

[54] DISPENSING PAN FOR AEROSOL CONTAINER

3,744,678 7/1973 Beres et al. 222/402.13

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[57] ABSTRACT

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[51] Int. Cl. B67d 5/06

[58] Field of Search 222/182, 402.13, 402.12, 222/207, 394, 205; 401/190

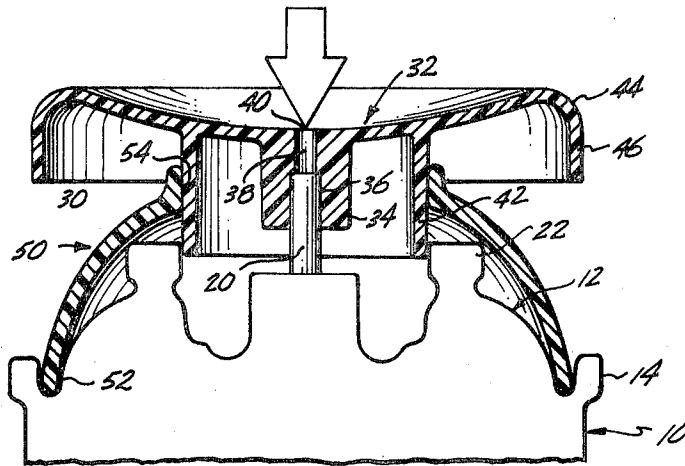
A broad and shallow, concave, orificed dispensing pan is mounted on the upstanding hollow discharge stem of the valve of an aerosol dispenser container for manual operation of the valve by the application of finger pressure tending to depress said pan. The pan orifice is in communication with the discharge stem of the valve. A collar on the underside of the valve pan is telescopically fitted to an annular structural member conventional with such aerosol containers or to an auxiliary structural member attached to the container, whereby upon depression of said pan guiding and stabilizing functions are provided.

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1 Claim, 5 Drawing Figures



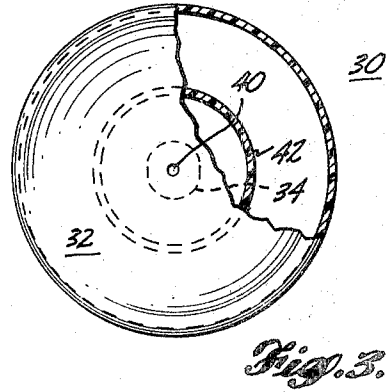
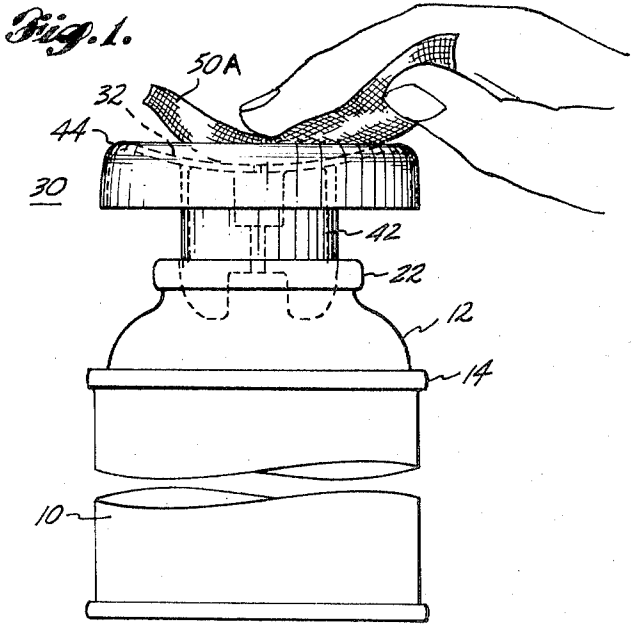


Fig. 5.

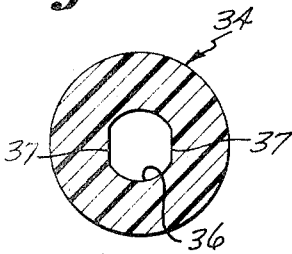
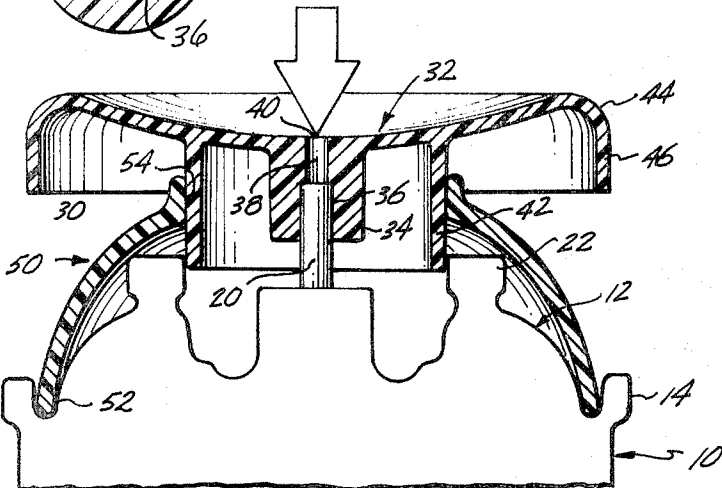
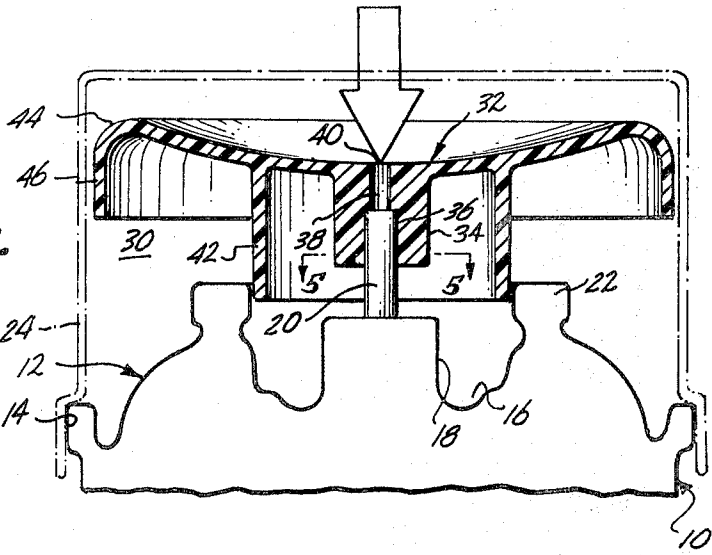


Fig. 2.



DISPENSING PAN FOR AEROSOL CONTAINER

SUMMARY OF THE INVENTION

The main object of this invention is to dispense fluid substances under forces provided by a pressurized propellant into a broad and shallow pan for the purposes of wetting swabs, sponges, compresses and the like manually and single-handedly applied with pressure to the said pan as the same and its related container stands upon a supporting surface.

Aerosol dispenser containers for fluid substances subject to pressurized propellants are well known. These have primarily comprised a button-like member mounted on the stem of a dispensing valve upstanding at the top of the container. The top closure of the container usually has a centrally located basin in the center of which is an island that supports the valve and above which rises the valve stem. The construction of such container and their top closure is such that the basin is rimmed by an annular ring mount surrounding and normally standing somewhat above said island. The ring mount stands flange-like at the rim of the basin. Various typical forms of such container structures are to be seen in *Michell's U.S. Pat. No. 3,156,382 of 11/1964*; *Seaquist's U.S. Pat. No. 3,257,044 of 6/1966*; and *Bomero et al. U.S. Pat. No. 3,497,110 of 2/1970*. More specifically such an aerosol dispenser is schematically shown in the accompanying drawings as comprising container 10, top closure element 12 secured thereto at rim joint 15. Centrally located basin 16 includes the hub or island 18 that encloses a discharge valve (not shown) having upstanding hollow stem 20. Basin 16 is rimmed by the annular ring mount 22 by means of which the basin 16 and top closure element or dome 12 are secured together. Normally such a container 10 and its valve stem 20 is enclosed in an overcover, such being designated 24 in the drawings, shaped to engage and securely nest on container rim 14.

Fluid substances intended to be dispensed by apparatus according to this invention are of the types useful to medical doctors, surgeons, dentists and others who, in the course of their work, seldom have more than one hand free to actuate a dispenser. As an example, the occasion often arises where a person wishes to wet a compress or swab or ball of cotton. It is an object of this invention, therefore, to provide a pressurized dispenser which, standing on a supporting surface in the immediate vicinity, can single-handedly and quickly be operated with facility, accuracy, and economy of the fluid being dispensed all with ease, the maintenance of sanitation, and without expelling the fluid wastefully and disagreeably into the surrounding atmosphere or onto neighboring bodies.

The invention therefore resides in the provision of an attachment to be associated with an aerosol container and its valve means to facilitate the wetting of absorbent compresses, sponges and the like, such association being accomplished in such a way that the attachment is guided and stabilized as it is moved relative to the aerosol container. Also means is provided for limiting the length of valve-operating movement of such attachment.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings disclose structure which accomplishes the objectives stated and alluded to above. Other objects of the invention will become ap-

parent during following descriptions related to the apparatus shown by way of illustration, as follows:

FIG. 1 is an elevation view of an aerosol dispenser container embodying the improvement of this invention, portions being broken away and omitted for convenience of illustration;

FIG. 2 is an enlarged sectional schematic view of the dispensing pan of this invention;

FIG. 3 is a top plan view of the dispensing pan;

FIG. 4 similar to FIG. 2, shows a modification involving additional stabilizing means; and

FIG. 5 is an enlarged cross-section on line 5-5 of FIG. 2, of a nipple at the underside of the dispensing pan.

DESCRIPTION OF PREFERRED EMBODIMENT

The transversally disposed dispensing element 30 is circular as shown in FIG. 3. It provides a shallow concave dispensing pan 32 as best seen in the cross-section view of FIG. 2. Note that the pan is substantially as broad as the container 10, that it covers the container basin 16 and substantially overlies the dome of the container 12 which surrounds the basin. Thus, it will be seen, where the can or the container 10 has a diameter of $2\frac{1}{4}$ inches, element 30 will have a diameter slightly less, say $2\frac{1}{8}$ inches or thereabouts. These dimensions are stated as exemplary and not limitative. The reason for such substantial breadth and for the shallowness of pan 32 will become apparent in the following portion of this description.

Preferably element 30 is formed of any suitable relatively soft but strong material. For example it may be formed by injection molding a thermoplastic material in appropriately shaped and contoured dies. A certain amount of elasticity of the material from which element 30 is formed is usually desirable. Preferred plastic molding compounds include the polyethylene, polypropylene, and ethylcellulose compounds or the like.

On the underside of the concavo-convex pan 32 is a nipple 34 having a socket cavity to couple with the upstanding valve stem 20. Cavity 36 has flat sides 37, 37 reducing its diameter and increasing its grip on stem 20. Passageway 38 within the nipple 34 communicates between stem 20 and orifice 40 centrally located in pan 32. By varying the length of nipple 34 it is possible to control the downward stroke of pan 32 since nipple 34 may be depressed into contact with the surface of island 18.

Also on the underside of the concavo-convex 32 is an annular collar 42 which is in the preferred form of the invention, telescopically related to the ring mount 22 at the mouth of basin 16. Collar 42 is spaced apart relation surrounds nipple 34. By reason of its relatively close sliding fit to ring mount 22, collar 42 as it telescopically intrudes into the space defined by basin 16 is guided and stabilized when pressure is applied to pan 32.

The outer margin of pan 32 is faired and curved at 44 and merged into skirt 46 depending angularly around the periphery of pan 32. Skirt 46 tends to stiffen or rigidify the peripheral margin of pan 32 and to reinforce its lightweight construction.

In FIG. 4 is shown a crowned annulus 50 which, at its lower end 52, is dimensioned to fit into the groove 54 inside rim-joint 14 at the bottom of dome 12. Annulus 50 is thus seated and centered on container 10 and rises in a converging manner to above ring mount 22 to ap-

erture 54 which receives and guides collar 42 during vertical movement. Annulus 50 serves not only to guide and stabilize pan 32 but also functions as a limiting or stop means against excessive downward movement. Stated otherwise, by predetermining the height of annulus 50 the degree of downward movement of nipple 36 and, hence, valve stem 20 may be controlled so that if only minute opening of the container valve is desired such is attained. In this way the amount of fluid dispensed can be governed. Annulus 50 may be an injection molded member of rigid or semi-rigid plastic material.

In Fig. 1 is shown a mode of using the apparatus of this invention. A person grasps a compress 50A which might also be a swab or a quantity of cotton and single-handedly presents it to pan 32 using the forefingers and thumb. The compress or the like is applied to the upper surface of pan 32 over the orifice 40. The operator then depresses pan 32 applying downward pressure to valve stem 20 and to the internal valve in container 10 which it actuates. This produces a pressurized flow of the fluid contents from within the container 10; as the fluid is forced upward through the passageway 38 and out orifice 40 it wets the compress 50A. The degree and amount of wetting may be controlled by the operator by governing the length of time that the actuator valve is open. Also by rubbing the compress back and forth or around in the very shallow pan 32 a large area of the compress is wetted. Immediately upon pressure being relieved from pan 32 means embodied in the container valve operate to force the valve stem 20 upward and to terminate the flow of the pressurized fluid substance.

During periods of nonuse of this aerosol dispenser container it will be customary for the overcover or cap 24 to be placed over pan 30 and seated on the rim 14 in the manner suggested in FIG. 2.

It will be seen from the foregoing that the objects set forth above, others having been made apparent during the proceeding description, are sufficiently obtained. Changes and alterations may be made in the construction, described above as the preferred embodiment of

the invention, without departing from the scope of the invention. It is intended that all matter contained in the description shown in the accompanying drawing shall be construed and interpreted as merely illustrative and not in any limiting sense. The true scope of the invention is to be comprehended from the following claims, literally construed in accordance with the constitution made herein.

What is claimed as patentable and new is:

1. In an aerosol dispenser container for fluid substance to be dispensed by a pressurized propellant, wherein the container includes a top closure element having a centrally located basin including a ring mount surrounding in spaced relation a central island within said basin, a discharge valve having an upstanding hollow stem through which the fluid substance is discharged when the valve stem is depressed and the valve is actuated, the improvement comprising:

a transversely disposed element providing a shallow concave, circular dispensing pan, the periphery of said pan being convexly rounded and merging smoothly with an integral annular skirt, said pan being substantially as broad as said container and covering said basin in overlying relation to the said top closure element;

said element on its underside being coupled to said hollow stem and including a passageway in communication with said stem and terminating in an orifice centrally located in said pan; and

a collar depending from the underside of said element telescopically fitted to said ring mount whereby said element is guided and stabilized when pressure is applied to depress said pan; and

an annulus having a flared skirt bearing on said container at its rim for support, said annulus slideably encircling said depending collar in spaced apart relation with the underside of said element at a location spaced above said ring mount, said annulus serving to guide said collar and limit downward travel of said element.

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