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DISPENSER ATTACHABLE TO THE NECK OF A CONTAINER, HAVING
A HANDLE INTEGRAL THEREWITH, A RECIPROCABLE CLOSURE
FOR THE OUTLET AND AN ACTUATOR FOR SAID
CLOSURE ADJACENT SAID HANDLE

Filed Oct. 7, 1948

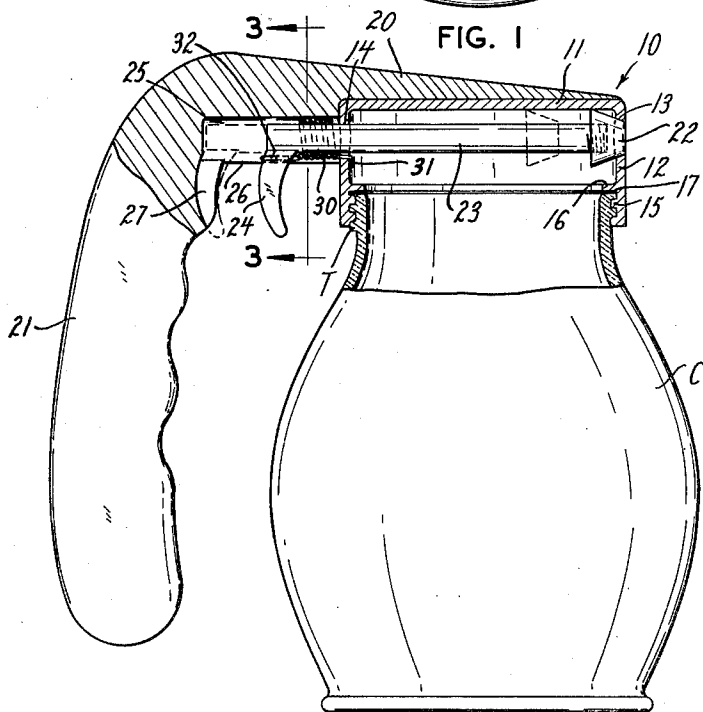
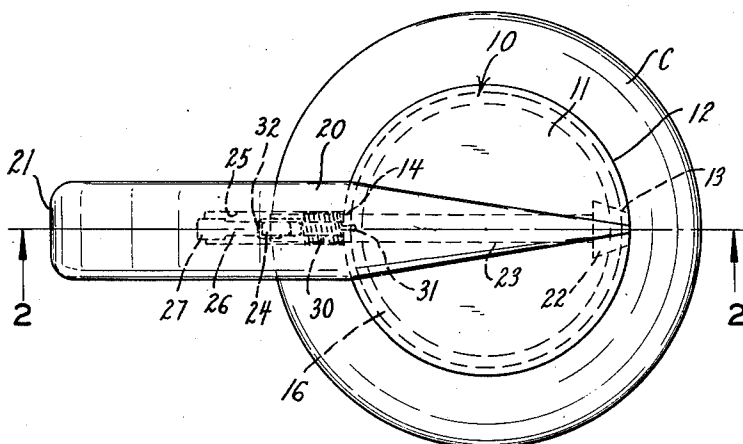


FIG. 2

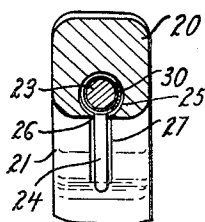


FIG. 3

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**DISPENSER ATTACHABLE TO THE NECK OF
A CONTAINER HAVING A HANDLE INTE-
GRAL THEREWITH, A RECIPROCABLE
CLOSURE FOR THE OUTLET AND AN AC-
TUATOR FOR SAID CLOSURE ADJACENT
SAID HANDLE**

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1 Claim. (Cl. 222-470)

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This invention relates to improvements in dispensers for granular and liquid materials, and more particularly to devices enabling a controlled manual delivery of wanted amounts of granulated or powdered sugar, syrups, and similar condiments for commercial and domestic table usage.

This applicant is aware of the great number and varieties of designs of dispensers for sugar, syrups and the like heretofore evolved for table use. Those thus far available to the trade exhibit a number of shortcomings, in that they are highly subject to clogging effects, and in many cases are difficult to clean and maintain in sanitary condition, requiring frequent time-consuming cleaning, since certain of their parts are subject to sticking and corroding effects. It is accordingly a principal and major objective of the invention to obviate the several noted inadequacies and shortcomings of existing devices for this general purpose, and to realize a light weight, easily filled pouring dispenser for certain liquid and pulverulent materials.

A further major object of the invention is realized in a dispenser which is particularly adapted for sugar or like crystalline materials, and includes facilities for dislodging and breaking lumps of such materials, thus assuring the pouring action of the device even under adverse moisture conditions.

A further and important objective realized in the present design, includes a novel provision of pouring valve and the manual elements controlling same, together with a return spring located out of the line of flow of or contact with the material to be dispensed, and at the same time is fully protected, with sanitary advantages, against manual contact.

A still further objective is realized in an improved construction of detachable closure such as a cap, embodying a sealing means protecting the joint between the cap and the reservoir of the dispenser against the usual adhesive effects of syrup, sugar and the like, thus assuring ease of removal and reapplication of the cap under all conditions, and thus obviating an unsanitary condition usually prevailing by reason of contamination of threads and the like in such a joint.

The foregoing and numerous other objectives and advantages will more clearly appear from the following detailed description of a presently preferred structure embodying the present improvements, particularly when considered with the accompanying drawing, in which:

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Fig. 1 is a top or plan view of a dispenser embodying the present improvements;

Fig. 2 is a side elevation of the device of Fig. 1 but showing the upper portion, particularly the cap structure thereof, in section, the sectional portion of this figure being taken along line 2-2 of Fig. 1, and

Fig. 3 is a sectional view illustrating certain details of the plunger and handle elements of the device, specifically as taken along line 3-3 of Fig. 2.

Referring now by characters of reference to the drawing, a container, sometimes designated as a body or reservoir for storage of the pouring material, is generally designated at C, and is conveniently formed of glass, or of a transparent plastic material or the like, a transparent material being usually preferred to facilitate ascertainment of amount of contents, as well as the condition of container cleanliness. The reservoir or container is provided with a neck portion externally of which are screw threads T for the reception of the screw cap or closure, as will later appear. The container C is or may be of itself, of conventional form, and apart from combination, does not of itself embody the present improvements.

Proceeding now to a description of the cap structure and its apurtenances, this assembly includes a relatively flat, preferably cylindrical, open-bottom top structure generally indicated at 10, and including in the example shown, a flat horizontal disc-like top closure 11 overlying and secured to or formed integrally with the cylindrical wall portions 12.

In a portion of the side wall 12 is a discharge passage 13 terminating in a delivery port through which the materials in container C are controlledly poured. It is a preference that the passage 13 be somewhat tapered in a manner to diminish in diameter from inside to outside of the wall, substantially as shown.

Located diametrically opposite the passage 13 is a passage or aperture 14 for the reception of a plunger, as will be described. It is a preference to locate the passages 13 and 14, as close to the top element 11 of the cap, as is consistent with the provision of requisite working clearance for the valve element associated with the plunger, and to be described.

Internally of the open lower end of the cap, the wall portion 12 thereof is formed to provide a female threaded portion 15 matching the threads T on the top margin of container C, and immediately above the threaded region 15, is an

inturned annular sealing flange 16, optionally yet desirably provided with a thin soft metal gasket 17, of substantially the same area as the flange, and serving, in a manner now obvious, to provide a seal above and for the joint provided for by threads T and 15. The provision of the threads as will now readily appear, enables removal of the cap 10 from the container C, as for filling, and its ready replacement, as is of itself well known. The provision of the inturned flange 16 provides a distinct annular seal with the top margin of container C, thus preventing, in case of syrup or sugar particularly when the latter becomes moistened, access of such adhesive materials to the region of the threads. This not only enhances the sanitary character of the assembly, but particularly in a syrup dispenser, assures ease of unthreading and rethreading of the cap and container.

It is preferred, but without restriction, to form the cap 10 and the parts appurtenant thereto, of a thermoplastic or thermosetting material, and by further preference to form the cap as such, as a molded unit, as by injection molding.

Attached to an upper portion of side wall 12 of the cap, is a handle-forming structure shown as being of a substantially L shape, and inverted, with the shorter generally horizontal leg of this member indicated at 20, and the longer handle portion proper at 21. The handle structure 20—21 may be secured to the cap in the course of assembly operations, as by fusing, cementing, or by other attachment expedients as may be practical and desirable.

Proceeding now to a description of the control valve or plunger and its related parts and actuating means, there is provided a valve or plug 22 preferably frusto-conical in form, and the slope or taper of which by preference corresponds to the taper of the discharge passage 13. Preferably integrally with the valve 12 and extending in the example shown, horizontally and rearwardly from the valve and diametrically of the upper portion of the cap 10, is a plunger 23 which may be formed of a rod stock, say of thermoplastic material. The plunger 23 projects rearwardly through the opening 14 and a distance beyond the adjacent wall 12, and at its innermost end is turned downwardly to form a finger-engaging element or trigger 24.

It is preferred for sanitary reasons and compactness of assembly to provide along a part of the bottom horizontal portion of the short leg 20 of the handle structure, a bore 25. This bore is incompletely circular in section, in that it is open downwardly to provide a slot 26 extending at least over the path of horizontal travel of the trigger 24 incident to movement of the plunger and valve between limits established by the fully open and fully closed valve positions. It will now have appeared that the trigger 24 projects downwardly through and operates guidedly along the slot 26. The bore 25 is continued back into the vertical handle element 21 and includes a vertical recess 27 of a length and preferably of a depth to receive and fully to accommodate the trigger 24. This enables the handle 21 to be located more closely to the cap proper 10, or conversely stated, enables a wider range of opening movement of the valve, than would be possible were the trigger 24 not movable into a recess such as 27.

The present arrangement contemplates a pressure of the finger on the forward surface of the trigger 24 for retraction of the plunger 23 and

therewith, the valve 22 to open the delivery or discharge port. There is further contemplated a biasing arrangement to effect an automatic return of the valve and plunger to a closed valve position to terminate discharge. This result is attained in the present example by a tension spring consisting of several turns or coils and indicated at 30. The spring 30 is provided with a downturned tang 31 extending through an opening therefor in the side wall 12 of the cap. At the opposite end of the spring, it is provided with a circular end tang 32 surrounding the upper portion of the trigger 24 but preferably within the bore 25. It will thus appear that, as the trigger 24 is retracted by finger pressure, the spring 30 is loaded or tensioned, and upon release of the trigger, the loading of the spring will serve to return the plunger 23 and close the discharge port through the agency of the valve or plug 22. The described arrangement serves to conceal the spring against manual contact and hence to a marked degree protects the spring against contamination and corrosion. This shrouded arrangement will also exhibit the advantage of keeping the spring entirely out of contact with the pouring materials such as sugar or syrup, in either the container or the cap.

It has been found advantageous to impart a slight finger-conforming curvature to the trigger 24, or at least to the front face thereof, with obvious advantage in comfort and ease of actuation.

A noteworthy feature of the described arrangement of plunger, valve, spring and accompanying parts is found in the fact that, inasmuch as the trigger member 24 projects through the slot 26 at all times, it is impossible for the plunger 23 and valve 22 to rotate about their common axis, thus obviating any tendency of such rotation were it possible, to vary the loading of the tension spring 30.

A further valuable feature realized in usage of a structure embodying the present improvements, consists in the facility of the valve 22 and the tapered passage 13, to pulverize lumps of sugar, as same frequently appear in dispensing containers for table use. In the event of appearance of such a lump which would otherwise tend to impair delivery flow, the plunger and valve are retracted to bring the trigger as far as possible into valve opening position, and since the lump will usually gravitate to the delivery port, a quick release of the trigger and the action of the spring 30 serve to bring the substantial mass of the plug or valve 22 forcibly against the lump with an impact pulverizing effect. Repeated experiments have indicated the despatch with which this result is attained, thus providing a semi-automatic clearing and nonclogging function of the valve, discharge passage and valve spring.

The manner of usage of the assembly will have become obvious from the foregoing description of its parts, but it may be noted for further completeness that when it is desired to pour a material of this nature from a dispenser, the assembled unit is tilted to bring the discharge port or orifice above the situs of usage, finger pressure applied to the trigger 24 and by reason of the taper of the plug valve 22 and that of the discharge passage, a close and exact regulation of flow is easily and normally attained. If a greater flow be desired, the plunger is of course further retracted by the trigger 24, and in case of the appearance of lumps in a pulverulent material the lumps are subjected to impact as

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hereinabove described, with quick and certain clearing of the pouring channel.

A further feature of advantage in the present design is noted in that the outer face portion of the valve 22 lies substantially in the curved plane of the wall portion 12 adjacent the discharge port 13. Thus there is presented at the outer end of the valve, a slightly convex surface which is virtually a continuation of that of the wall 12 in this region. This prevents the entrapment of crystals or grains of sugar later likely to be spilled in unwanted locations; similarly it prevents the entrapment, with later unsanitary effects, of the usually remaining drop of syrup or the like when the device is utilized for dispensing liquid materials.

Although the invention has been described by making detailed reference to a single preferred embodiment, the detail of description is to be understood solely in an instructive, rather than in any limiting sense, numerous variants being possible within the scope of the claim hereunto appended.

I claim as my invention:

In a dispenser for pouring materials for table use, a hollow body constituting a storage reservoir or container, a cap structure threadedly secured to the top of the container, a plunger rod of circular section diametrically traversing the cap structure, the cap being provided with a lateral delivery passage through one of its side walls and in line with said plunger, and with a second opening diametrically opposite its delivery passage, the plunger rod being provided with a tapered end portion which normally fills said delivery passage, such end portion forming a continuation of the outer surface of the cap in the region

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of the delivery passages, a horizontal handle extension secured to the cap and overlying the last said cap opening, and provided along its lowermost portion with a horizontal bore in line therewith, a portion of said bore opening downwardly in a slotted opening, a trigger extension on said plunger, slidably operable through and along said slotted opening being guided by the sides of the slotted opening and limited in movement by the ends thereof, a recess in the handle extension adapted to receive said trigger extension, and a return spring for the plunger, said spring being of tension type and secured to the wall of the cap adjacent the last said lateral opening therein, and secured at the opposite end of the spring, to said trigger extension, the spring being substantially shrouded by the bore in the handle extension, and thus protected against manual contact and entirely beyond the space within the reservoir and cap which is open to the pouring material.

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