

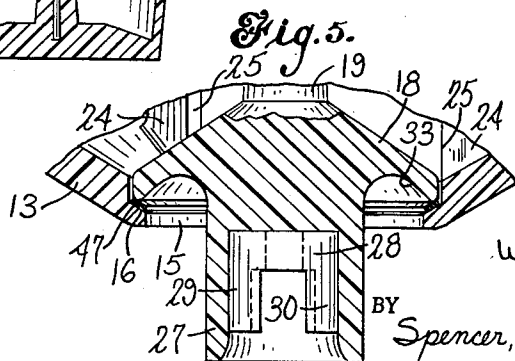
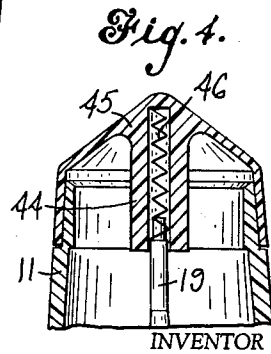
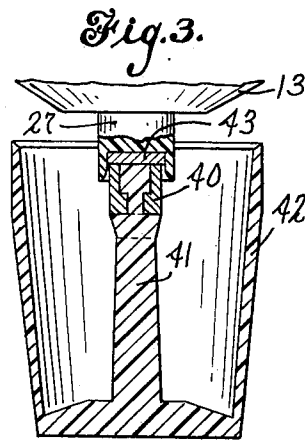
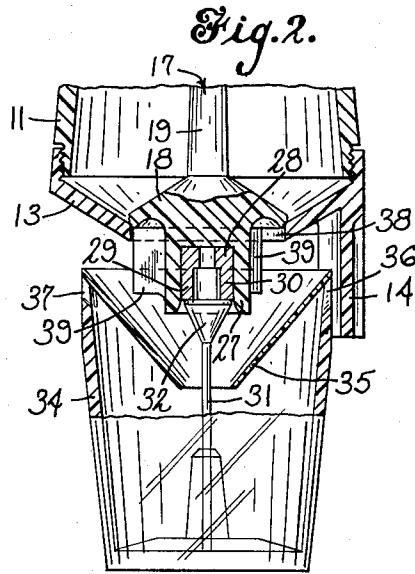
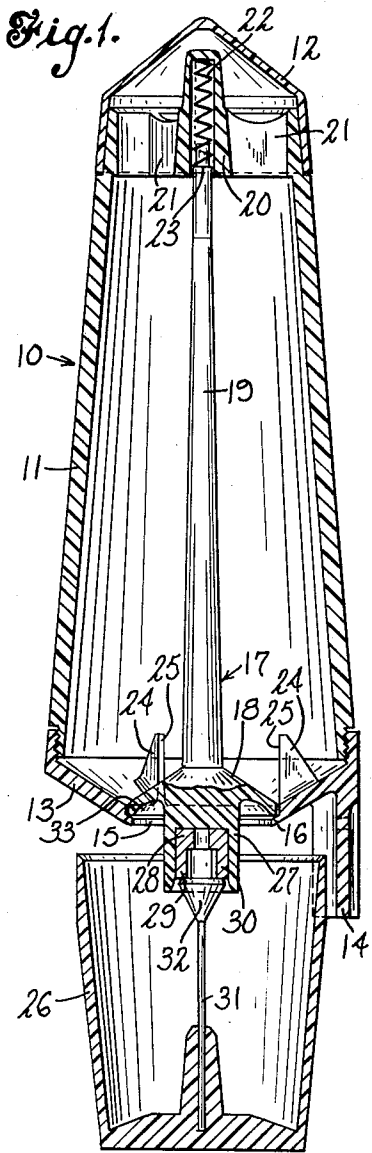
Dec. 29, 1964

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3,163,188

MATERIAL HOLDER AND DISPENSER

Filed Aug. 1, 1962



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3,163,188

**MATERIAL HOLDER AND DISPENSER**  
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 Filed Aug. 1, 1962, Ser. No. 214,036  
 8 Claims. (Cl. 141-369)

This invention relates to a material holder and dispenser of a type comprising a casing defining a material reservoir having a dispensing valve in a lower portion thereof and a material receiving means or cup releasably held in material receiving relation to the dispenser.

Such material holders and dispensers, as illustrated in U.S. Patent 3,042,085, may comprise a casing defining a material holding reservoir having an opening in a lower portion thereof sealed by a downwardly biased valve providing a means to which the material receptacle is releasably connected. The valve may be actuated by urging the cup or receptacle upwardly against the valve and the bias thereon to allow material to be dispensed through the opening. When a desired amount of material has been dispensed into the receptacle, the force urging the receptacle upwardly is removed and the biasing means closes the valve to prevent further dispensing of material from the reservoir.

The present invention provides a new and improved means for removably securing the material receiving receptacle to the movable valve.

Accordingly, it is a primary object of this invention to provide a new and improved valve actuating and receptacle holding means for a material holder and dispenser of the type described.

The features of the invention which are believed to be novel are defined with particularity in the claims appended to and forming part of this specification. However, the invention, both as to its operation and organization, together with further objects and advantages thereof, may best be appreciated by reference to the following description taken in conjunction with the drawings wherein:

FIG. 1 illustrates in half section an elevation of a material holder and dispenser embodying the invention;

FIG. 2 illustrates a fragmentary half section elevation of a second embodiment of the invention;

FIG. 3 illustrates in half section a modification of the receptacle holding means of FIG. 1;

FIG. 4 is a fragmentary half section view of a portion of a valve biasing means; and

FIG. 5 is an enlarged view of the material holder and dispenser of FIG. 1 with an optional feature contained therein.

Referring now to the drawings, FIG. 1 illustrates a material holder and dispenser 10 comprising a generally upright casing member 11 having a removable closure cap 12 fitted over the upper end thereof. Casing member 11 is mounted on a base member 13, into which it may be threadably received, as illustrated. Base member 13 includes a mounting flange 14 thereon and defines an annular opening or material-dispensing orifice 15 centrally located through the bottom portion thereof and an annular valve seat 16 immediately above opening 15. A valve 17 is provided which comprises an annular sealing portion 18 adapted to fit within valve seat 16 and close opening 15. A valve stem 19 integral with or secured to sealing portion 18 extends upwardly from sealing portion 18. Valve stem 19 is received at the upper end thereof in a valve guide 20 which is supported from and centrally spaced with respect to casing member 11 by a plurality of radial ribs 21 extending from casing 11. Disposed within valve guide 20 is a resilient means, such as a spring seated therein, acting on spring seat 23 of valve stem 19 to urge valve member 17 downwardly and

sealing portion 18 in sealing engagement with valve seat 16.

To insure that valve sealing portion 18 is properly positioned and seated in valve seat 16, a plurality of guide members or vanes 24 may be radially disposed about valve seat 16 providing edges 25 to position and guide valve sealing portion 18 with respect to valve seat 16.

A material receiving receptacle comprising a cup 26 is removably held in an operative material receiving position below opening 15.

In accordance with the invention, new and improved means are provided for releasably holding receptacle or cup 26 in operative relationship to opening 15. A sleeve-like member 27 depends from valve member 17 through opening 15 and has mounted therein a magnet 28 having magnetic poles 29 and 30 of opposite polarity. Mounted in cup 26 is a valve actuating member or stem 31 secured to the bottom of cup 26 and having a plunger member 32 of magnetically permeable material, such as iron, which closes a magnetic circuit between magnetic poles 29 and 30 of magnet 28 and thus allows cup 26 to be releasably connected to valve member 17 in material receiving relation to opening 15.

Assuming that the material reservoir is filled with a material and it is desired to dispense this material into cup 26, the cup 26 may be moved upwardly, causing sealing member 18 and valve stem 19 to move upwardly against the bias of spring 22, which unseats valve sealing portion 18 and allows material in container 10 to flow under sealing portion 18 through opening 15 into cup 26. When sufficient material has been dispensed from casing 10 into cup 26 the force urging cup 26 upwardly may be removed and spring 22 acting on valve stem 19 will urge valve sealing portion 18 into valve seat 16 and seal opening 15. The cup 26 may then be removed from engagement with valve member 17 by pulling downwardly on cup 26 to overcome the magnetic attraction between magnet 29 and member 32, and the dispensed material in cup 26 may then be utilized for its intended purpose. Thus, it may be seen that the means providing the releasable connection between the material receiving cup and the body of the dispenser also provides a dispenser valve actuating means.

The material holder and dispenser of FIG. 1 is primarily designed to hold and dispense liquids and for that purpose the valve sealing portion 18 has a generally concave undersurface 33 to prevent leakage of liquid therethrough by capillary action.

FIG. 2 illustrates a material holder and dispenser primarily designed for granular material such as coffee, salt or the like. In FIG. 2, like elements to those of FIG. 1 bear like identifying numerals. Material receiving receptacle or cup 34 may include a portion 35 designed to allow control of utilization of material dispensed into receptacle 34 which, as illustrated, is funnel shaped to allow easy entrance of material therein but inhibit dispensing of material therefrom when receptacle 34 is tipped. The side wall of receptacle 34 may have a pouring aperture 36 and shaking apertures 37 defined therein to allow controlled use of any granular material dispensed into cup 34. In the dispenser of FIG. 2 an aperture 38 is defined in base member 13, and guide vanes 39 extend radially from portion 27 of the valve member 17, which engage the walls defining opening 38 to centrally guide valve member 17 upon movement thereof. A magnet 28 is mounted in member 27 in FIG. 2 in the same manner as previously described for FIG. 1 and the cup 34 has a magnetically permeable member 32 terminating a valve actuating member secured in the base and arranged to cooperate with magnet 28 as previously described. The operation of the material holder and dispenser of FIG. 2 is the same as

that described for the material holder and dispenser of FIG. 1.

FIG. 3 illustrates a modification of the invention wherein a magnet 40 having poles of opposite polarity is mounted upon a stem 41 extending from the bottom of a receptacle or cup 42 and a magnetically permeable member 43 is carried within member 27. In the modification shown in FIG. 3 the cup 42 may be of a molded plastic material with the magnet 40 secured to stem 41 in any suitable manner such as by an adhesive and magnetically permeable member 43 pressed or cemented within member 27. The devices of FIGS. 2 and 3 may be constructed in a similar manner.

FIG. 4 illustrates that the valve stem 19 may be movably mounted in a valve stem guide 44 provided by a closure cap 45 having a spring 46 thereon biasing valve stem 9 downwardly to close the opening in the bottom of the casing member 11.

FIG. 5 is an enlarged view of the valve seating arrangement of FIG. 1 and illustrates with more clarity this valve seating arrangement. It may be seen that the valve sealing member 18 and the valve seat 16 are so arranged that there will be essentially only line contact therebetween when sealing member 18 is in a sealing position, and further that the concave underportion 33 of valve sealing member 18 will prevent any leakage of liquid due to capillary action. As an optional feature an annular sealing member 47 is shown on valve seat 16 to insure that a good liquid-type seal is made between sealing member 18 and valve seat 16. However, as stated, the sealing member 47 is optional.

In constructing a material holder and dispenser in accordance with the invention it is preferred that the parts be of molded plastic with the casing member 10 and receptacles transparent for obvious reasons.

While the releasable connection between the material receiving receptacle and the valve member in all of the views illustrated has been shown as a two-poled annular U-shaped magnet mounted on either the valve member or the receiving receptacle, it is to be understood that oppositely polarized ring or disk-type magnets could be mounted on each of the members and provide the same releasable connection therebetween.

Preferred embodiments of the invention have been illustrated to disclose a valve actuating and receptacle holding means in accordance with the invention. However, modifications to the disclosed embodiments of the invention and other embodiments thereof may occur to others which do not depart from the spirit and scope of the invention. Therefore, it is intended in the appended claims to cover all modifications and embodiments of the invention which do not depart from the spirit and scope of the invention.

What is claimed is:

1. In a dispenser for material in granular or liquid form comprising a refillable casing having an opening defined in the bottom thereof, a valve for closing said opening, said valve comprising a sealing portion and a stem portion, means in said casing biasing said stem downwardly to cause said sealing portion to close said opening; means on said valve extending through said opening and carrying a first magnetic member thereon, and a material receiving cup having a stem extending from the bottom thereof mounting a second magnetic member thereon whereby said cup is releasably magnetically supported from said valve and said cup may be filled with material from said dispenser by urging said cup upwardly to cause said stem in said cup to move said valve against said biasing means, said cup being detachable from said connection with said valve to allow utilization of the dispensed material in said cup.

2. A dispenser for material in a granular or fluid form comprising a casing having an opening defined in the bottom thereof, a valve for closing said opening, said valve comprising a sealing portion and a stem portion, means in said casing biasing said stem downwardly to

cause said sealing portion to close said opening, means on said valve extending through said opening, a material receiving cup having a stem extending from the bottom of said cup toward said extending means, a magnet having spaced poles, and a member of magnetically permeable material, said magnet being mounted on one of said extending means or said stem and said member being mounted on the other of said extending means or said stem, said member being arranged to magnetically connect said poles whereby said magnet holds said cup beneath said opening and said cup may be filled with material from said dispenser by urging said cup upwardly to cause said stem in said cup to move said valve against said biasing means, said cup being detachable from said connection with said valve to allow utilization of the dispensed material in said cup.

3. A dispenser for material in a granular or fluid form, comprising a casing having a dispensing opening defined in the bottom thereof, a valve seat defined in said casing above said opening, a valve for closing said opening, said valve comprising a sealing portion and a stem portion, means in said casing biasing said stem downwardly to cause said sealing portion to seat in said valve seat and close said opening, tubular means on said valve extending through said opening and carrying a magnet thereon, and a material receiving cup, said cup carrying a magnetically permeable member thereon whereby said magnet holds said permeable member and supports said cup and said sealing portion may be moved upwardly to unseat said valve by urging said cup upwardly to cause said magnetically permeable member to move said valve against said biasing means, said cup being detachable from said connection with said valve to allow utilization of the dispensed material in said cup.

4. The dispenser of claim 3 wherein said sealing portion makes essentially line contact with said valve seat and said sealing portion has a generally concave under surface with said tubular means extending therefrom.

5. A dispenser for material in a granular or fluid form, comprising a casing having a dispensing opening defined in the bottom thereof, a valve seat defined in said casing above said opening, a valve for closing said opening, said valve comprising a sealing portion and a stem portion, means in said casing biasing said stem downwardly to cause said sealing portion to seat in said valve seat and close said opening, means on said valve extending through said opening, a material receiving receptacle, first and second magnetic means, said first magnetic means carried on said valve means extending through said opening, said second magnetic means carried on said receptacle whereby said receptacle is magnetically supported from said valve in material receiving relation to said opening and upward movement of said receptacle is effective to raise said valve against said biasing means and lift said sealing portion from said valve seat.

6. The dispenser of claim 5 wherein said first magnetic means comprises a magnet having spaced poles and said second magnetic means comprises a member of magnetically permeable material arranged to contact said poles and close a magnetic circuit therebetween.

7. The dispenser of claim 5 wherein said sealing portion makes essentially line contact with said valve seat and said sealing portion has a generally concave under surface.

8. A dispenser for material in granular or fluid form comprising a casing, means on said casing for stationary mounting of said casing, a dispensing opening defined in the bottom thereof, a valve seat defined in said casing above said opening, a valve for closing said opening, means in said casing normally biasing said valve to close said opening, means on said valve extending through said opening, a material receiving receptacle, first and second magnetic means, said first magnetic means being carried on said valve means extending through said opening, said second magnetic means being carried on said receptacle so that said receptacle is releasably supported

from said valve by said first and second magnetic means in material-receiving relation to said opening, and upward movement of said receptacle is effective to raise said valve against said biasing means and allow material to dispense from said casing into said receptacle, said cup being detachable from the magnetic connection with said valve to allow utilization of the dispensed material in said receptacle.

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