Jan. 9, 1962 H. MERKEL 3,016,170

DISPENSING CONTAINER

Filed Oct. 27, 1958

FIG. 1

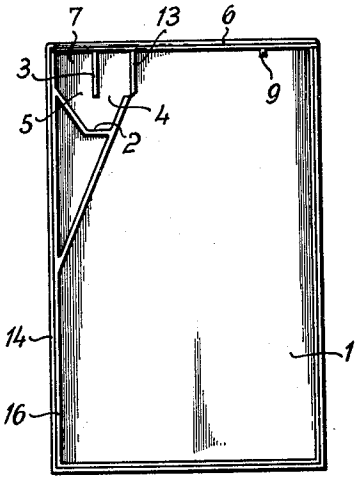


FIG. 2

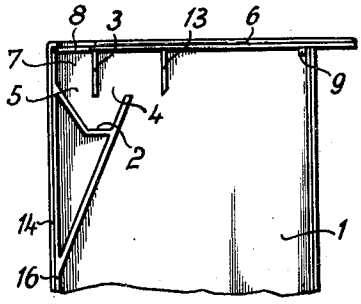


FIG. 3

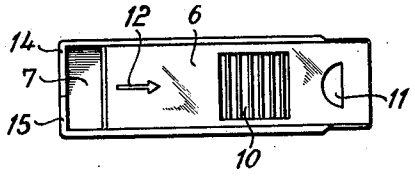


FIG. 4

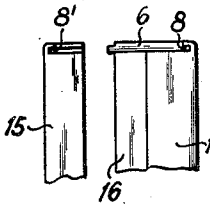


FIG. 5

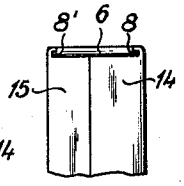


FIG. 6

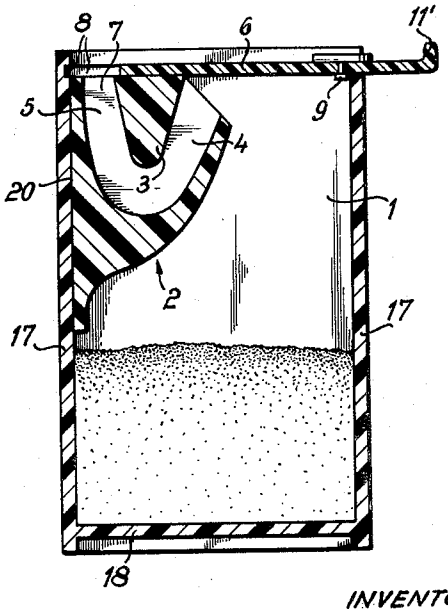
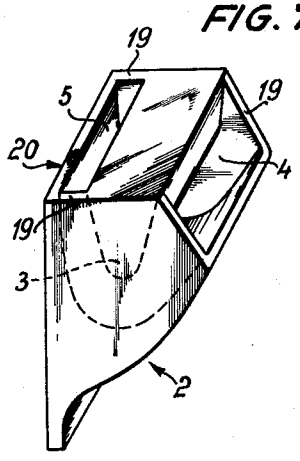


FIG. 7



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3,016,170
DISPENSING CONTAINER

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4 Claims. (Cl. 222—425)

The invention relates to a dispensing container, and more particularly to a container for dispensing measured amounts of a free-flowing solid material, such as a granular or powdered solid.

It is an object of the invention to provide a container which permits repeated dispensing of reproducible amounts of a free-flowing solid material.

Another object of the invention is the provision of such a dispensing container which is suitable for being carried in a pocket of a piece of clothing or the like.

Yet another object is the provision of such a container which has a substantially smooth outer wall without projecting portions which may snag portions of such a piece of clothing.

A further object of the invention is the provision of such a container which may be carried in any desired position without releasing the contents thereof.

An additional object of the invention is the provision of a container suitable for dispensing material intended for human consumption such as medicine, spices, or other materials to be added to food or drink in multiples of an equal amount.

Lastly, it is an object of the invention to provide such a container which is very inexpensive to manufacture so as to permit discarding of the container when the contents have been dispensed.

Other objects and many of the attendant advantages of this invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawing, in which like reference numerals designate like parts throughout the figures thereof, and wherein:

FIG. 1 shows a front elevation of a preferred embodiment of the dispensing container of the invention with the front wall removed, the container being in the closed position,

FIG. 2 is a fragmentary front elevation of the container of FIG. 1 in the open position,

FIG. 3 is a top view of the container of FIG. 2,

FIG. 4 is a fragmentary side elevation of the dispensing container of FIG. 1, in partly disassembled condition,

FIG. 5 is a fragmentary side elevation similar to FIG. 4, but in the assembled condition,

FIG. 6 shows a sectional front elevation of another embodiment of the container of the invention, and

FIG. 7 is a perspective view of a detail of the embodiment of FIG. 6.

In its more specific aspects, the invention contemplates the use of a receptacle means for holding a free-flowing solid material, and of measuring means arranged in the receptacle means along a wall thereof. The measuring means has a substantially V-shaped cross section, the two legs of the V-shape constituting a dispensing and a receiving compartment, respectively, the compartments being partly separated by partition means and communicating with each other at the apex of the V-shape. The free end of the dispensing compartment is located adjacent an end of the wall and the wall is movable so as to open and close the free end. The free end of the receiving compartment communicates with the interior of the receptacle means at a point adjacent the afore-mentioned wall.

According to a preferred feature of the invention, the measuring means is arranged in a corner of the receptacle means and the movement of the movable wall is limited in such a manner that the opening formed by movement of the movable wall communicates with the interior of the receptacle means only through the dispensing compartment.

Referring now to the drawing and more particularly to FIG. 1, there is shown in front elevation a preferred embodiment of the dispensing container of the invention with the front wall removed so as to reveal a rectangular storage compartment **1**. A measuring container **2** is arranged in a corner of storage compartment **1**. A vertical partition **3** extends from the rear wall of the compartment **1** into measuring container **2** and over the entire width thereof toward the front wall so as to divide the measuring container into two communicating compartments, a compartment **4**, which will henceforth be referred to as the receiving compartment, and a compartment **5**, to be referred to as the dispensing compartment. The top wall of storage compartment **1** is slidably movable in a longitudinal direction so as to form a cover **6** adapted to close an opening **7** by which dispensing compartment **5** may communicate with the outside of the dispensing container. A stop **9** provided on the underside of cover **6** limits movement thereof in such a manner that the opening formed by such movement of cover **6** communicates with the interior of the container only through dispensing compartment **5** when stop **9** abuts against a wall of the container.

As shown in FIG. 2, stop **9** abuts against a wall of the container when the edge of cover **6** adjacent opening **7** is substantially aligned and in contact with the top edge of partition **3**. A closure member **13** substantially similar and parallel to partition **3** is fastened to cover **6** in such a manner as to separate receiving compartment **4** from storage compartment **1** when cover **6** is in the closed position, and to open a passage between receiving compartment **4** and storage compartment **1** when cover **6** is in the open position. Cover **6** is slidably guided in a groove **8** extending along the top of the rear wall of the dispensing container and in corresponding grooves along the top of the front wall not shown in FIGS. 1 and 2.

FIG. 3 which represents a top view of the container of FIGS. 1 and 2, shows the cover **6** in the open position. To facilitate handling, the cover is provided with a corrugated surface portion **10** and a depression **11**. An arrow **12** indicates the direction of opening movement of cover **6**.

FIGS. 4 and 5 illustrate details of construction of the dispensing container of the invention which is preferably made from plastic although it will be understood that the invention is not limited to any specific material of construction or method of forming or assembling the container.

There is shown in FIG. 4 a side wall **14** having a portion **16** of reduced thickness extending toward the front wall of the container. The front wall is formed with a transverse edge portion **15** of a width equal to that of side wall portion **16** and of a thickness such that the combined thickness of edge portion **15** and side wall portion **16** is substantially equal to that of side wall **14**. Edge portion **15** is so dimensioned that it may be slipped over the reduced portion **16** of side wall **14** and over corresponding reduced portions of the other walls of the container so as to envelop them so that the edge portion of the front wall may readily be cemented or otherwise fastened to the other walls of the container to form a tight seal. The assembled container with the front wall in place and edge portion **15** superimposed on the reduced portion of side wall **14** is illustrated in FIG. 5. The grooves **8** and **8'** respectively provided in the top portions of the front and rear walls for guiding sliding movement of cover **6** are also shown in FIG. 5.

In the embodiment of the invention illustrated in FIGS. 6 and 7, the measuring container 2 forms an integral unit and the receiving compartment 4 and dispensing compartment 5 are preformed before assembly of the measuring unit 2 with the other elements of the dispensing container.

As best seen in FIG. 7, the measuring container 2 comprises a wall element 20 of Y-shaped section having the same width as the width of the container between the front and rear walls thereof. Side walls 19 extend perpendicularly from wall element 20 and hold between them an integral partition member 3 of approximately V-shaped cross section which is arranged between the two branches of the Y of wall element 20 so as to define therewith the receiving compartment 4 and dispensing compartment 5. The measuring container illustrated in FIG. 7 may be mounted with its wall element 20 against one of the side walls 17 of a molded container integrally formed with its bottom 18, for example, from plastic material. A cover 6 is slidably arranged in a transverse groove 8 extending across the tops of the back and front wall and one of the side walls 17 of the container. Cover 6 is movable so as to expose the opening 7 of dispensing compartment 5, and is prevented from moving beyond such a position by abutment means 9 fastened to the underside of the cover for engagement with one of the side walls 17 when the front edge of cover 6 is aligned with the top edge of partition member 3 along which the cover 6 is slidable. The rear edge of cover 6 is transversely bent so as to form a gripping handle 11' for convenient operation. The gripping handle 11' extends transversely from the rear edge of cover 6 to such an extent that it is substantially flush with the top edges of the front and rear wall in the closed position of cover 6 so that in the closed position of the container it presents a substantially smooth outer wall without projecting portions which may snag portions of a piece of clothing in the pocket of which the container is kept.

The mode of operation of the afore-described embodiments of the invention is readily apparent from the structure thereof. The storage compartment 1 of the container is filled with the powdery, granular or otherwise relatively free-flowing solid material which is desired to be dispensed in reproducible amounts, and the front cover is attached. The cover 6 is moved to the open position as shown in FIGS. 2 and 3 and the container is inverted with the opening 7 directed downward. A portion of the material contained in storage compartment 1 flows through the passage formed between closure member 13 and the fixed wall of receiving compartment 4 so that compartment 4 receives a certain amount of material. Because of the appreciable frictional forces set up between the particles of even relatively free-flowing solids none of the material will spill over the edge of partition 3 into dispensing compartment 5, and the height of the passage formed between the compartments 4 and 5 along the free edge of partition 3 can readily be selected so as to adapt the container to any desired solid material.

The dispensing container is now inverted so that a portion of the solid material in the space defined by partition 3, cover 6 and closure member 13 will drop back into storage compartment 1, and another portion will drop into the passage connecting compartments 4 and 5. Cover 6 now is closed so as to separate the amount of material contained in the measuring container 2 from the main body of material held in storage compartment 1. The dispensing container may now be tilted or otherwise moved in any manner without any of the material in measuring container 2 returning to the compartment 1 or material from storage compartment 1 being added to that held in the measuring container 2.

When the cover 6 is opened and the dispensing container is moved from a position in which opening 7 is directed upward to a position in which the opening 7 is directed downward, the material held in measuring container 2 is discharged through opening 7 and a new amount of material enters the space between cover 6, partition 3 and closure 13, whereupon the next cycle of operation may start.

If the tilting movement for inversion of the dispensing container is performed in an approximately equal way during successive cycles, the amount of material dispensed through opening 7 is closely similar or substantially identical. It is influenced only to a very minor extent by the amount of material contained in storage compartment 1 since the static pressure of the material is largely cancelled by the frictional forces within the material.

The device illustrated in FIGS. 6 and 7 operates in a manner substantially analogous to the operation of the device of FIGS. 1–5. Because of the absence of a closure member capable of separating the receiving compartment 4 from the storage compartment 1, it is necessary to fill the receiving compartment 4 to a reproducible extent by titling the container forward, then backward before discharging an amount of material from dispensing compartment 5, if it is desired to dispense substantially equal amounts in successive operations, and if the dispensing container is moved between discharging steps in such a manner that material may flow between receiving compartment 4 and storage compartment 1 in either direction.

While molded or cemented plastic containers have been described as preferred embodiments of the invention, and while such containers have been described as being equipped with sliding covers, it will be appreciated that other materials of construction may be employed and that the invention is not limited to a sliding cover nor to any specific structural feature used in the illustrative examples. It is entirely within the scope of the invention to employ, for example, a rotary cover instead of a slidable one, and the necessary modifications of the structure of the invention will readily present themselves to those skilled in the art.

While the invention has been illustrated and described as embodied in dispensing containers, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed as new and desired to be secured by Letters Patent is:

1. A dispensing container for dispensing measured amounts of a free-flowing solid material, comprising, in combination, receptacle means including a hollow body having an opening at one end, a cover plate mounted on said body for sliding movement between a closing position closing said opening and a discharge position defining a discharge opening in said receptacle means, said receptacle means having a dispensing position in which said cover plate forms the bottom of said receptacle means and a reversed position in which said cover plate is located on top of said receptacle means; said body having an inner wall having one end located opposite said discharge opening and another end located opposite said cover plate spaced from the same to form a passage with the same, and a partitioning wall located adjacent said discharge opening, being in sliding contact with said cover plate, and extending from the same toward said inner wall and defining with the same a dispensing compartment located on one side of said partitioning wall and communicating with said discharge opening; and a closure plate fixedly secured to said cover plate for movement with the same

and projecting from the same into said hollow body, said closure plate closing said passage in said closing position of said cover plate and being spaced from said other end of said inner wall in said discharge position of said cover plate so that only in said discharge position of said cover plate material located in the interior of said hollow body accumulates in said dispensing position of said receptacle means between the other side of said partitioning wall and said closure plate on said cover plate so that a thus-accumulated quantity of material falls onto said inner wall in said reversed position of said receptacle means whereby a measured quantity of the material falls in said dispensing position through said discharge opening if said cover plate is in said discharge position.

2. A container as set forth in claim 1, wherein said closure plate is perpendicular to said cover plate.

3. A container as set forth in claim 1 and including stop means for stopping said cover plate in said discharge

position with one edge of said cover plate located on said partitioning wall.

4. A container as set forth in claim 1, wherein said hollow body has two parallel main walls, two side walls, and one end wall; wherein said discharge opening is located adjacent one side wall and extends between said main walls; wherein said inner wall and said partitioning wall connect the inner surfaces of said main walls; and wherein said closure plate has a pair of edges slidably and tightly contacting said inner surfaces.

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