Jan. 11, 1966 R. W. NERENBERG ETAL 3,228,573

DISPENSING CONTAINER

Filed Sept. 22, 1964 3 Sheets-Sheet 1

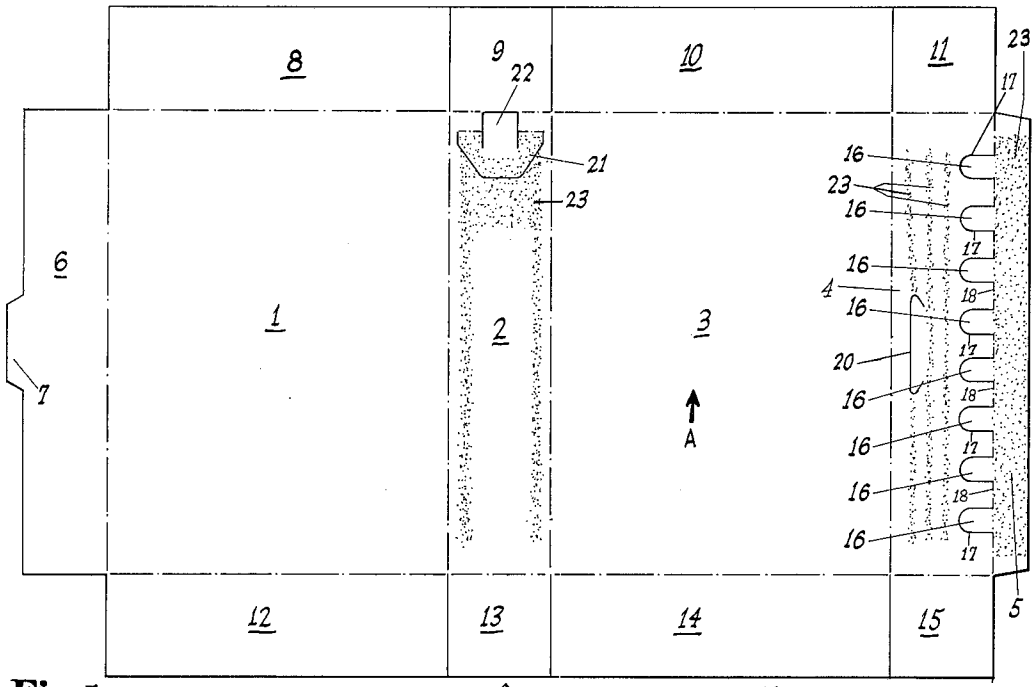

Fig.1

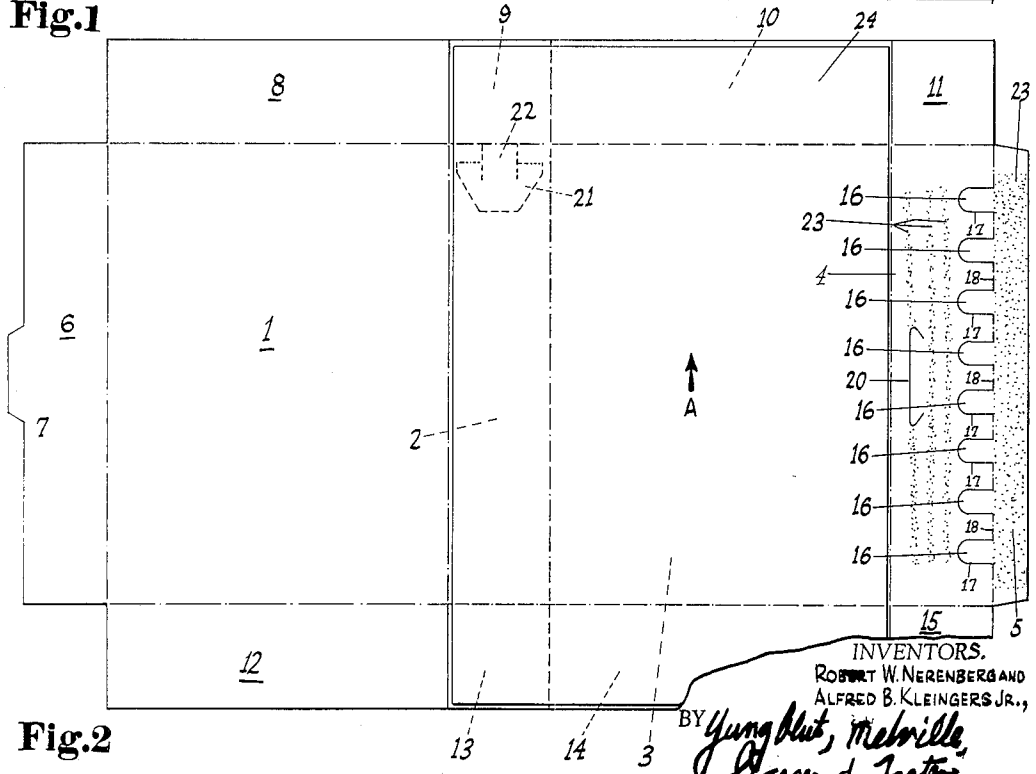

Fig.2

INVENTORS.
ROBERT W. NERENBERG AND
ALFRED B. KLEINGERS JR.,
BY Young Quiat, Melville, Strasser & Foster
ATTORNEYS.

DISPENSING CONTAINER

Filed Sept. 22, 1964 3 Sheets-Sheet 2

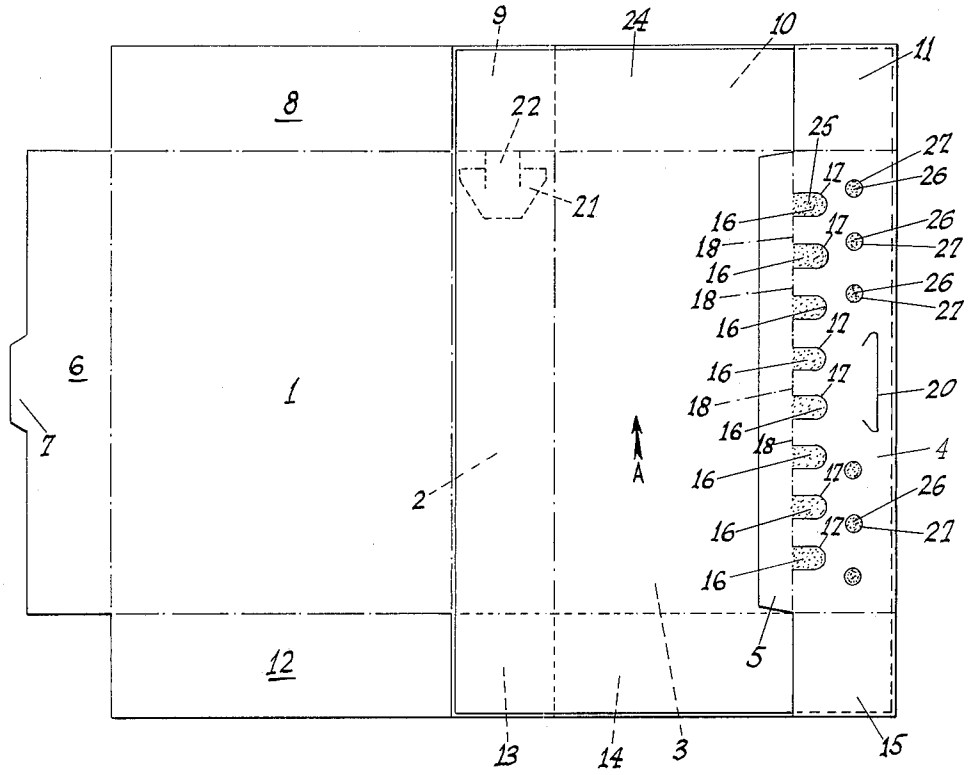

Fig. 3

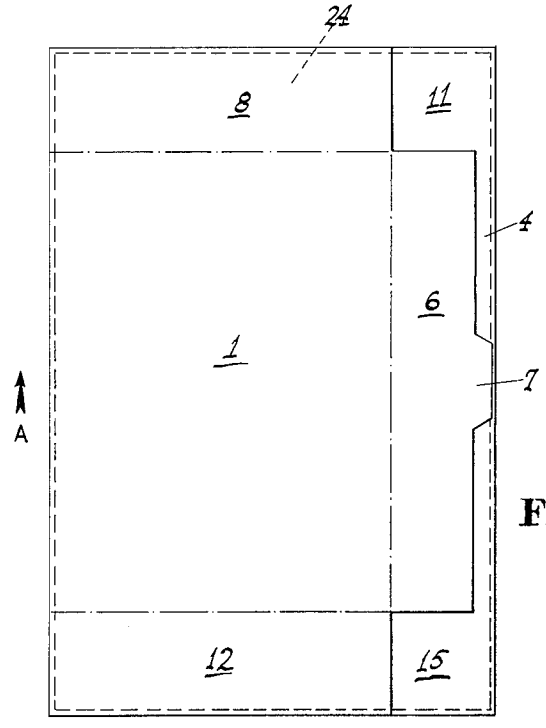

Fig. 4

INVENTORS.
ROBERT W. NERENBERG AND
ALFRED B. KLEINGERS, JR.,
BY Yungblut, Melville, Strasser & Foster
ATTORNEYS.

Jan. 11, 1966 R. W. NERENBERG ETAL 3,228,573

DISPENSING CONTAINER

Filed Sept. 22, 1964 3 Sheets-Sheet 3

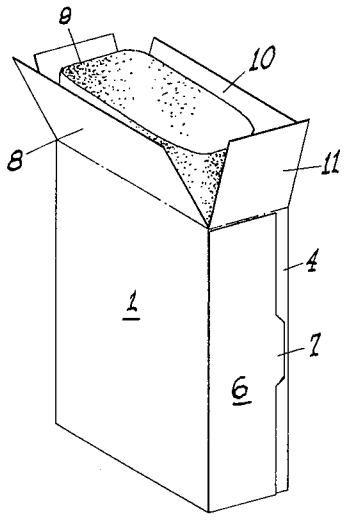

Fig.5

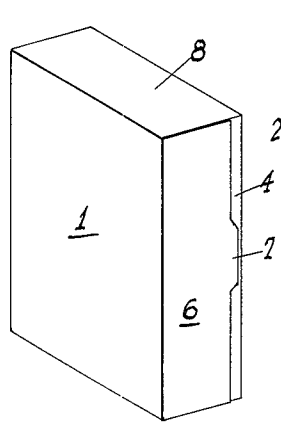

Fig.6

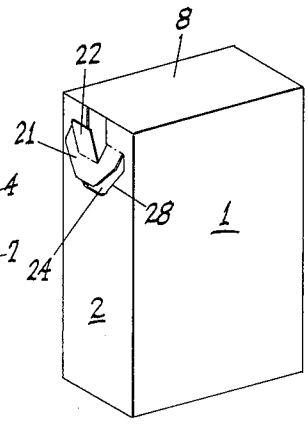

Fig.8

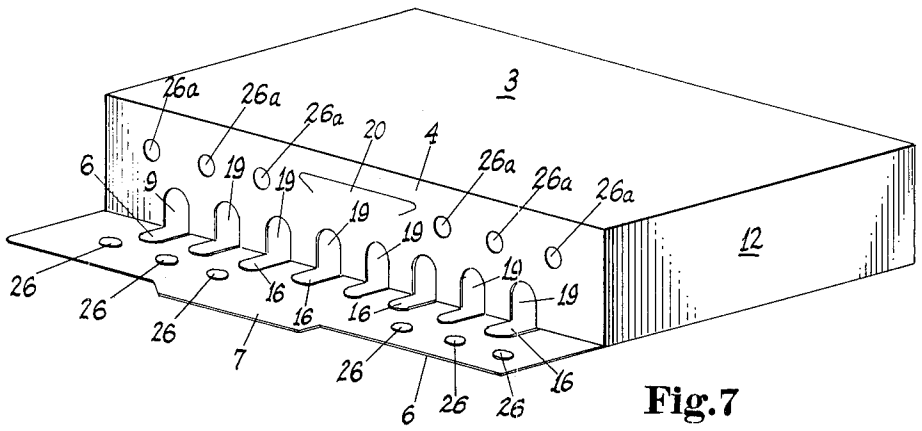

Fig.7

INVENTORS.
ROBERT W. NERENBERG AND
ALFRED B. KLEINGERS JR.,
BY Yunglaut, Melvill, Strasser & Foster
ATTORNEYS.

United States Patent Office

3,228,573
Patented Jan. 11, 1966

3,228,573

DISPENSING CONTAINER

Robert W. Nerenberg and Alfred B. Kleingers, Jr., Middletown, Ohio, assignors to The Interstate Folding Box Company, Middletown, Ohio, a corporation of Ohio

Filed Sept. 22, 1964, Ser. No. 398,235
8 Claims. (Cl. 222—485)

This invention relates to paperboard containers and more particularly to a container which may be utilized to dispense and spread its contents in an essentially uniform and even manner.

The container of the instant invention will find particular utility in the handling of diverse products such as grass seed, plant food, fertilizer, weed killer and the like intended to be evenly spread over a relatively large area. While such materials have heretofore been packaged in paperboard containers, it was necessary to either deposit the contents of the container in a mechanical spreader for even distribution or else dispense the contents by hand. Even distribution is difficult to obtain when dispensing by hand, and in addition requires the physical handling of the product itself, which is objectionable to some persons.

A principal object of the instant invention is the provision of a one-piece knock-down container structure incorporating dispensing means which permit the contents of the containers to be spread in an essentially even and uniform manner without the user having to physically handle the contents.

Still a further object of the instant invention is the provision of a dispensing container of the character described wherein the dispenser is an integral part of the carton body, the arrangement of parts being such that the raising of a flap automatically acts to open a series of dispensing openings by means of which the contents may be discharged, the liftable flap when open additionally serving as a spreader bar coacting with the openings to discharge the contents in a uniform and even manner.

Still a further object of the invention is the provision of a dispensing container of the character described which may be employed with or without a liner, depending upon the nature of the packaged material. For example, if the material readily absorbs moisture, the container may be lined with a material which will serve to proof the contents against moisture. Similarly, a liner may be employed where the material being packaged would tend to discolor or soil the container.

Still a further object of the invention is the provision of a dispensing container which, in addition to the dispensing means for spreading the material, is provided with a second dispensing opening by means of which the contents of the container may be readily dispensed in bulk without the spreading feature.

Still another object of the invention is the provision of a dispensing container of the character described which is of relatively simple and inexpensive construction and of such character that it can be readily fabricated using conventional carton handling and filling equipment.

The foregoing together with other objects of the invention which will appear hereinafter or which will be apparent to the skilled worker in the art upon reading this specification, are accomplished by that construction and arrangement of parts of which an exemplary embodiment shall now be described.

Reference is now made to the accompanying drawings wherein:

FIGURE 1 is a plan view of a one-piece carton blank for a dispensing container in accordance with the instant invention, the view also showing the application of adhesive to parts of the carton blank as an initial step in the folding and gluing operations.

FIGURE 2 is a plan view similar to FIGURE 1 but illustrating the application of a tubular liner to the blank.

FIGURE 3 is also a plan view illustrating the infolding of one end of the blank to overlie the liner.

FIGURE 4 is a plan view illustrating the assembled carton in the flat-folded or knocked-down condition.

FIGURE 5 is a perspective view illustrating the erected container with one end closed and sealed and the remaining end opened for filling.

FIGURE 6 is a perspective view illustrating the filled and sealed container in condition for shipment and storage.

FIGURE 7 is a perspective view illustrating the container in dispensing position.

FIGURE 8 is a perspective view showing the opposite side of the container which contains a pouring spout for the bulk discharge of the contents.

Referring first to FIGURE 1 of the drawings, the container blank will be formed from paperboard or boxboard which has been cut and scored to define enclosing body walls **1**, **2**, **3** and **4** in side-by-side articulation, the body wall **4** terminating along its free side edge in a narrow attachment flap **5**. A dispenser flap **6** is hingedly connected to the free side edge of body wall **1**, the flap **6** being of a width somewhat less than the width of the opposing body walls **2** and **4** and having an outwardly projecting locking tongue **7**. Preferably, the combined widths of the dispensing flap **6** and locking tongue **7** will be no greater than the width of body wall **4** which they are adapted to overlie.

End closure flaps **8**, **9**, **10** and **11** are hingedly connected to the upper ends of the body walls **1**, **2**, **3** and **4**, respectively; and similarly, end closure flaps **12**, **13**, **14** and **15** are hingedly connected to the opposite ends of the said body walls. A series of U-shaped tabs **16** are formed in the body wall **4** by lines of cut **17**, the tabs having their base edges **18** connected to the attachment flap **5** so as to be integral therewith. Preferably, however, the edges **18** will be defined by lines of slit which do not pass entirely through the thickness of the boxboard but nonetheless facilitate the displacement of the tabs from the plane of the body wall **4** in the manner to be hereinafter explained. The displacement of the tabs defines a series of dispensing openings **19** (see FIGURE 7) extending lengthwise of body wall **4** immediately adjacent dispenser flap **6**. The number of such dispensing openings does not constitute a limitation on the invention, although preferably the openings will extend throughout essentially the full length of body wall **4** at spaced apart intervals.

The body wall **4** also contains an elongated slot **20** which is of a size to receive the locking tongue **7** forming a part of dispenser flap **6**. In addition, body wall **2** is preferably provided with a pouring spout **21** having a lift tab **22** by means of which the spout may be opened where it is desired to discharge the contents in bulk. Such pouring spout does not constitute a limitation on the invention, although it may be conveniently constructed in accordance with the teachings of U.S. Patent No. 2,820,585,

issued January 21, 1958 and entitled Pouring Opening For Containers.

The carton blank just described may be readily folded and glued to form a knocked-down structure by advancing it through conventional carton folding and gluing equipment, the blank being moved in the direction of the arrow A seen in FIGURES 1 through 4. As the initial step in its fabrication, areas of adhesive are applied to the body walls **2** and **4**, and to attachment flap **5**. In the drawings, the areas of adhesive are indicated by shaded lines **23**. It will be noted that while adhesive is applied to the pouring spout structure **21**, the liftable tab **22** remains free of adhesive, as do the U-shaped tabs **16**. A tubular liner **24**, as seen in FIGURE 2, is then deposited on the blank so as to overlie the body walls **2** and **3**. Preferably, the tubular liner will be open at both ends and will be of a length such that it will overlie not only the body walls **2** and **3** but also the end closure flaps **9**, **10** at the uppermost end of the blank and the closure flaps **13** and **14** at the lowermost end thereof. The liner will be caused to adhere to body wall **2** by reason of the adhesive thereon, and the liner will also be adhered to the pouring spout structure **21** excepting for the pull-tab **22**. The material from which the liner is formed does not constitute a limitation on the invention. It may be formed from diverse materials, such as non-fibrous films and laminates composed of paper and foil which in turn may be coated or uncoated. If desired, the liner may be closed across its lowermost end prior to its association with the container blank, although preferably the lowermost end will be sealed and infolded subsequent to the erection of the container body.

Subsequent to the deposit of the liner on the blank, the body wall **4** and the flaps connected thereto will be infolded to the position illustrated in FIGURE 3, thereby bringing the adhesive areas on the body wall **4** and attachment flap **5** into contact with the underlying portions of the liner. At this juncture, adhesive is applied to the upper surfaces of the tabs **16**, as indicated by the shaded areas **25** in FIGURE 3; and at the same time spots of adhesive **26** are applied to the uppermost surface of body wall **4** in areas lying beyond the outermost ends of the tabs **16**. Preferably the spots of adhesive **26** will lie within the confines of circular cuts **27** which puncture the surface of the paperboard blank but do not extend completely therethrough.

Following the application of adhesive to the uppermost surface of body wall **4**, the opposite side of the blank is infolded along the line of articulation of body walls **1** and **2**, thereby bringing the parts to the condition illustrated in FIGURE 4 wherein it will be seen that the dispenser flap **6** has been juxtaposed to body wall **4**, thereby causing the dispenser flap to be adhesively secured to the tabs **16** and to the remainder of body wall **4** in the areas of the adhesive spots **26**. The structure is thus tubed and in its knocked-down or flat-folded condition in which it may be shipped and stored prior to erection and filling.

In the hands of the packager, the container structure is erected by expanding the now tubed body walls which acts to simultaneously expand the liner, whereupon the lowermost end of the liner is sealed and infolded, followed by the infolding and sealing of the closure flaps **12**, **13**, **14** and **15**. The container structure is then positioned with the closed and sealed end lowermost, as seen in FIGURE 5, whereupon the contents is introduced into the container through the open upper end. The remaining end of the liner is then sealed and infolded together with the closure flaps **8**, **9**, **10** and **11**, which are sealed together to complete the package. The erected and sealed package is illustrated in FIGURE 6. The package is then ready for distribution and sale to the ultimate consumer.

If the consumer wishes to utilize the package as a spreader to dispense the contents in an essentially uniform and even manner, the user grips the tongue **7** and lifts upwardly on the dispenser flap **6** so as to cause the flap **6** to separate from the underlying body wall **4**. In this connection, it will be remembered that the dispenser flap is secured to the underlying body wall only in the areas of the adhesive spots **26** and the tabs **16**. The circular lines of cuts surrounding the adhesive spots **26** permit the enclosed areas of boxboard to readily tear away from the body wall **4**; and the dispenser flap also causes the tabs **16** to be displaced from the plane of the body wall and hence serve to define the dispensing openings **19**. The dispensing position of the container is seen in FIGURE 7 wherein it will be seen that the adhesive spots **26** have torn away from body wall **4**, leaving surface areas of the boxboard ruptured, as indicated at **26***a*. At the same time, the tabs **16** remain adhered to dispenser flaps **6** and the dispensing openings **19** are fully exposed. The portions of the liner underlying the openings **19** can be readily punctured to permit the contents to flow through the dispensing openings. As the contents flow through the openings, it will pass over the dispenser flap which acts as a spreader bar to effectively distribute the contents as a relatively thin layer. If less than the full contents of the container is dispensed, it may be readily reclosed by infolding the dispenser flaps **6** and inserting locking tongue **7** in slot **19**.

In the event the user wishes to discharge the contents in bulk or in a concentrated area, the pouring spout structure **21** may be opened by pushing inwardly on the part **21**, which breaks away from the body wall **2** and also punctures the underlying portion of the liner, whereupon the pull tab **22** is utilized to withdraw the pouring spout, thereby defining the bulk dispensing opening **28** seen in FIGURE 8. The opening **28** may be reclosed by folding the body of the structure inwardly until it re-enters the opening.

The instant invention thus provides a dispensing container ideal for diverse products, especially those which need a large spout for quick discharge in a concentrated area and also controlled spreading for large areas. The construction for the container is such that the dispenser flap may be readily opened when it is desired to use the spreader openings, whereupon the protective liner may be easily punctured by any sharp object. The tabs **16** which define the dispensing openings also serve to reinforce and strengthen the dispenser flap **6** so that it will extend freely outwardly to serve as a spreader bar even under the weight of the contents as it is shaken from the container. The tabs additionally serve as attachment means for effectively connecting the adjoining edges of body walls **1** and **4**. That is, in the preferred embodiment of the invention the attachment flap **5** is not secured to adjoining body wall **1**; rather, it remains unsecured—although it may be secured on its inner surface to the liner—and it is the tabs **16** which effectively serve to join the body walls together. Such arrangement has been found to be particularly advantageous in the larger sizes of containers which utilize relatively heavy boxboard. Where the attachment flap of the container is adhesively secured to the adjoining body wall, as in conventional carton construction, the erection of the flat-folded blank places the dispenser flap under considerable strain due to the multiple thickness of board along the corner edge of the container between the body walls **1** and **4**. This strain tends to cause the dispenser flap to move or slip relative to the body wall **4** to which it is secured and hence tends to break the seals formed by the spots of adhesive **26**. Such condition is alleviated by utilizing the tabs **16** to effectively join the body walls **1** and **4** together since, where this is done, the spaced apart arrangement of the tabs allows sufficient flexibility or "give" in the connection between body walls **1** and **4** to alleviate the strain on the dispenser flap when the container body is erected.

Modifications may, of course, be made in the invention without departing from its spirit and purpose. For example, the dispensing container may be used without

the liner where the nature of the product permits such use. Similarly, there will be instances wherein the size of the carton and the weight of the board from which it is formed will permit the adhesive attachment of the attachment flap to the adjoining body walls.

It also may be pointed out that the application of adhesive to the upper surfaces of tabs **16** as well as the adhesive spots **26** may cause registry problems, particularly in a high speed folding and gluing operation. In such event, the adhesive areas **17** and **26** may be replaced by two longitudinal strips of adhesive on the upper surface of dispenser flap **6** oriented to overlie the tabs **16** and circular cuts **27** when the dispenser flap **6** is juxtaposed to body wall **4**, as seen in FIGURE 4. Where this is done, body wall **4** will be printed with an adhesive repellant ink excepting in the areas of tabs **16** and circular cuts **27**. Thus, when the adhesive stripes on the dispenser flap **6** contact body wall **4**, they will adhere to the unprinted tabs and circular cuts but not to the printed areas constituting the remainder of the body wall **4**. Such expedient eliminates the registry control problem otherwise encountered.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A dispensing container formed from a one-piece paperboard carton blank having first, second, third and fourth body walls in side-by-side articulation in the order named, a dispenser flap hingedly connected to the free side edge of said first body wall, an attachment flap hingedly connected to the free side edge of said fourth body wall, a plurality of displaceable tabs formed in said fourth body wall, said tabs lying in spaced apart relation lengthwise of said fourth body wall with their base edges coinciding with the hinged connection between said fourth body wall and said attachment flap, whereby said tabs are hingedly connected to said attachment flap, said container being assembled with said dispenser flap overlying said fourth body wall with its line of hinge connection to said first body wall overlying the line of connection of said attachment flap to said fourth body wall, said dispenser flap being adhesively secured to said fourth body wall within the areas of said displaceable tabs, said dispenser flap being detachably secured to areas of said fourth body wall outside the areas of said displaceable tabs, whereby, when it is desired to dispense the contents of the container, outward displacement of said dispenser flap relative to said fourth body wall will result in the outward displacement of said displaceable tabs to define dispensing openings which coact with said dispenser flap to provide a spreader by means of which the contents of the container may be dispensed over a large area in an essentially even and uniform manner.

2. A dispensing container claimed in claim **1** wherein said dispenser flap has a locking tongue projecting outwardly from the free side edge thereof, wherein the combined width of said dispenser flap and said locking tongue is no greater than the width of said fourth body wall, and wherein said fourth body wall has a slit therein positioned to receive said locking tongue upon reclosure of said dispenser flap.

3. The dispensing container claimed in claim **2** wherein a pouring spout structure is formed in a wall of said container other than said fourth wall, said pouring spout structure providing a means for the bulk discharge of the contents of said container.

4. A dispensing container formed from a one-piece paperboard carton blank having first, second, third and fourth body walls in side-by-side articulation in the order named, a dispenser flap hingedly connected to the free side edge of said first body wall, an attachment flap hingedly connected to the free side edge of said fourth body wall, a plurality of displaceable tabs formed in said fourth body wall, said tabs lying in spaced apart relation lengthwise of said fourth body wall with their base edges coinciding with the hinged connection between said fourth body wall and said attachment flap, whereby said displaceable tabs are hingedly connected to said attachment flap, said container being assembled with said dispenser flap overlying said fourth body wall with its line of hinged connection to said first body wall overlying the line of connection of said attachment flap to said fourth body wall, said dispenser flap being adhesively secured to said fourth body wall within the areas of said displaceable tabs, said dispenser flap being detachably secured to areas of said fourth body wall lying outside the areas of said displaceable tabs, and a tubular liner disposed within said body walls and juxtaposed to the inner surfaces thereof, whereby, when it is desired to dispense the contents of the container, outward displacement of said dispenser flap relative to said fourth body wall will result in the outward displacement of said tabs to define dispensing openings through which portions of the underlying liner are exposed which may be punctured to provide a spreader by means of which the contents of the container may be dispensed over a large area in an essentially even and uniform manner.

5. The dispensing container claimed in claim **4** wherein said attachment flap underlies the free side edge of said first body wall and is free from attachment thereto, said first and fourth body walls being effectively connected together by means of the adhesive engagement between said dispenser flap and said tabs.

6. The dispensing container claimed in claim **5** wherein said dispenser flap is detachably secured to said fourth body wall by means of spaced apart spots of adhesive which are adapted to be ruptured when said dispenser flap is opened.

7. The dispensing container claimed in claim **6** wherein a locking tongue projects outwardly from the free side edge of said dispenser flap, wherein the combined width of said dispenser flap and said locking tongue is no greater than the width of said fourth body wall, and wherein said fourth body wall has a slot therein positioned to receive and engage said locking tongue upon reclosure of said dispenser flap.

8. A dispensing container formed from a one-piece carton blank having first, second, third and fourth body walls in side-by-side articulation in the order named, a dispenser flap hingedly connected to the free side edge of said first body wall, an attachment flap hingedly connected to the free side edge of said fourth body wall, a plurality of displaceable tabs formed in said fourth body wall, said tabs having their base edges coinciding with the hinged connection between said fourth body wall and said attachment flap, whereby said tabs are connected along their base edges to said attachment flap, said displaceable tabs lying in spaced apart relation lengthwise of said fourth body wall and acting, when displaced from said fourth body wall, to define a plurality of dispersing openings through which the contents of the container may be dispensed, said container being assembled with said dispenser flap overlying said fourth body wall and adhesively secured thereto in the areas of said tabs, said dispenser flap being detachably secured to areas of said fourth body wall lying beyond said tabs by means of spaced apart spots of adhesive which are adapted to be ruptured when said dispenser flap is opened, said attachment flap underlying the free side edge of said first body wall and being free from attachment thereto, said first and fourth body walls being effectively connected together by means of the adhesive engagement between said dispenser flap and said tabs, a locking tongue projecting outwardly from the free side edge of said dispenser flap, the combined width of said dispenser flap and said locking tongue being no greater than the width of said fourth body wall, said fourth body wall having a slot therein positioned to receive and engage said locking tongue upon reclosure of said dispenser flap, a tubular liner disposed within said body walls and juxtaposed

to the inner surfaces thereof, whereby, when it is desired to dispense the contents of the container, said dispenser flap may be opened so as to expose portions of the liner underlying said tabs, whereupon the exposed portions of the liner may be punctured to provide a spreader by means of which the contents may be dispensed over a large area in an essentially even and uniform manner, and a pouring spout structure formed in said second body wall adjacent one end thereof, said pouring spout structure including a body part adhesively secured to the underlying portion of said liner, and a lift tab which is free from attachment to said liner, whereby said body part may be displaced inwardly to rupture said liner, whereupon said tab may be used to withdraw the body part to define a dispensing opening through which the contents of the container may be dispensed in bulk in a concentrated area

References Cited by the Examiner

UNITED STATES PATENTS

2,330,666	9/1943	Berkowitz.	
2,361,408	10/1944	Moore	229—14
2,365,159	12/1944	Walter et al.	229—17 X
2,760,712	8/1956	Kuchenbecker	229—51
2,820,585	1/1958	Nerengerg et al.	229—17
3,015,432	2/1962	Tyrseck	229—51 X
3,071,304	1/1963	Brostal	229—14
3,113,713	12/1963	Green	229—51
3,154,225	10/1964	Wadlinger et al.	222—485

JOSEPH R. LECLAIR, *Primary Examiner.*

D. T. MOORHEAD, *Assistant Examiner.*