July 1, 1958 P. D. BELLO 2,841,312

DISPENSING HOPPER WITH IMPROVED VALVE

Filed March 2, 1956

Fig. 1

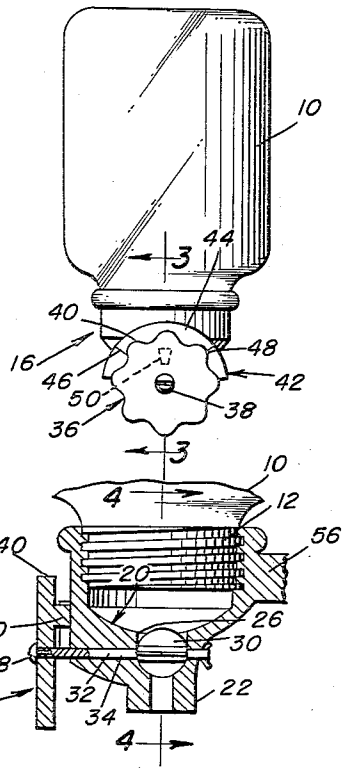


Fig. 2

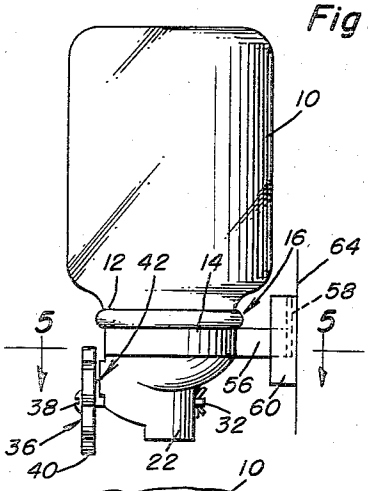


Fig. 3

Fig. 4

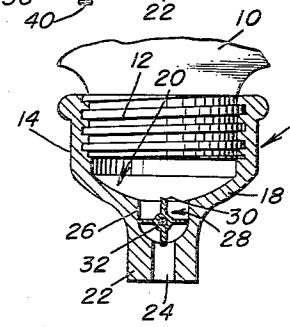


Fig. 6

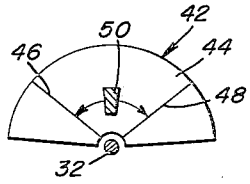


Fig. 5

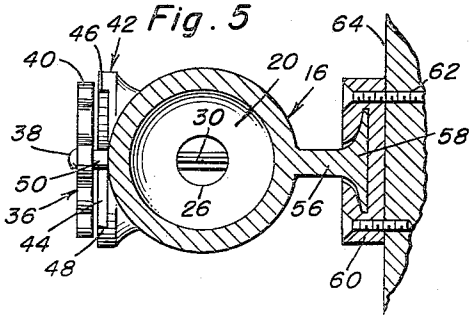


Fig. 7

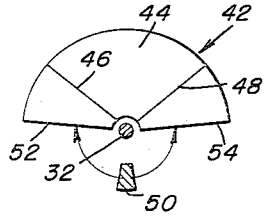
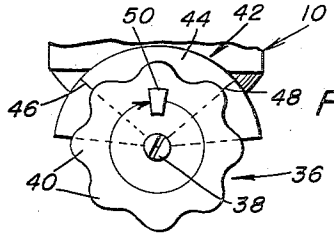


Fig. 8



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DISPENSING HOPPER WITH IMPROVED VALVE

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1 Claim. (Cl. 222—181)

This invention relates to a material container from which the material is fed by gravity into a complemental receiving and dispensing hopper and wherein said hopper is provided with a valved discharge neck and the device, so constructed, may be aptly and satisfactorily used as a holder and dispenser for dry granular material, for example, synthetic detergents in flaked form, soap powders and the like for use in kitchens, restaurant, hotel and similar restrooms and the like.

As will be self-evident, having read the preceding general statement of the invention, valved material containers and dispensers are in common use and are of many and varied forms and constructions. It follows that it is an obvious objective here to structurally and otherwise improve upon similarly constructed and performing prior art adaptations. More specifically, the instant improvements have to do with Patent No. 2,740,562 issued under date April 3, 1956.

Reference being had to the above identified patent it will be seen that, briefly summarized, it embodies, among other features, a novel dispensing hopper having a depending discharge neck or spout and a rotatably mounted bladed valve carried by a rotatably mounted shaft, free end portions of the circumferentially spaced blades projecting into the material receiving chamber of the hopper and serving as agitators for the material. To operate the valve a freely swingable pendulum is used. The pendulum is characterized by an adjustably mounted rod having a weighed bob or equivalent handling element on its lower end. The pendulum is adapted to be given an impetus by the hand of the user so that it may be allowed to swing freely to and fro until the momentum ceases and the pendulum comes to rest and prevents further operation of the valve.

In carrying out the principles of the instant invention with a view to improving upon the aforementioned prior patent and any similarly constructed, if any prior art adaptations, the pendulum is dispensed with. A hand wheel is herein substituted therefor with the periphery of the hand wheel serrated or otherwise formed to provide suitable easy-to-turn grips. A sector-shaped member is formed as a part of the hopper and is interposed between the hopper and one face of the hand wheel and is provided with spaced stop shoulders. The hand wheel in turn is provided with a check element which engages the shoulder, or shoulders, and thus limits the turning movement of the hand wheel in one direction or the other.

A more general objective is to improve upon and reduce the number of parts entering into the combination thereby not only increasing the efficiency of the structure as a whole, but also rendering the same less costly to manufacture and to otherwise simplify factors of assembling, repair, sale and so on.

Other objects, features and advantages will become more readily apparent from the following description and the accompanying sheet of illustrative drawings.

In the drawings:

Figure 1 is a front elevation of a material container

embodying the improved valved dispensing hopper constituting the principal subject matter of the instant presentation;

Figure 2 is what may be called a side elevation of the same, that is a view in which the observer notes the construction of Fig. 1 in a direction from right to left;

Figure 3 is a view of a fragmentary type and in section and elevation taken on the plane of the vertical line 3—3 of Figure 1 looking in the direction of the arrows;

Figure 4 is a view at right angles taken on the line 4—4 of Figure 3;

Figure 5 is a horizontal section on the line 5—5 of Figure 2;

Figures 6, 7 and 8 are diagrammatic views showing the manner in which the valve operating knob or hand wheel may be adjusted to assist in regulating the degree of rotation of said hand wheel.

Referring now to the drawings with the aid of reference numerals it will be seen that the container may be specifically described as a jar, bottle or the like which is preferably of transparent material, the same being here denoted by the numeral **10**. It has a screw threaded neck **12** which is screwed into the threads provided therefor in the annular wall or rim portion **14** of the screw cap **16**. The screw cap is here more specifically treated as a receiving and dispensing hopper and the domical portion **18** defines a part-spherical bowl **20** in which the granular or other material (not detailed) is delivered for valved dispensing. The spout or neck, which may be said to be depending in respect to the central or crown portion of the dome **18**, is denoted by the numeral **22** and this has a restricted open ended axial passage **24**, by way of which the granular material, if it be soap powder for example, may be delivered into the palm of the hand of the user by simply holding the hand underneath of the neck in a well known manner. Part of the neck, that is where it joins with the domical portion, is hollowed out to provide a substantially spherical well or pocket **26**. It is in this pocket that the bladed valve **28** is confined for operation. The valve is made up of equidistant circumferentially spaced substantially semi-circular flat faced blades **30** mounted on a hub which is in turn fixed on an oscillatory shaft **32**. The shaft is mounted for angular rotation in bearing means **34** as perhaps best shown in Fig. 3. One end of the shaft, the left hand end in Fig. 3, extends beyond an adjacent face of the bowl-like portion of the hopper where it is provided with an operating wheel or knob **36**. This is held in place by a setscrew or the like **38** and it is a disk-like plate, the margin of which is serrated with the serrations **40** providing nodule-like finger grips. This makes it handy and convenient to turn the wheel back and forth in an obvious manner. As before touched upon the wall portion of the hopper adjacent to what may be called the inward side of the hand wheel is provided with a segmental member **42** which is shown perhaps best in Figs. 6, 7 and 8 and has a surface portion thereof hollowed out as at **44**, at opposite ends of which are radial stop shoulders **46** and **48**. The cooperating surface of the hand wheel is provided with a check lug **50** which under normal circumstances is arranged in the recess **44** and swings back and forth in the direction of the arrows in Fig. 6 as permitted by the limiting shoulders **46** and **48**. By removing the hand wheel **36** and turning it upside-down but keeping the check lug **50** still on the inside the latter lug may now be caused to swing to an approximate half circle of 180° engaging the lower edges of the segmental member **42** which then function as additional shoulders **52** and **54**. In fact it is within the purview of the invention to remove the hand wheel entirely and turn it over completely so that the lug is then on what may be called the outside surface as shown in Fig. 8 whereupon the turning of the hand wheel

is unrestricted, that is, it may be turned through a 360° circle. In any event the oscillatory shaft on which the wheel is mounted turns in a manner to correspond with the operation of the wheel and the valve too operates conformingly.

A hopper or screw cap is constructed and lends itself to manufacture from commercial plastics of an appropriate grade and makes it practical to provide a convenient shank 56 on one side which radiates therefrom and is formed with a suitably shaped head 58 to be releasably engaged in a bracket 60 fastened at 62 to a wall or other support surface 64 all as perhaps best brought out in Figs. 2 and 5. The wall bracket and attaching means is of no particular patentable significance in the instant presentation, the novelty having to do with the valve 28 operating in the confining pocket 26 between the neck 22 and space 20 in conjunction with the sector-shaper member 42 with the shoulders and the cooperating hand wheel with the stop lug coacting with the shoulders.

Briefly with this invention any ordinary glass jar may be used and the contents are visible. The screw cap may be made of plastic and, in fact, the wall bracket may be made a part of the screw cap if desired. The three positions of the swivel knob make it possible to procure any desired regulation of the flow of the material from the hopper by way of the discharge neck into one's hand or other receptacle. Assuming that the check lug 50 has the shape of a segment of 10° when it revolves in the space 44 of 100°, the stroke of the swivel knob will be equivalent to one-fourth (90°) of a complete stroke of said swivel knob. If the swivel knob is turned down (Fig. 7) so that the check lug revolves in the lower side of the semi-circle, the stroke of the swivel knob will be equivalent to one-half (180°) of a complete stroke of said swivel knob. If the position of the swivel knob is reversed, the stop will have complete freedom of motion having a 100% rotation.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention

to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

For use in conjunction with a container having a screw-threaded neck, a dispensing-type screw cap attachable to said neck and having a body portion provided with bearings and a concavo-convex domical portion defining a hopper, said domical portion being centrally apertured and having a registering pouring neck, and also having an exteriorly positioned segmental member having a vertical surface formed with spaced stop shoulders, a shaft mounted for oscillation in said bearings, a portion of said shaft spanning the passage in said neck, an agitating valve located in the passage in said neck and fixed to said shaft, and a hand-grip carried by one end of said shaft and having an inward vertical face opposed in spaced parallelism to the complemental vertical surface of said segmental member and provided with a single eccentrically positioned outstanding check-lug swingable back and forth in the space between and selectively engageable with said shoulders, the portion of said neck where it merges with the bottom of said hopper provided with a pocket-like recess communicatively alined with said passage in which the blades of the valve are confined for operation, and said body portion being provided at a place diametrically opposite to said hand wheel with means whereby said body portion may be bracketed on a wall or an equivalent fixed support member.

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