June 3, 1969 J. E. DECKYS 3,447,732

INTEGRALLY FORMED DISPENSING CONTAINERS HAVING IMPROVED POURING MEANS

Filed Sept. 13, 1967 Sheet 1 of 2

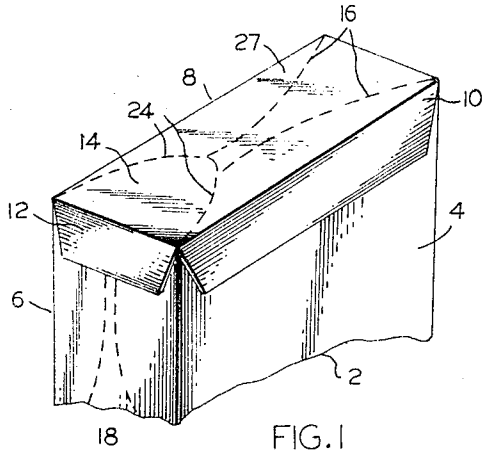

FIG. 1

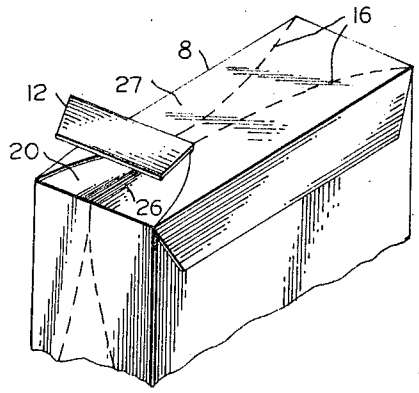

FIG. 2

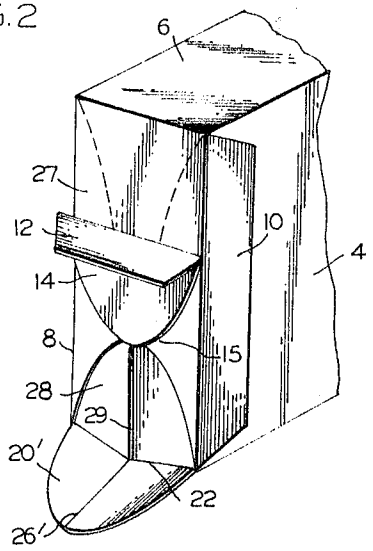

FIG. 3

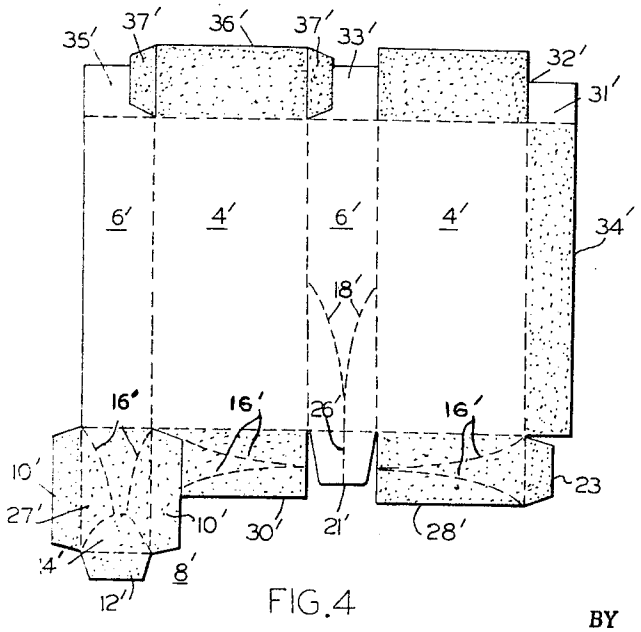

FIG. 4

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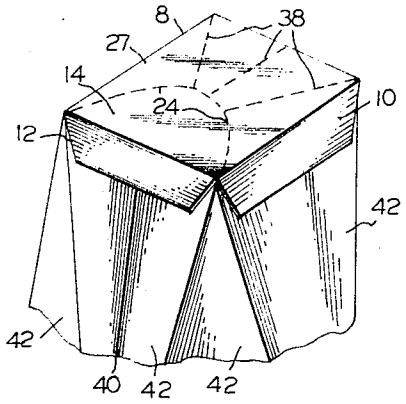

FIG.5

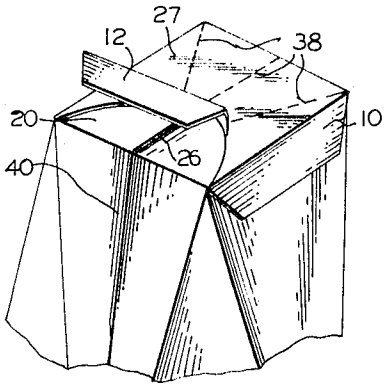

FIG.6

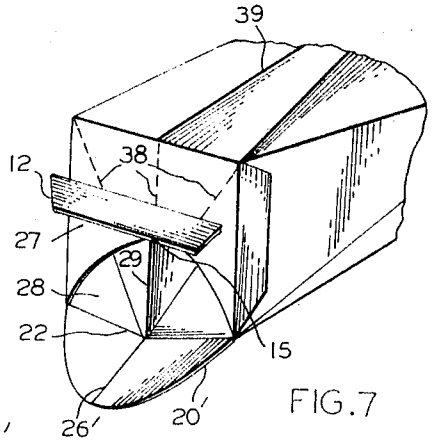

FIG.7

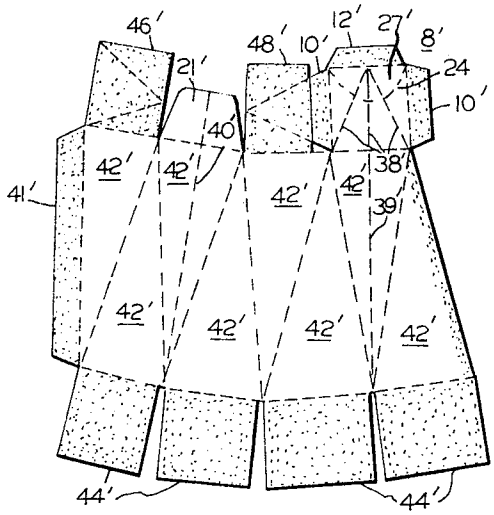

FIG.8

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INTEGRALLY FORMED DISPENSING CONTAINERS HAVING IMPROVED POURING MEANS

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ABSTRACT OF THE DISCLOSURE

This invention relates to a container having a pouring spout and pouring chutes. Said pouring spout and pouring chuates are integrally formed with two parts of the container but are operative only when manual pressure is exerted on the side walls of the container. In the normal relaxed condition, the container comprises a polygonal body having one end provided with a rectangular top wall wherein three sides of said rectangular top wall are attached to the side walls of the container and the fourth side is unattached to provide an outlet. The outlet is adapted to be sealed by the pouring spout which folds over said outlet. The rectangular top wall comprises a plurality of superimposed layers wherein the outer layer is perforated to provide a removable section which has a pull tab attached thereto. To open the container, pressure is exerted on the pull tab and the perforated portion is thereby removed; this exposes the pouring spout which is held in a retaining recess formed by the remaining outer layer and an inner layer of said top wall. This spout may be pulled outwardly from the retaining recess when dispensing is intended. During such dispensing, pressure applied manually to the container side walls opens the outlet and forms pouring chutes and a pouring spout.

This invention relates generally to containers formed of fiberboard or like sheet material for the packaging of material. The container is particularly useful in dispensing and packaging of finely divided granular materials. More specifically, the container comprises portions interengaged in such a manner as to permit manipulation of a pouring spout into an open and a closed position which respectively opens and seals the container outlet, and to permit manipulation of the carton to form pouring chutes which guide the material within the box through the outlet and into the pouring spout.

Heretofore, boxes adapted to dispense granular materials have been used, and boxes having closable spouts have been used. These previously known boxes have not proven satisfactory in use since they were prone to waste the materials during the dispensing operation. This resulted from several factors, primarily from the failure to provide means to guide the material from the container and through the outlet to a pouring spout capable of receiving the material to be dispensed. The present invention eliminates this deficiency in the prior-art containers by providing means to guide the contents into a pouring spout.

Another primary disadvantage of known boxes is the waste occurring after the box is initially opened due to excess material being retained in the pouring spouts which either gradually sifts through the outlet during storage or unexpectedly pours out when the box is opened for a subsequent dispensing operation.

A correlative disadvantage lies in the failure of prior-art boxes to effectively seal an opened box; thus,

accidental knocking about or dropping of the prior-art box results in spillage and waste.

No prior-art box has been provided which eliminates these problems while maintaining an easily constructed, durable and economical container. Accordingly, it is an important object of the present invention to provide a container which is at once sturdy, compact and economical, and which may be constructed from a single blank without the need for additional parts to be affixed thereto.

It is another object of this invention to provide a box structure having a special pull-open tab enabling the box to be easily opened without the use of instruments.

Another object of the present invention comprises the provision of a blank adapted to be formed into a container having all of the objects and improvements herein described, and which may be formed into a container having integral pouring chutes and pouring spout.

Still another object of the present invention is to provide, in the vicinity of a pull tab, a structure which is adapted to form pouring chutes when pressure is applied to the side walls of the box.

Still another object of this invention is to provide a container which in the unused position maintains the side walls in planar positions but which walls are adapted upon the application of manual pressure during use to form pouring chutes and a pouring spout which are not in the planes normally present.

Another important object is to provide a container which combines the above-mentioned integrally formed pouring chutes with an integrally formed pouring spout adapted to seal the outlet and to maintain the chutes in their inoperative position during storage periods.

These and other objects of the present invention will be more particularly understood and explained by the following description which is related to the drawings wherein like numerals represent like elements and wherein:

FIGURE 1 represents a sealed rectangular container according to the present invention;

FIGURE 2 represents the container of FIGURE 1 wherein the pull tab is lifted to unseal the container;

FIGURE 3 represents the container of FIGURE 2 during dispensing while manual pressure is applied thereto;

FIGURE 4 represents a blank adapted to form the container of FIGURES 1–3;

FIGURE 5 represents a sealed octagonal container according to the present invention;

FIGURE 6 represents the container of FIGURE 5 wherein the pull tab is lifted to unseal the container;

FIGURE 7 represents the container of FIGURE 6 during dispensing while manual pressure is applied thereto; and

FIGURE 8 represents a blank adapted to form the container of FIGURES 5–7.

Before referring to the drawings in detail, a more particular description of the embodiments of the present invention will be set forth. The containers comprising the invention may have any desired number of sides; the description hereinbelow refers to rectangular and octagonal shapes but is not to be interpreted as limiting the inventive concepts set out. All the embodiments of the instant invention have similarities in the top region of the container which region houses the outlet, the pouring spout and the pouring chutes. The outlet is formed by leaving one edge of the rectangular top unattached, specifically the edge which forms the intersection of two pouring chutes. The other three sides of the top wall are sealed. The pouring spout contemplated by the invention comprises a member which is integrally attached to one side wall of the box and which extends beyond said side wall

in a generally tapered form. The portion which extends beyond the side wall is creased longitudinally and is creased transversely at the plane of the box top in order to enable the pouring spout to be folded over the box top. The longitudinal crease continues down the side wall and this crease enables the pouring spout to form a continuation of a pouring chute, as will be more fully explained below.

The pouring chutes contemplated by the invention comprise, in the relaxed state, normally planar surfaces arranged at right angles to each other. One planar surface comprises the side wall of the box to which the pouring spout is attached. As has been stated, this side wall is creased longitudinally and as a result, pressure exerted on the opposing side walls of the box forces the longitudinally creased side wall into a V-shaped chute wherein the pouring spout forms an integral extension of the pouring chute in said side wall.

The second planar surface having a pouring chute comprises the top wall of the box. This wall is formed of a plurality of superimposed layers, each being creased longitudinally along the same lines. The crease lines enable the top wall of the box to be shaped into a V-shaped chute when pressure is exerted on the side walls in the same manner that the chute in the side wall is formed.

It will be seen that these two chutes are arranged generally at right angles and will guide the contents of the box along said chutes and into the creased pouring spout during the dispensing. After dispensing, the outlet may be sealed by releasing the pressure from the side walls so that the natural resiliency of the top and side walls will force these walls back into their normal planar shape. The pouring spout may then be folded over the top wall and inserted into a recess formed in the top wall to seal the outlet. This insertion also serves to keep the chutes in their inoperative planar position.

The recess which is adapted to receive the unused pouring spout was exposed during the initial unsealing operation by removing a portion of the outer wall of the box top while leaving at least one inner wall extending across the box top. Removal of that portion of the outer wall is facilitated by provision of a pull tab extending from a perforated portion of said outer wall.

From the above description, it is evident that the use of the box comprises the steps of pulling the pull tab to remove the perforated portion of the outer wall of the box top, removing the pouring spout from the recess formed by the plurality of layers comprising the box top and thereby exposing the unsealed edge of the box top, exerting pressure on the side walls of the box to open the outlet, to form two V-shaped chutes intersecting at a point within the pouring spout, and to form a V-shaped pouring spout and tilting the container to promote flow of contents through the pouring chutes and pouring spout. After use, the box is sealed by releasing the pressure and folding the pouring spout into the box top recess.

The materials of construction contemplated by the present invention may comprise any sheet material which may be shaped into the structure shown in the drawings and which has sufficient natural resilience to enable portions thereof to be bent along crease lines and to return to the original shape when the bending force is removed. Fiberboard is preferred but this is not to be interpreted as limiting the invention.

The blank which is adapted to form the novel containers will vary according to the desired shape of the finished box, i.e., rectangular, octagonal, etc. However, the common element provided in all the blanks is the provision of body panels joined along bend lines and end panels attached to two opposing sides of the body panels wherein at least one of said body panels and at least one of said end panels is creased, and wherein one of said end panels is provided with a perforated portion having a pull tab attached thereto. Adhesives are to be applied to secure the folded blank, which adhesives will at once be apparent to those skilled in the art. The use of the novel blanks to form the pouring containers may be understood by reference to the drawings.

As seen in FIGURE 1, the crease lines **16** converge at one side of the top wall of the container. The top wall is further provided with a perforated section **14**, the perforations being designated by **24**. A pull tab **12** extends from section **14** and is adapted to be manually engaged to lift the section **14** and thereby tear it from the outer layer **27** of the top wall **8**. Outer layer **27** has flap **10** adhesively secured to side **4** and an identical flap is provided on the opposite side (not shown).

As seen in FIGURE 2, the container may be unsealed by lifting pull tab **12**. The perforated section **14** may be entirely removed or may be left partially attached at **15** as indicated in FIGURES 2 and 3. When this unsealing step has been performed, a creased section **20** is exposed. The crease is indicated at **26**. Section **20** is retained between the remaining portion of outer layer **27** and an inner layer **28**. This inner layer **28** extends continuously across the top wall as seen in FIGURE 3. It is noted that the outlet remains sealed at this point by section **20** which is folded over said outlet. In the normal state, outlet **22** comprises merely an unsealed edge of the top wall, as is best seen in FIGURE 3.

FIGURE 3 depicts the container during a dispensing operation. Manual pressure is applied to the side walls **4** of the container. This manual pressure forces the crease lines **16** in the layers of top wall **8** to form a pouring chute. Crease lines are provided in outer layer **27** and inner layers **28** and **30**, see FIGURE 4. This pouring spout formed by the manually applied pressure has a generally V-shaped configuration and the base of the V has been indicated at **29** in FIGURE 3. The pouring chute formed by the side wall **6** cannot be seen in FIGURE 3. However, the formation is the same as that used to form the chute in the top wall in that manual pressure forces crease lines **18** to yield in a V shape. The pouring spout generally indicated as **20'** is formed by removing section **20** from the recess in the top wall formed between layers **27** and **28**. The manual pressure applied to the side walls **4** not only forms pouring chutes in the top wall **8** and side wall **6**, but also enlarges outlet **22** in a manner similar to that occurring when opening an envelope by pressing on its edges. A V-shaped trough is formed in the pouring spout **20'** along crease line **26**. The bottom of the V-shaped trough in spout **20'** is generally indicated at **26'** in FIGURE 3.

After dispensing, the box may be resealed by releasing the pressure, folding pouring spout **20'** back over the top wall **8** and over outlet **22**, and inserting the pouring spout **20'** into the recess in the top wall **8** formed between layers **27** and **28**. The natural resiliency of the container will force the top wall **8** and side wall **6** back into a planar relationship when the manual pressure is released. The insertion of the pouring spout into the recess in the top wall provides further planar stability in maintaining the top and side walls in their normal planar relationship, thus preventing the inadverent formation of pouring chutes and the inadvertent enlargement of outlet **22**.

The blank used to form the container shown in FIGURES 1 through 3 is illustrated in FIGURE 4. The blank comprises body panels indicated as **4'** and **6'** with flap **34'**. End panels indicated as **27'**, **28'**, **30'**, **32'**, **36'** and **21'** are attached along crease lines of opposing sides of the body panels **4'** and **6'**. In the blank, at least one body panel is provided with alongitudinally creased portion. In FIG. 4, this creased portion is shown in the intermediate panel **6'**. The crease lines are indicated at **18'**. In addition, at least one end panel is provided with longitudinal crease lines. In FIGURE 4, panels **27'**, **28'** and **30'** are provided with longitudinal crease lines indicated at **16'** and panel **21'** is provided with crease line **26'**. Panel **21'** represents the pouring spout of the formed container while panels **27'**, **28'** and **30'** are the layers of the top wall **8**.

Another characteristic of the blank, according to the

present invention, is illustrated in FIG. 4 in the perforated section 14' of the panel 27'. This perforated section comprises portion 14' having pull tab 12' extending therefrom. The darkened portions of the blank of FIGURE 4, such as 32', 34' and 36', indicate portions to which adhesive will be applied during assembly.

To form the box of FIGURES 1 to 3 from the blank of FIGURE 4, all panels are initially bent along the dotted lines. These dotted lines may be formed by scoring the blank during assembly. Next, body panels 4' and 6' are folded up out of the plane of the drawing and toward each other to form a rectangular body having opposed walls 4', 4', and 6', 6'. Flap 34' has adhesive thereon and is folded inside of panel 6' to secure the rectangular body while avoiding placing a part with active adhesive thereon in contact with the container contents. Next, panel 31' is folded inwardly and panels 33' and 35' are folded inwardly on top of panel 31'. Then panel 32' is folded on top of 31' and 33' as well as 35' to close that end of the container. Panel 36' and panels 37' comprise an integral unit which is folded on top of panel 32'. Panels 37' will then be adhered to the lower portions of side walls 6' by means of the adhesive carried thereon. It is noted that panels 37' are cut away from panels 33' and 35' along the lines shown, so that a single sheet may be used to form the blank. The operation seals the bottom of the container. The top is sealed as follows: Panel 30' is folded over the open end, again panel 30' is cut away from panel 27' along the lines shown. Panel 28' is folded over panel 30' with portion 23' being bent into alignment with wall 6'. The panel 21 is folded over panel 28' but not adhered thereto. Finally, panel 27' is folded on top with panels 10' and panel 12' being adhesively secured to the side walls 4' and side wall 6', respectively.

FIGURES 5 through 8 correspond to FIGURES 1 through 4. However, the container depicted in FIGURES 5 through 8 differs in that it is an octagonal container, while the container depicted in FIGURES 1 through 4 is a rectangular container.

FIGURE 5 represents the sealed octagonal container. FIGURE 6 represents the sealed but unused container. FIGURE 7 represents the octagonal container during the dispensing operation and FIGURE 8 represents the blank used to form the octagonal container.

In FIGURE 5 the numeral 40 represents a longitudinal crease line in the side wall 42 which is adapted to form a pouring chute. Crease lines 38 in the top wall 8 represent those lines which enable a pouring chute to be formed in said top wall. It is noted that three crease lines are provided herein while only two were provided in FIGURES1 through 4; the number may vary, of course, as desired, depending on the particular container being formed. Pull tab 12 is attached to portion 14 of the outer layer of the top wall and portion 14 may be removed upon lifting that portion and tearing along perforations 24.

The operations illustrated in FIGURES 6 and 8 correspond to the operation illustrated in FIGURES 2 and 3. Specifically, they show unsealing and dispensing.

The blank of FIGURE 8 comprises body panels 42' and end panels 21', 27', 44' and 46' wherein two panels 42' are creased and the end panels 27', 21', 46' and 48' are creased. Panel 27' is also perforated at 24'.

It is noted that the container, when in an octagonal shape, is provided with a crease line 39 seen in FIGURE 7 as well as the crease line 40 seen in FIGURE 5 so that upon the application of pressure to walls 42', three chutes are formed. This is necessary since the octagonal container has its widest portion at the bottom end, forming a trapezoidal appearance. During dispensing, material must be guided from the larger bottom to the smaller top portion along the three pouring chutes into the pouring spout.

To form the container from the blank of FIGURE 8, all parts are bent along score lines and panels 42' are bent to form a hollow, octagonal body secured by adhesive panel 41'. Then panels 44' are folded upon each other and adhered. Next, panel 48' is bent over the open end of the body; it is noted that panels 48' and 10' are cut along the line shown. Panel 46' is folded on top of panel 48' and adhered. Panel 21' is folded on panel 48' but is not adhered thereto. Then panel 27' is folded over 28' and flaps 10' and 12' are adhered to walls 42'.

From a consideration of the figures and the written description, it will be apparent that the container of the present invention provides a single blank which may be formed into a container having an outlet, a pouring spout, pouring chutes, and means to secure the pouring spout in sealed relationship with the outlet, all of which comprise integral portions of said blank. The container avoids the prior disadvantages of dispensing containers in that no separate elements need be attached to provide a pouring spout or a pouring chute. Also, the container in its normal relaxed state provides planar surfaces which facilitates storage of the container. The container is maintained in this planar state since the pouring spout is retained in a recess in the top wall, thereby strengthening said top wall and preventing inadvertent exposure of the outlet and spillage of the contents. During storage, if the container were accidentally dropped or knocked over, no spillage would result since the pouring spout seals the entire outlet and since the outlet in its relaxed state comprises a mere unsealed edge of a wall rather than an enlarged opening in a wall. During dispensing, no leakage can result since the elements are integral with the body and no material is retained in pouring spouts since the spouts do not exist during inoperative intervals.

All of the above descriptions are intended as being merely illustrative of the novel containers embodied by the invention and none of the limitations set forth are to be interpreted as limitations on the invention but are merely descriptive terms with reference to the specified embodiments.

I claim:

1. A container comprising side walls joined together along longitudinal edges to form a hollow, polygonal body and having end walls formed as extensions of said side walls, a first end wall of the container being completely sealed and a second end wall of said container being sealed along three edges but being unsealed at the fourth edge to provide an opening through which the contents of the container can be poured upon the exertion of manual pressure on the side walls, a pouring spout adjacent the fourth edge and formed by a longitudinally creased, tapered member, which member is integrally joined to one side wall of the container.

2. A container according to claim 1 wherein said second end wall comprises a plurality of layers, one of said layers extending only partially across the top wall and another of said layers extending fully across the top wall whereby a recess is formed, which recess is adapted to receive the end of the pouring spout.

3. The container of claim 2 wherein the second end wall layers are creased to allow a pouring chute to be formed when pressure is applied to the container walls.

4. The container of claim 1 wherein the wall which is integrally joined to the pouring spout is creased to allow a pouring chute to be formed when pressure is applied to the container walls.

5. The container of claim 1 wherein the second end wall comprises a plurality of layers, one of said layers being perforated adjacent the outlet and having a pull tab attached thereto whereby the container is in a sealed condition until the perforated portion is removed by exerting manual force on the pull tab.

6. The container of claim 1 wherein the polygonal body is a rectangular body.

7. The container of claim 1 wherein the polygonal body is an octagonal body and wherein each side is triangular.

8. The container of claim 3 wherein two body panels

forming extensions of said second end wall are longitudinally creased.

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U.S. Cl. X.R.

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