July 11, 1967 W. J. MURPHY 3,330,448

DISPENSING CONTAINER

Filed Jan. 4, 1965 2 Sheets-Sheet 1

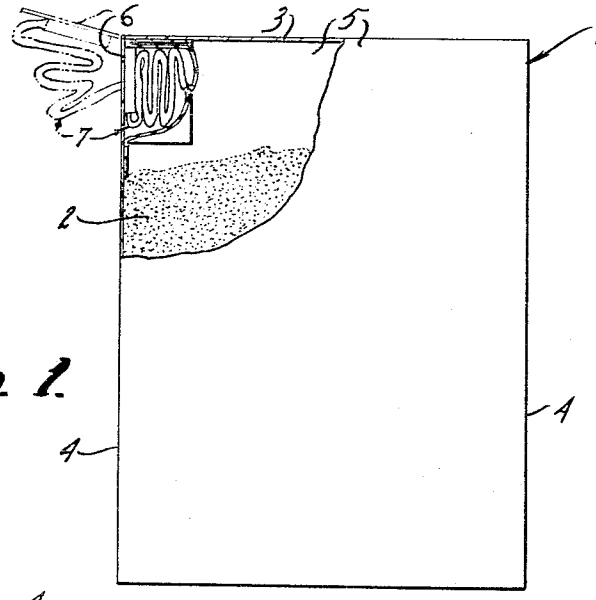

Fig. 1.

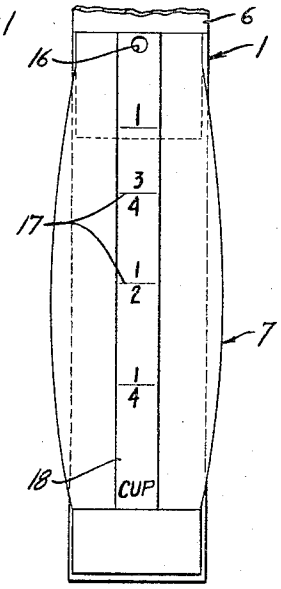

Fig. 3

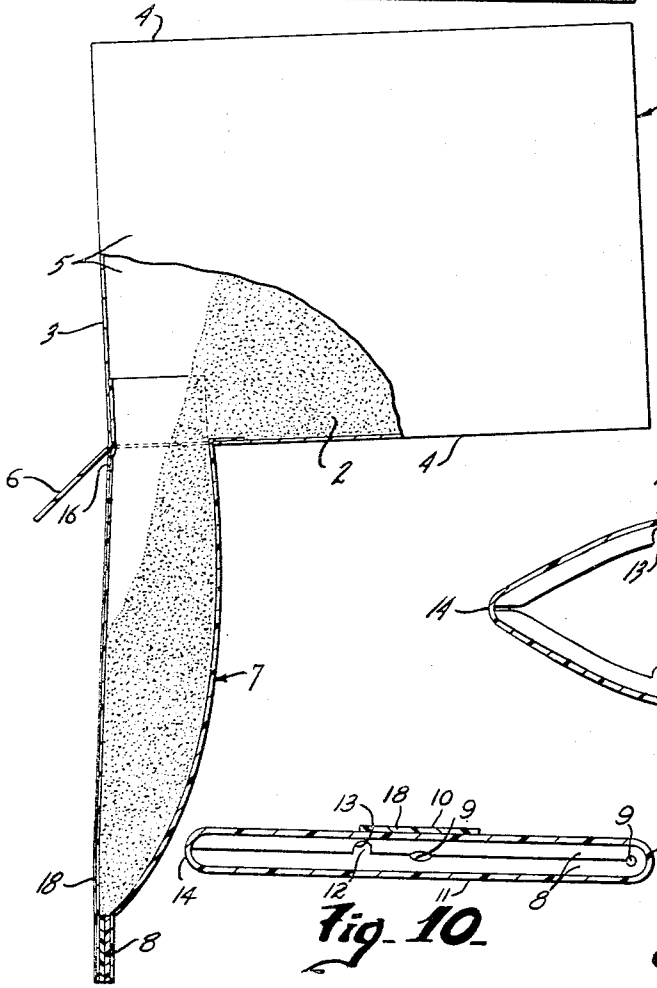

Fig. 2.

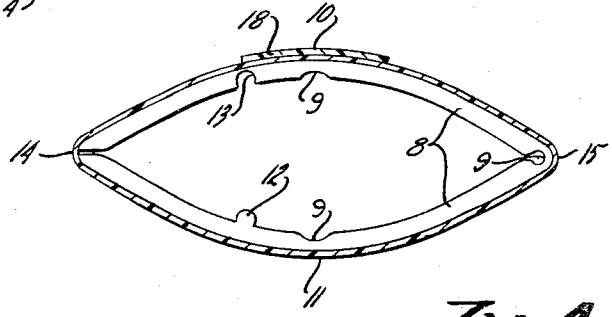

Fig. 4.

Fig. 10.

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July 11, 1967 W. J. MURPHY 3,330,448

DISPENSING CONTAINER

Filed Jan. 4, 1965 2 Sheets-Sheet 2

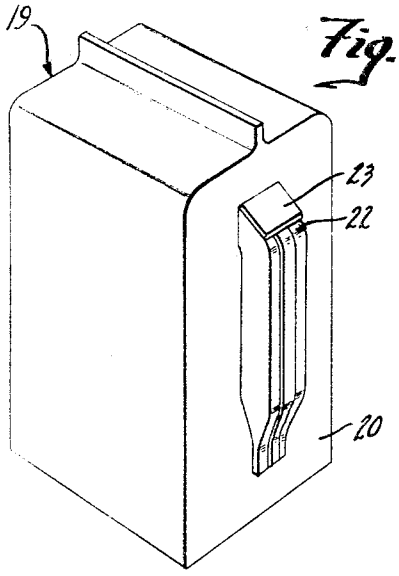

Fig. 5.

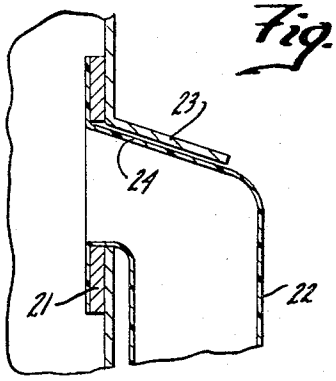

Fig. 6.

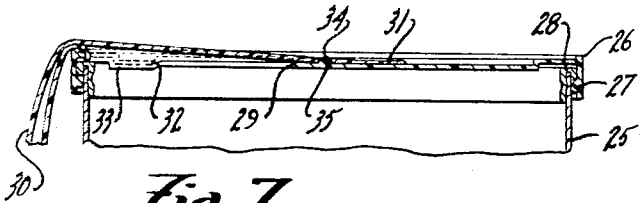

Fig. 7.

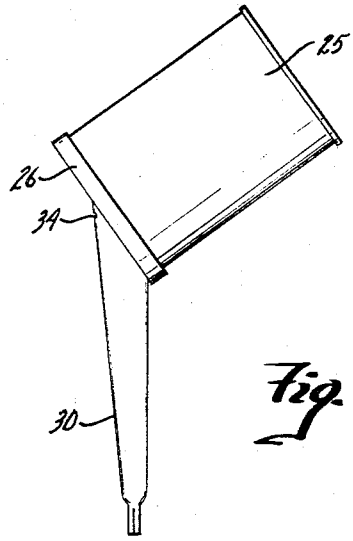

Fig. 9.

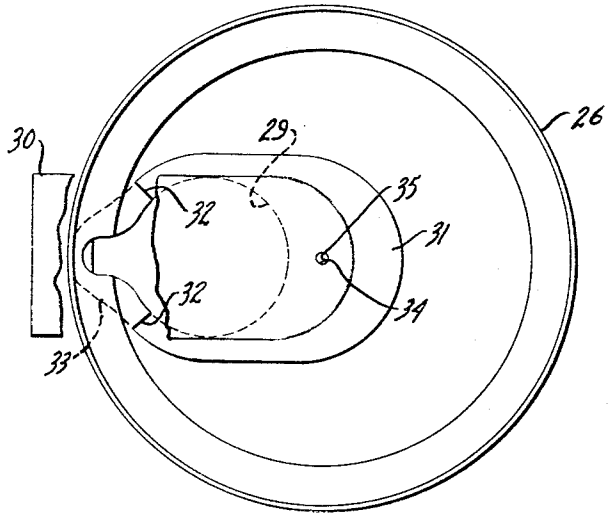

Fig. 8.

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DISPENSING CONTAINER

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4 Claims. (Cl. 222—424.5)

This invention relates to a dispensing device and more particularly to a dispensing device formed integrally with a container and adapted to measure and dispense a quantity of the contained material.

Soap, bleach and other granular or powdered materials are generally packaged in cardboard boxes. To dispense the contained material, a tab is removed from the top or end wall of the box and the contents are poured out for use. Normally, there is no means for accurately measuring out precise amounts of material unless an auxiliary measuring cup is used and this results in considerable spillage. Moreover, after removal of the tab, the box is open and if the box is accidentally tipped over or dropped, the material will spill. In addition, with the tab removed, the contents of the box are exposed to the air and moisture may cause hygroscopic material to pick up moisture and become lumpy, or in some cases may cause deterioration of the contents.

The same general problem also applies to food products, such as coffee, sugar, flour and the like.

The present invention is directed to a dispensing device which is formed integrally with the container and can be used to accurately measure and dispense a quantity of the contained material. More specifically, the container, such as a cardboard box or paper bag, is provided with an opening which is enclosed by a removable flap. A long, transparent, flexible bag or measuring receptacle is located within the container when the container is packaged, and one end of the bag is secured to the inner surface of the container bordering the opening. The opposite or outlet end of the bag is provided with a closure and is temporarily attached to the inner surface of the flap. When the flap is opened, the outlet end of the bag is detached from the flap so that the bag will hang downwardly along the outer wall of the container.

To dispense the contained material, the container is tilted so that the material will flow downwardly into the bag to the desired level. After the bag has been filled with the desired quantity of material, the closure is released to discharge or dump the material into the desired location.

The flexible bag, or measuring receptacle, is formed integrally with the container and forms a part of the original package, so that no auxiliary dispensing device is required. Moreover, the bag or measuring receptacle is disposable with the container so that no cleaning of the device is required.

The bag is provided with graduations so that a given quantity of material can be accurately measured and this material can then be discharged through the bottom gate or closure without spilling.

Moreover, the flexible bag encloses the opening in the container so that the contents of the container are not exposed to the atmosphere with the result that hygroscopic materials will not pick up moisture or other materials will not deteriorate. By virtue of the bag closing off the opening in the container, the material will not spill from the container in the event the container is accidentally dropped or tipped over.

The dispensing device of the invention can be applied to a wide variety of containers, such as cardboard boxes, paper bags, metal containers and the like, and can be used to measure and dispense any type of granular or free-flowing material, such as soap, bleach, sugar, flour, coffee and the like.

Other objects and advantages will appear in the course of the following description.

The drawings illustrate the best mode presently contemplated of carrying out the invention.

In the drawings:

FIGURE 1 is a side elevation of the dispensing device as applied to a cardboard box with parts broken away in section;

FIG. 2 is a view of the dispensing device in the dispensing position with the box tilted to the pouring position;

FIG. 3 is an end view of the cardboard box with the bag or measuring receptacle located outside of the box;

FIG. 4 is a bottom view of the bag showing the closure or gate;

FIG. 5 is a perspective view of a modified form of the invention showing the bag or measuring receptacle associated with a paper sack;

FIG. 6 is a vertical section taken through the wall of the paper sack of FIG. 5 showing the attachment of the bag to the sack;

FIG. 7 is a fragmentary vertical section of a second modified form of the invention showing the dispensing device as applied to a coffee can;

FIG. 8 is a top view of the structure shown in FIG. 7;

FIG. 9 is a side elevation of the structure of FIG. 7 showing the bag in the measuring position; and

FIG. 10 is a view similar to FIG. 4 showing the receptacle in the closed position.

FIGS. 1–4 illustrate a carton or other container **1** formed of plastic, cellulosic material such as paper or cardboard, or the like, and adapted to contain a granular material **2**, such as soap or bleach. The container **1** is provided with a top wall **3**, a pair of opposed end walls **4** and a pair of side walls **5**. The end wall **4** is formed with a discharge opening which is enclosed by a flap **6**. The flap **6** is hinged to the top wall **3** and the edges of the flap are perforated so that the flap may be readily disengaged from the end wall and bent outwardly when it is desired to dispense the material **2** from the container **1**.

According to the invention, a bag or measuring receptacle **7** is formed integrally with the container **1** and is adapted to measure and dispense a given quantity of the material **2** from the container. The bag **7** is elongated and has open opposite ends. The inlet end of the bag is secured to the inner surface of the top wall **3**, side walls **5** and end wall **4** bordering the opening in the end wall to provide direct communication between the interior of the container **1** and the interior of the bag **7**.

The bag or measuring receptacle **7** is preferably formed of a flexible, transparent material, such as polyethylene, and is tapered from its inlet end to its outlet end, as best shown in FIG. 2.

In the packaged state, the flap **6** is flush with the end wall **4** and the bag **7** is crumpled up within the upper end of the container **1**. The outlet or discharge end of the bag is temporarily attached to the inner surface of the flap **6** by a spot of adhesive or other temporary fastener. When it is desired to dispense the contents of the container, the flap **6** is removed or pulled outwardly with the result that the discharge end of the bag **7**, which is temporarily attached to the flap, will be moved to the outside of the container where it can be readily detached. The bag **7** will then hang downwardly along the outer wall of the container, as shown in FIGS. 2 and 3.

The lower discharge end of the bag **7** is provided with a closure or gate which can be opened and closed as desired. As shown in FIGS. 2 and 3, the closure is provided by a heavy, flexible strip **8** of material, such as polyethylene, which is secured to the bottom edge of the bag **7** and extends completely around the periphery of

the bag. Portions of the strip **8** are formed with a lesser thickness to provide hinge points **9**. The opposite portions **10** and **11** of the strip **8** are maintained together to provide a closure by engagement of the ball **12** with the socket **13**. To open the closure member, pressure is applied to the opposite extremities, **14** and **15**, of the strip **8** causing the portions **10** and **11** to move apart to the position shown in FIG. 4 to thereby permit the material contained within the bag to be discharged.

In addition to functioning as a closure, the heavy strip **8** also serves to provide weight which maintains the bag in a straight, generally unwrinkled condition.

As best shown in FIGS. 2 and 3, a vent hole **14** is provided in the bag **7** adjacent the inlet end, and the vent hole **16** provides an inlet for air which prevents opposite portions of the bag from sticking together. As the hole **16** is provided at the upper edge of the bag, the material **2** can be poured from the container **1** into the bag **7** without spilling from the hole, and similarly, excess material can be repoured from the bag back into the container without being spilled through the hole **16**.

In order to accurately measure a given quantity of material, the bag **7** is provided with a series of graduations indicated generally by **17**. The graduations can be any given units, depending upon the material which is to be dispensed and its ultimate use.

It may be desired to attach a heavy, yet flexible, strip of plastic material **18** to the outer surface of the bag to prevent stretching of the bag. When the material **2** is poured into the bag **7**, one hand of the user normally carries the container and the other hand will pull on the bottom portion of the bag **7** in order to straighten the bag and remove any wrinkles. Continued pulling on the bag may result in some stretching, depending upon the particular plastic material used, which, in turn, may cause erroneous reading. Thus, the heavier strip of plastic **18** can be applied longitudinally to one side of the bag to prevent stretching when the bag is pulled.

The packaged unit which is sold to the ultimate user is shown in FIG. 1. In this form, the flap **6** is attached to the end wall **4** and the bag **7** is crumpled up within the upper portion of the container. When it is desired to dispense the material **2** from the container, the flap **6** is pulled outwardly and the discharge end of the bag being attached to the flap is moved through the opening where it can be readily removed from the flap and will fall downwardly along the outer surface of the container.

With the closure strip **8** in the closed position, as shown in FIG. 2, the container is tilted upwardly to pour material into the bag **7**. When the desired quantity of material has been poured into the bag, the container is tilted downwardly and the strip **8** is flexed to the open position to discharge the material into the desired location.

FIG. 6 illustrates a modified form of the invention in which the dispensing unit is associated with a paper bag or sack **19**. The sack **19** is adapted to contain a material, such as flour or sugar and is provided with an opening in the wall **20**. A reinforcing strip of cardboard, plastic or other material **21** is bonded to the inner surface of the wall **20** around the opening to reinforce or stiffen the area surrounding the opening. A flexible, transparent bag **22**, substantially identical to bag **7** of the first embodiment, has one end portion secured to the inner surface of the reinforcing member **21** to provide direct communication between the interior of the sack **19** and the interior of the bag **22**. A hole **23**, similar in function to hole **16**, is provided in the upper end of bag **22**.

As in the case of the first embodiment, the discharge or outlet end of the bag **22** is temporarily attached to the inner surface of the flap **24** which encloses the opening in the wall **20** of the sack. When the flap **24** is open, the discharge end of the bag **22** can be readily removed from the flap and will hang downwardly along the side of the sack, as shown in FIG. 5. The use of the bag **22** is identical to that described with respect to bag **7**.

FIGS. 7–9 illustrate a second modified form of the invention in which the dispensing unit is associated with a coffee can. In this form, the can **25** containing coffee or the like, is enclosed by a flexible plastic cover **26** made of polyethylene or the like. Cover **26** is formed with a rim **27** which snap-fits over the bead **28** on the upper edge of the can **25**. The cover **26** is provided with a key-hole shaped opening **29** and the smaller end of the key-hole opening extends to adjacent the rim **27**. The key-hole shaped opening provides a smoother flow of material when pouring.

A flexible transparent bag **30**, similar in structure and function to bag **7**, is secured to the portion of the cover bordering the opening **29** so that the interior of the bag is in direct communication with the interior of can **25**. The portion **31** of the upper end of bag **30** is bonded to the outer surface of cover **26**, and the edges of the upper end of bag **30** extend through slits **32** in cover **26**, and the opposite portion **33** of the upper end is bonded to the lower surface of the cover, as shown in FIG. 7.

The upper portion of bag **30** is provided with a vent hole **34**, which functions in the manner described with respect to hole **16**, and the vent hole **34** is normally closed, when the can is in the non-pouring position as shown in FIG. 7, by a projection **35** which extends upwardly from the cover **26**. The projection **35** closes the hole **34** when the bag **30** is hanging downwardly along the side of the can and prevents air from entering the can.

When it is desired to dispense the coffee or other contained material, the can **25** is tilted to a position, as shown in FIG. 9, so that the material will flow through the small section of key-hole opening **29** into the bag **30**. With the can in the pouring position, the vent hole **34** will not be closed by the projection **35**. When the desired amount of material is poured into the bag **30**, the bottom closure of the bag **30** is opened to thereby discharge the material.

The present invention provides an inexpensive measuring and dispensing unit which is formed integrally with the container. As the bag or measuring receptacle is provided with graduations, the material can be very accurately measured without the use of an auxiliary measuring cup, and can be discharged into the location of use without spilling.

As the opening in the container is normally closed off by the flexible bag, the contents of the container will not be exposed to the atmosphere and this will tend to eliminate the problem of the contained material picking up moisture or deteriorating by exposure to the atmosphere. The closure provided by the bag has an additional advantage in that the material will not be spilled from the container or box in the event that the container is tipped or dropped.

Various modes of carrying out the invention are contemplated as being within the scope of the following claims particularly pointing out and distinctly claiming the subject matter which is regarded as the invention.

I claim:

1. A dispenser, comprising a container to contain a divided solid material to be dispensed and having an opening in the wall thereof, an elongated flexible receptacle movable from an initial storage position inside the container to a material dispensing position outside of said container, said receptacle having open ends with one end being secured to the surface of the container bordering the opening to enclose the opening when the receptacle is in the material dispensing position on the outside of the container and provide direct communication between the interior of the container and the interior of the receptacle, the opposite end of said receptacle being located outside of the container when the receptacle is in the material dispensing position, closure means at said opposite end of said receptacle for open-

ing and closing said opposite end whereby tilting of the container will cause material to flow from the container into the receptacle and said material will be retained in said receptacle when said closure means is closed, an opening of said closure means will discharge said material through said opposite end of the receptacle, and vent means in said receptacle and providing communication between the interior of the receptacle and the atmosphere, said vent means being separate from said open end and located outside of the container when the receptacle is in the material dispensing position and adjacent the connection of the receptacle to the container.

2. A dispenser of claim 1 and including a weight at said opposite end of the receptacle for holding the receptacle in a relatively straight condition when said receptacle is in the material dispensing position.

3. The dispenser of claim 1, and including flexible reenforcing means extending substantially the length of the receptacle to prevent stretching of the receptacle in a longitudinal direction.

4. The dispenser of claim 1, and including attachment means for temporarily attaching said opposite end of the receptacle to the inner surface of the container when the receptacle is in the storage position, said attachment means being manually detachable and said receptable being pulled through the opening to said material dispensing position.

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