

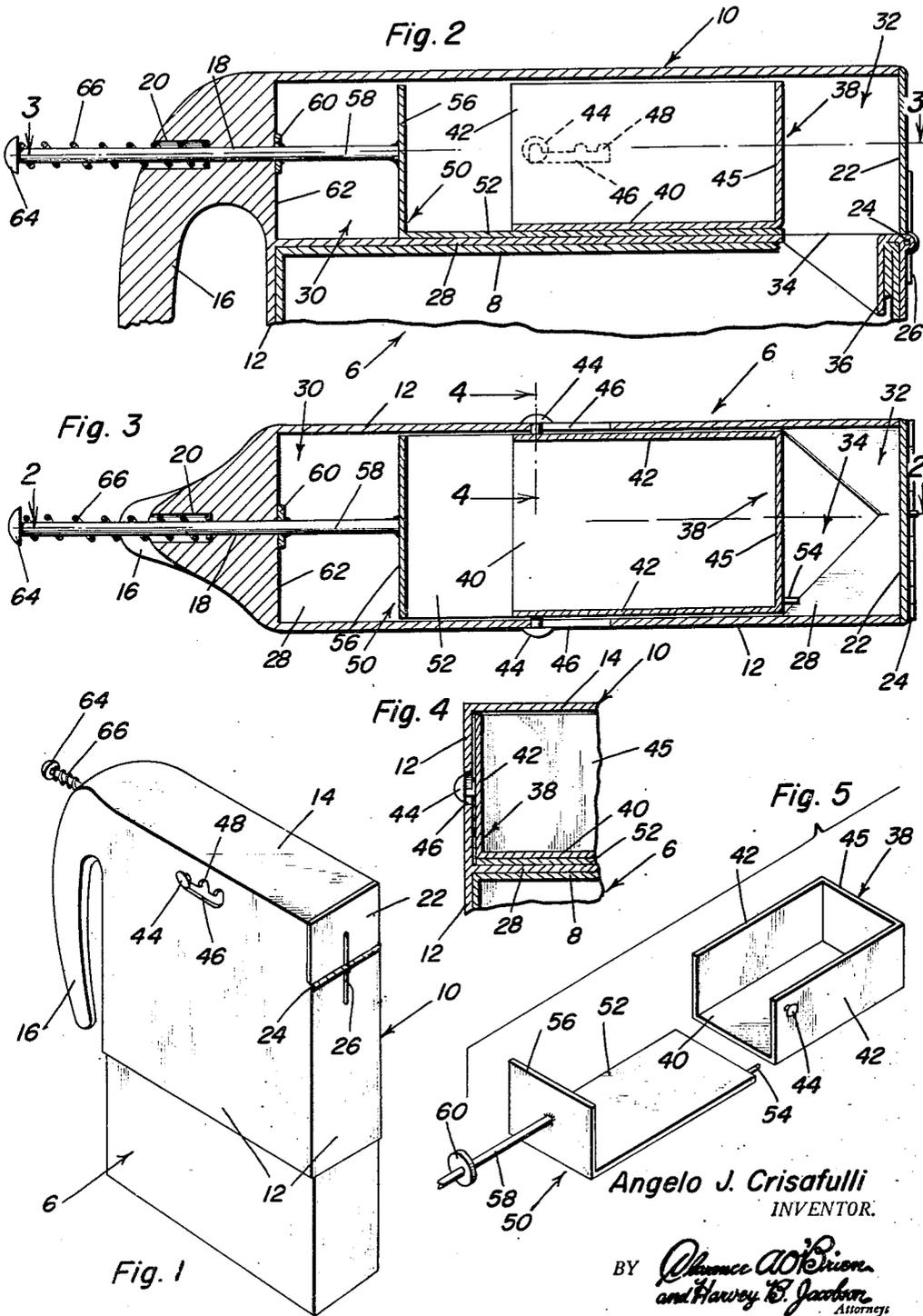
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GRANULAR MATERIAL DISPENSER

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GRANULAR MATERIAL DISPENSER

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The present invention relates to material handling and dispensing, generally classified, and has reference in particular to a simple, practical and economical attachment which is adapted to be removably fitted over the upper end portion of a cardboard box or an equivalent container for dry granular and powdered materials and which serves to assist the user in measuring and dispensing the same.

As is perhaps reasonably well implied by the preceding general statement of the subject matter of the invention, pouring and dispensing devices for all sorts of containers are old and well-known. As a matter of fact, attachment-type dispensers which have regulable amount measuring facilities are not new. Keeping these factors in mind, it is an objective of the instant invention to structurally, functionally and otherwise improve upon analogous and therefore similarly constructed and functioning prior art measuring dispensers.

In carrying out a concept in which these improved accomplishments and achievements are taken into account, a novel hollow jacket-like case of lightweight but durable and inexpensive materials is utilized. This is designed so that it fits in a cap-like manner over the upper end portion of the granular material container, a box of soap powders for example. It is constructed to embody a material trapping chamber which has a properly lined up intake opening and an associated box puncturing prong at one end and a spring-closed hingedly mounted chamber emptying trap door cooperating with a material discharge opening at the discharge end of said chamber.

More specifically, novelty is predicted on a slip-over case having the structural features mentioned and wherein a manually actuatable plunger is slidably mounted in the chamber, said plunger embodying a valving and load trapping plate which is slidable toward and from said door may be operated to push the door open and to thus dispense an intended or desired amount of the stated material.

To the end that the size of the load trapping and measuring pocket or space may be manually set and controlled, a plunger complement, a hand set and mechanically retained unit having a shiftable partitioning wall is also provided. This is interposed between the plunger valving means and hinged trap door and is adjustable toward and from the trap door.

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

In the drawings wherein like numerals are employed to designate like parts throughout the views:

Figure 1 is a perspective view of a carton or box of granular material (not detailed) showing the dispensing attachment applied thereto and in readiness for use;

Figure 2 is a section, with portions in elevation, taken on the longitudinal line 2-2 of Figure 3, looking in the direction of the arrows;

Figure 3 is a view in section and elevation on the horizontal line 3-3 of Figure 2;

Figure 4 is a section on the line 4-4 of Figure 3; and

Figure 5 is an exploded view of the plunger head and associated space adjusting and load measuring unit.

Referring now to the drawings with the aid of reference numerals, the cardboard box or equivalent container is denoted by the numeral 6. In practice this may, for example, be a conventional cardboard or equivalent box

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of soap powder, or granular material, such as sugar, rice or the like. It is not unusual in the art to provide box measuring attachments. It is also old to provide means on an attachment in this category for puncturing a pour hole in the top of the box or carton. The box top is denoted by the numeral 8 in Figures 2 and 4. The readily applicable and removable as well as adaptable measuring and dispensing attachment is denoted as an entity, by the numeral 10. This is of appropriate lightweight material. It is optionally referred to as a hood and/or as a cap. Structurally, however, it is a hollow jacket-like case which is conformable, obviously, to the encased box or other container over which it is to be temporarily slipped and fitted for use. The depending walls join with each other and the top wall 14 in providing a conformable adapter-sleeve 12 which fits in a cap-like manner over the box. At one end of said case an appropriate handle 16 is provided and this has a bore 18 and a counterbore 20 providing a spring socket. The right hand end portion of the case is constructed to provide a material discharge opening and this is normally closed by a flap 22 hingedly mounted at 24 and defining an openable and closable trap door. Any appropriate spring means 26 cooperates with the hinge to bias the door 22 to its normally closed position. On the interior and in the upper portion of the case there is a horizontal partition 28 which cooperates with the associated sleeve walls 12 and top wall 14 in defining elongate compartment 30. The right hand end portion of this compartment serves as the regulable material receiving, trapping and measuring pocket 32. The associated opening 34 in the partition 28 is the inlet opening and it will be noted that, at this point, the partition 28 is also formed with a laterally depending pointed box penetrating and opening prong or the like 36 which when pressed through the top of the box serves to open it and to thus afford communication between the interior of box 6 and the measuring pocket 32.

The plunger is constructed to slide back and forth in chamber 30. Cooperable therewith is drawer-like unit or section 38 having a flat bottom 40, vertical side walls 42 provided with headed pins 44 and an adjustable space regulating or partitioning wall 45. The pins 44 are adjustable in slots 46 provided therefor in the upper portions of side walls of the sleeve-like adapter portion 12 of the case. Slots 46 are provided with selectively usable notches forming keeper seats 48 in which the headed adjusting and retaining pins 44 are obviously engageable to control the functioning position of the regulating wall 45. The cooperating section or unit of the plunger is denoted at 50 and this is of general L-shaped form in side elevation and includes a horizontal flat wall or plate 52 which slidably underlies the wall 40 and which terminates in a push-pin or stud 54 which presses forcibly against the spring closed trap door 22 to shove the door open when sufficient pressure is applied in an obvious manner. The upstanding or vertical wall 56 is provided with a push-pull rod 58. Intermediate its ends the rod is provided with a fixed washer 60 which provides a stop shoulder and which abuts the wall 52 at the left hand end of the chamber 30 (Figures 2 and 3). The left hand end portion of the rod 58 extends through and beyond the bore 18 and socket 20 where it is provided with a push-button 64 and between this and the handle 16 there is a coil spring 66 which surrounds the rod and has one end portion fitted and anchored in the socket 20. This construction makes it possible to regulate the size and capacity of the trapping space 32 between the shiftable wall 45 and the normally closed door or lid 22. Consequently, the receiving and measuring pocket 32 may be handily regulated to dispense such amounts as a teaspoonful, tablespoonful, half-cup or a full cup and so on.

The sleeve-like adapter 12 in practice is fitted over the

upper portion of the box or container so that it is self-retained. It is forced down in such a way that the box opening prong 36 penetrates or pierces the top wall 8 and thus provides communication between the chamber 30 and pocket 32 and the container space of the box 6. With the attachment thus applied and with a suitable type friction fit between the attachment and the box the handle means 16 may be employed to lift and otherwise controllably handle the over-all assemblage.

The unit or section 38 is, of course, independently adjustable. That is to say, it can be shifted by placing the headed pins or buttons 44—44 in the keeper notches 48 so as to in this manner adjust and regulate the space existing between the wall 45 and the door 22. Once this space has been predetermined it may be brought into play as illustrated in Figs. 2 and 3. The trapping pocket 32 is then set, as it were. When the material from the main box is poured by dumping it into the pocket or space 32 and the plunger is operated so that the valving plate 52 slides across the opening 34, the then trapped load is ready to be dumped out as soon as the thrust pin 54 comes against the door 22 and forces said door open against the tension of the spring 26. Now, the load may be emptied into a receptacle and as soon as the plunger button 64 is released the spring 66 comes into play, returning the plunger to the inactive position shown in Figs. 2 and 3.

It is evident that sufficient clearance exists between the bottom wall 40 and the fixed partition 28 to allow the plate or sliding valve 52 to function properly in conjunction with the inlet opening 34.

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:

1. A granular material dispensing attachment for a cardboard or similar container, a box of soap powder, for example, comprising a jacket-like case embodying an adapter sleeve designed to fit down over the upper end portion of said container, the upper portion of said case having a material receiving chamber provided at one end with a material discharge opening normally covered and closed by a hingedly mounted trap door and provided inwardly of said discharge opening with a material inlet opening which is normally open and has box puncturing and opening means aligned therewith, a valving plate slidably mounted in said chamber and movable toward said discharge opening and adapted to slide over and cover said inlet opening after a determined amount of material has emptied from the container into the discharge end portion of the chamber inwardly of said door, a rod attached to said plate and slidably mounted and provided with a return spring, and an adjusting section adjustably mounted in the chamber and cooperable with the plate and embodying a partition shiftable toward and from the trap door to regulate the size of the discharge end portion of said chamber.

2. A granular material dispensing attachment for a cardboard or similar container, a box of soap powder, for example, comprising a jacket-like case embodying an adapter sleeve designed to fit down over the upper end portion of said container, the upper portion of said case having a material receiving chamber provided at one end with a material discharge opening normally covered and closed by a hingedly mounted trap door and provided inwardly of said discharge opening with a material inlet opening which is normally open and has container puncturing and opening means aligned therewith, a substantially L-shaped unit slidably mounted in said chamber and having a flat horizontal plate which is movable toward and from the discharge opening and when in a prescribed

position is adapted to slide over and cover the inlet opening after the desired or measured amount of material has been dumped from the container into the discharge end portion of the chamber inwardly of the door, a push-pull rod attached to said L-shaped plate and slidably mounted and provided with an automatic return spring, a complementary section adjustably mounted in said chamber and having a vertical wall which is shiftable toward and from said door in parallelism with the door when the latter is closed, and also embodying a bottom plate, said horizontal plate being interposed and slidable between the bottom plate and the bottom of said material receiving chamber, said horizontal plate being provided with a thrust pin which is adapted to be pressed against the door for forcing the latter to its open position.

3. A granular material dispensing attachment for a cardboard or similar container, a box of soap powder, for example, comprising a jacket-like case embodying an adapter sleeve designed to fit down over the upper end portion of said container, the upper portion of said case having a material receiving chamber provided at one end with a material discharge opening normally covered and closed by a hingedly mounted trap door and provided inwardly of said discharge opening with a material inlet opening which is normally open and has container puncturing and opening means aligned therewith, a substantially L-shaped unit slidably mounted in said chamber and having a flat horizontal plate which is movable toward and from the discharge opening and is adapted to slide over and cover the inlet opening after the desired or measured amount of material has been dumped from the container into the discharge end portion of the chamber inwardly of the door, a push-pull rod attached to said L-shaped unit and slidably mounted and provided with an automatic return spring, and means adjustably mounted in said chamber and complementary to the horizontal plate and having a vertical wall serving as a partition in said chamber and said wall being manually shiftable toward and from the door parallel to the door to regulate the space and to thus define a variable measuring pocket for the material which is to be dispensed.

4. A granular material dispensing attachment for a cardboard or similar container, a box of soap powder, for example, comprising a jacket-like case embodying an adapter sleeve designed to fit down over the upper end portion of said container, the upper portion of said case having a material receiving chamber provided at one end with a material discharge opening normally covered and closed by a hingedly mounted trap door and provided inwardly of said discharge opening with a material inlet opening which is normally open and has container puncturing and opening means aligned therewith, a substantially L-shaped unit slidably mounted in said chamber and having a flat horizontal plate which is movable toward and from the discharge opening and is adapted to slide over and cover the inlet opening after the desired or measured amount of material has been dumped from the container into the discharge end portion of the chamber inwardly of the door, a push-pull rod attached to said L-shaped unit and slidably mounted and provided with an automatic return spring, a complementary section adjustably mounted in said chamber and having a vertical wall which is shiftable toward and from said door in parallelism with the door when the latter is closed, and also embodying a bottom plate, said horizontal plate being interposed and slidable between the bottom plate and the bottom of said material receiving chamber.

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