveniently depressed.

The tube 15 is provided at its upper end with a short, longitudinally arranged slot 30, and the upper member of the valve stem is provided with a pin 31 which extends radially into said slot. Said pin and slot connection permits the stem to reciprocate within the tube and at the same time affords an interlocking connection between the stem and tube, when they are assembled as shown in Fig. 3, which permits the tube to be screwed into the nipple 13 by rotation of the valve stem which extends outside of the receptacle. The valve closure 19 is made of a diameter less than that of the nipple, whereby the stem may be assembled within the sleeve 15, as shown in Fig. 3, and the sleeve thereafter fitted in place in the nipple.

The stem carries an agitator which serves,

during the reciprocating motion of the stem, to stir the contents of the holder to prevent said contents from caking, and to provide free feed of the powder from the receptacle. The agitator 33 herein shown comprises a central apertured plate 34 and a plurality of upwardly diverging arms 35, 35 which may, in turn, be slitted at their ends to provide fingers 36 to increase the effectiveness of the device. The form of agitator herein shown is applied to the stem by clamping the central plate or body portion between the two parts of the stem, the reduced screw-threaded portion of the lower member 20 of the stem extending through the aperture in the plate or body and said plate or body being clamped between the adjacent ends of the stem by reason of the screw-threaded connection of the two members of the stem. In the arrangement shown and thus described, the upwardly converging arms of the agitator extend outwardly from the stem through the feed openings 17 of the tube 15, one pair of said arms extending through one of said openings at one side of the tube and another pair through the opposite feed opening.

The lower member 20 of the valve stem is reduced opposite the feed opening 17 to provide space around said stem for the powder to enter the tube. The reduction of said lower member of the stem provides at the upper end thereof a downwardly facing tapered portion 38, which acts in the manner of a piston, during the descent of the valve stem to press or force the material entering the tube downwardly to the discharge opening of the device and thus insure a positive delivery of the material through said discharge opening.

I may provide a gravity or other feeding device for pressing the powder toward the bottom of the receptacle as it is discharged in small quantities therefrom. Such feeding device may consist of a weight, having the form of the disk 42, shown in Fig. 1, which fits with a sliding engagement in the cylindric part of the receptacle or holder and is provided with a central opening 43 made of a diameter to permit the weight to slide freely toward the bottom of the receptacle over the upright valve mechanism therein.

In order to provide a dust-proof joint between the stem and the cap 11, I may employ a pad or washer 45 which is fitted to the interior of the cap around the opening through which the stem passes and is provided with an aperture through which the stem passes with a close fit. Such washer or pad may be made of felt or like material and may be cemented or otherwise secured to the inner face of the cap.

The device herein shown is a convenient device to be attached to the wall or other

support in or near a lavatory. In order to fixedly attach the device in place I may provide attaching members 46, 46, secured in any suitable manner to the outer side of the receptacle and provided with lugs or arms 47 having apertures through which fastening screws may extend. The said device may be made of a size to contain a quantity of powder to be used by a number of persons, and in this event one or more of the arms or lugs 47 may be provided with holders 48 for tooth brushes.

In order to distribute the powder uniformly over a brush placed beneath the discharge opening, I may provide a distributor 50 which comprises a chamber closed at its top and provided with downwardly converging walls 51 arranged to form a narrow elongated slit 52 through which the powder is discharged. The chamber has at its upper side a short tube 53 which is screw-threaded to the nipple 13. The chamber is open at its ends and the side walls thereof may be continued downwardly to form downwardly diverging wings, upwardly between which a tooth brush may be placed to receive the distributed powder. The wings serve to confine the powder to prevent its being scattered and to steady the brush when in position to receive the powder. The distributor may be made integral with the casing or a part to be attached thereto.

In the use of the device the receptacle is filled with powder to the proper height, and if the gravity feed device 42 be employed it is placed upon the top of the body of powder in the receptacle. When a quantity of powder is to be dispensed from the receptacle the valve 19 is depressed off its seat by tapping of the knob 28 of the valve stem. When the valve is depressed off its seat a free passage for powder is afforded from the receptacle to the discharge opening through the feed openings 17 and the lower end of the tube 15. The presence of the shoulder or piston 38 when employed serves to insure a positive delivery or dispensing of a proper quantity of the powder. The reciprocation of the agitator in the body of the powder keeps the powder loosened so that it will pass freely to the interior of the lower end of the tube 15.

The structural details of the device shown may be varied within the scope of the broader claims hereto appended, and I do not limit myself to the exact details shown except as hereinafter made the subject of specific claims.

I claim as my invention:—

1. A powder dispensing device, comprising a holder or receptacle formed with a tapered bottom terminating in a nipple, a single tube arranged centrally in said receptacle and extending into and having direct screw-threaded engagement at its lower end with the

nipple, the lower end of the tube constituting the discharge opening of the receptacle, and provided above said lower end with a lateral feed opening, a valve engaging the lower end of the tube, and a stem carrying said valve and extending upwardly through the tube and through the top of the receptacle, and a spring engaging the stem for holding the valve against its seat, the valve being made of smaller exterior diameter than the interior diameter of the nipple.

2. A dispensing device comprising a receptacle or holder provided at its lower end with a discharge opening, a valve for controlling said discharge opening, a two-part stem carrying said valve, and an agitator carried by the stem and fixed between the members thereof.

3. A powder dispensing device comprising a receptacle or holder provided at its lower end with a discharge opening, a tube extending upwardly from said discharge opening and provided with lateral feed openings above the discharge opening, a valve for controlling the discharge opening, a two-part stem carrying said valve, and an agitator comprising a central body portion clamped between the two members of the two-part stem and provided with arms extending outwardly through the said lateral feed opening of the tube.

4. A powder dispensing device comprising a receptacle or holder provided at its lower end with a discharge opening, a tube extending upwardly from said discharge opening and provided with lateral feed openings above the discharge opening, a valve for controlling the discharge opening, a valve stem carrying said valve and extending upwardly through said tube and an agitator carried by said stem and having upwardly diverging arms which extend outwardly through the lateral feed openings of said tube.

5. A powder dispensing device comprising a receptacle or holder provided at its lower end with a discharge opening, a tube extending upwardly from said discharge opening and provided with lateral feed openings above the discharge opening, a valve for controlling the discharge opening, a valve stem carrying said valve and extending upwardly through said tube and an agitator carried by said stem and having upwardly diverging arms which extend outwardly through the lateral feed openings, the arms of said agitator being provided at their ends with diverging fingers.

6. A powder dispensing device comprising a holder provided at its lower end with a discharge orifice, a valve for controlling said orifice, and a distributor comprising a chamber into which the powder is discharged and a brush receiving chamber and formed between said chambers with a narrow elongated slit through which the powder is adapted to be distributed on a brush held in the brush receiving chamber.

7. A powder dispensing device comprising a holder provided at its lower end with a discharge orifice, a valve for controlling said orifice, and a distributor comprising a chamber into which the powder is discharged and formed with a narrow elongated slit through which the powder is adapted to be distributed on a brush held beneath the same, and below said slit with longitudinal, downwardly diverging wings.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 29th day of October A. D. 1908.

LAURON W. DE LAURENCE.

Witnesses:

W. L. HALL,

T. H. ALFREDS.