

Oct. 16, 1956

G. A. MOORE

2,766,922

DISPENSING CLOSURE FOR CONTAINERS

Filed June 21, 1954

3 Sheets-Sheet 1

FIG. 1

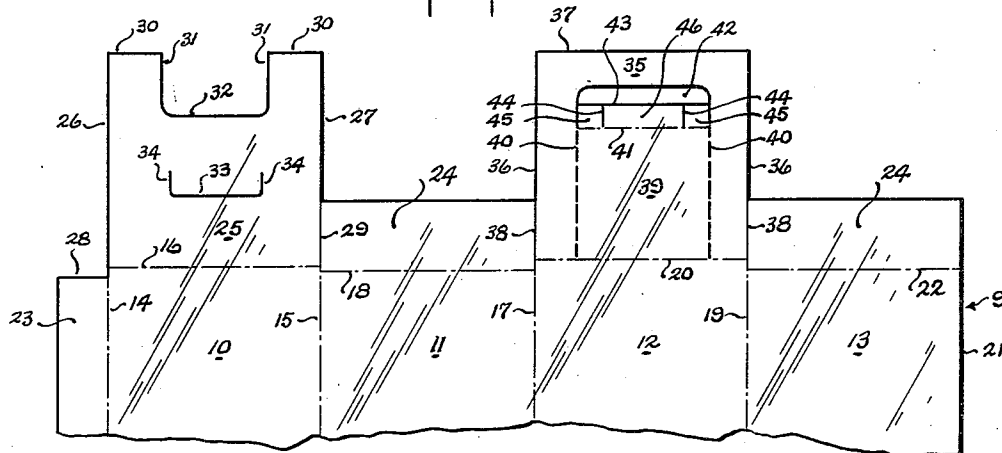


Fig. 2

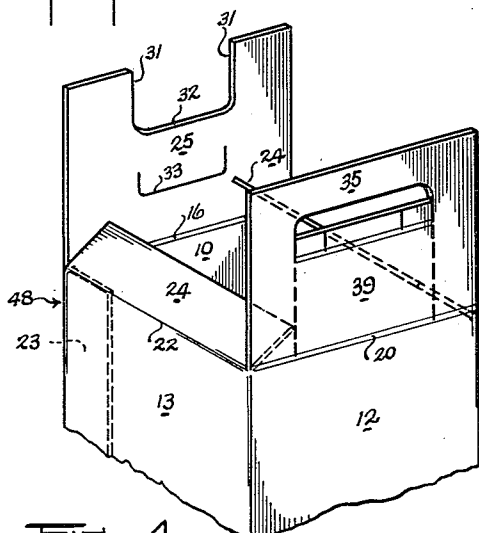


FIG. 3

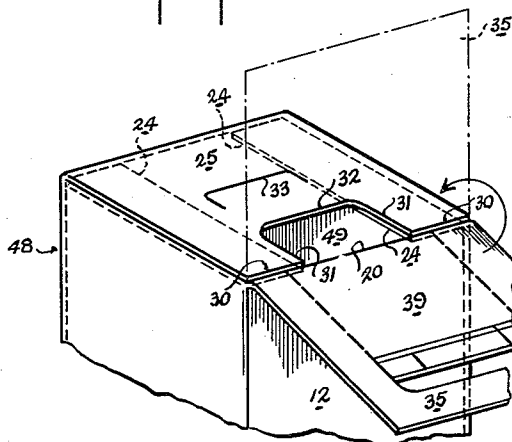


FIG. 4

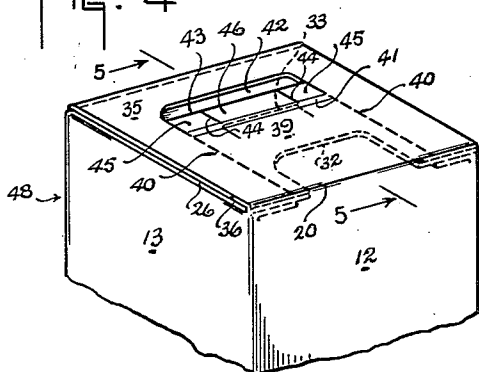
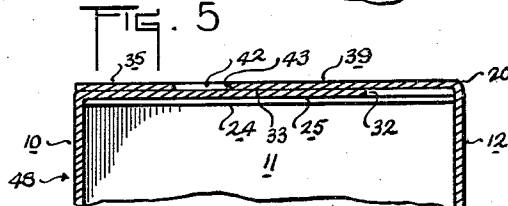


FIG. 5



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FIG. 7

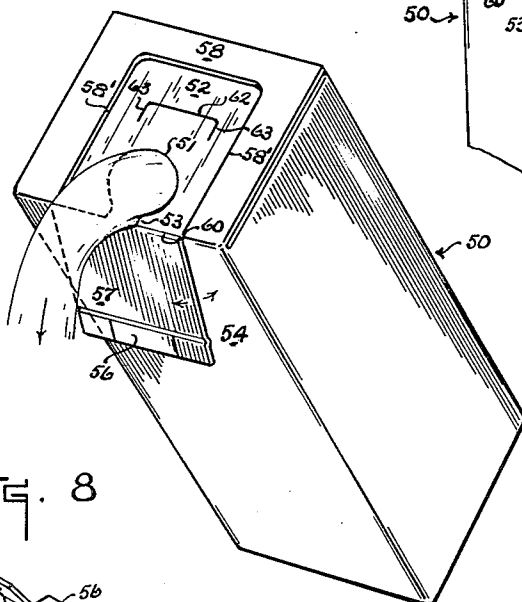


FIG. 6

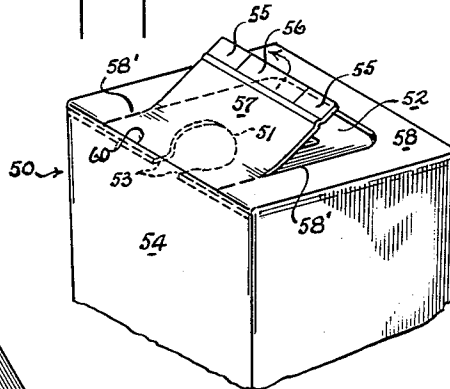


FIG. 8

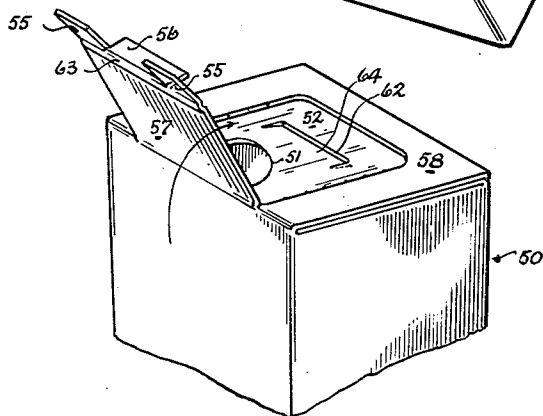


FIG. 9

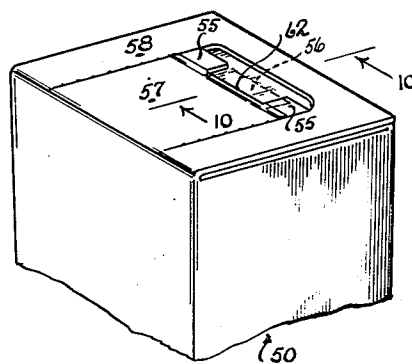
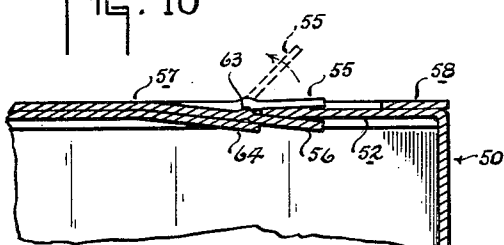


FIG. 10



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FIG. 11

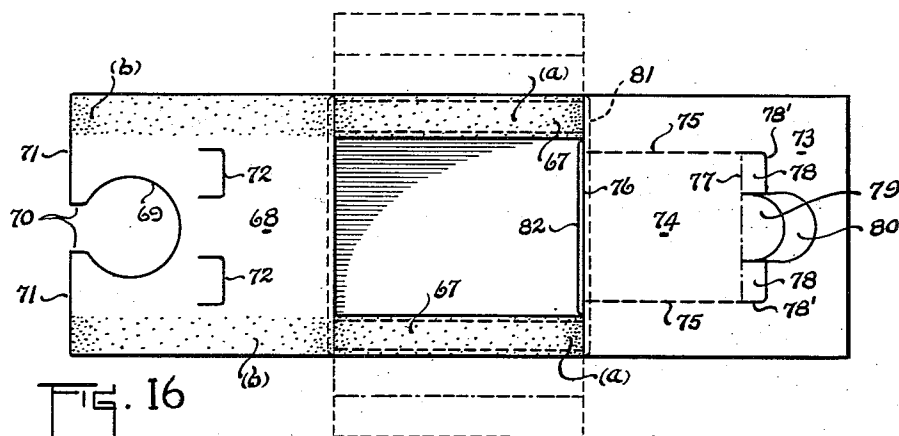


FIG. 16

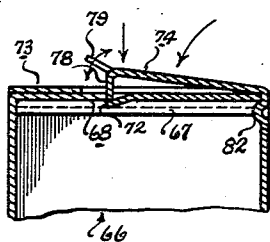


FIG. 12

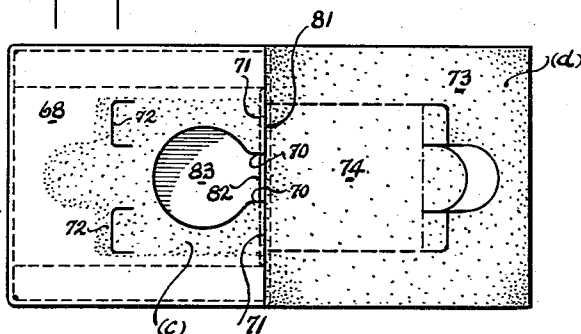


FIG. 13

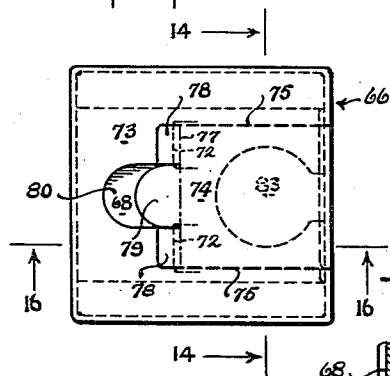


FIG. 14

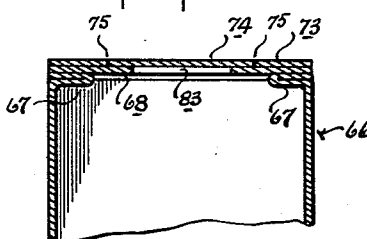
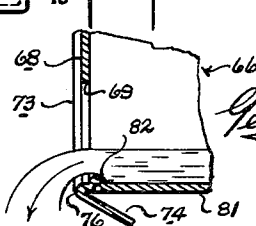


FIG. 15



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DISPENSING CLOSURE FOR CONTAINERS

George Arlington Moore, New York, N. Y.

Application June 21, 1954, Serial No. 438,092

9 Claims. (Cl. 229—17)

This invention pertains to an arrangement of folded parts of a container that provides an efficient and hygienic dispensing closure for the container with novel means for dispensing powdered, granular, solid particles or liquid products from the container in a sanitary and convenient manner, the invention also providing means with which the container may be opened and reclosed in retained position by simple and convenient manual manipulation.

The dispensing closure of the present invention is adaptable for various types of paper containers including folding cartons that are made suitable for distribution of powdered or granular products or adapted to containers that are made suitable for viscous or liquid products.

One of the objects of the present invention is to provide folding carton type containers with a closure dispensing arrangement that affords convenience for opening the carton to remove portions of the contents thereof and provide facilities to reclose the carton effectively in secured closed position.

Another object of the invention is to provide a liquid dispensing closure arrangement for paper containers whereby the liquid from the container during the dispensing thereof pours in such manner that liquid particles are shielded from fouling any wall portions of the container.

A further object of the invention is to provide containers made of fibrous material with a flat wall closure adapted with a dispensing sub-closure whereby the openable part thereof may be used for efficient dispensing of the container contents, the wall surfaces of the sub-closure being substantially free from exposure of soft nap liquid absorbing fibres adjacent the dispensing orifice of the container.

A still further object of the invention is to provide containers for liquids with a dispensing closure arrangement having a novel orifice and means adjacent the said orifice to control the flow of liquid in a novel manner.

Another object of the invention is to provide a dispensing closure arrangement in containers that provides a shield under the stream of the dispensed product to prevent any fouling of container contents upon wall portions of the container while dispensing therefrom.

A further object of the invention is to provide containers with dispensing means that will direct the contents therefrom over a portion of a corner extremity of one side wall of the container.

Another object of the invention is to provide folding cartons and other types of containers having foldable closures with adaptations of a sanitary dispensing closure arrangement that may be formed by existing machinery that forms and closes such containers.

And a further object of the present invention is to provide disposable paper containers with a dispensing aperture that is initially sealed in a sanitary manner, the sealed wall portion of the aperture being adapted to open outwardly and under the adjacent path of the dispensed product of the container, the aperture facilitating the

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emptying of the container without trapping any contents therein.

These and other objects will be evident upon a consideration of the following description of the preferred embodiments of the invention and by reference to the accompanying drawings, in which

Fig. 1 is a plan view of a fragmentary portion of one form of blank that may be used to fold a container having an embodiment of the dispensing closure of the present invention.

Fig. 2 is a fragmentary view in perspective of the container as formed of the blank of Fig. 1 and showing the arrangement of closure forming wall members, the main closure forming panels being disposed in up-right position.

Fig. 3 is a fragmentary view in perspective showing a top portion of the container of Fig. 2 with parts of the closure in folded relationship, one panel being folded outwardly and downwardly of its normal position to show the relationship of the dispensing orifice with an adjacent side wall of the container.

Fig. 4 is a fragmentary view in perspective of the container of Fig. 2 showing an embodiment of the completed dispensing closure in accordance with the present invention.

Fig. 5 is an enlarged view of the closure in cross-section taken on line 5—5 in Fig. 4.

Fig. 6 is a fragmentary view in perspective of a container for liquids showing a slightly modified embodiment of the dispensing closure in an intermediate stage of being opened.

Fig. 7 is a perspective view of the container in tilted position showing the dispensing closure open and the liquid contents of the container being dispensed therefrom.

Fig. 8 is a fragmentary view in perspective of the container in up-right position just prior to being re-closed after having dispensed a portion of its contents.

Fig. 9 is another fragmentary view in perspective of the container with its dispensing closure opening member in re-closed and mechanically locked position.

Fig. 10 is a fragmentary view of the container in cross-section taken on line 10—10 in Fig. 9 showing the locking arrangement of the re-closure within the main closure of the container.

Fig. 11 is a plan view showing the open mouth of a modified container having a pair of closure forming panels folded inwardly of the side walls and another pair of the closure forming panels opened outwardly of the container side walls.

Fig. 12 is a plan view of the top of the container showing one of the closure forming panels in folded position over the mouth of the container and overlapping the first folded panels, the dispensing orifice being disposed in proper position.

Fig. 13 is a plan view of the completed closure constituting an embodiment of the invention.

Fig. 14 is a fragmentary view of the container closure in cross-section taken on line 14—14 in Fig. 13.

Fig. 15 is a fragmentary view of the container in cross-section taken through the center of the dispensing orifice, the container being disposed in horizontal position with liquid pouring through the orifice, and

Fig. 16 is a fragmentary view of the closure in cross-section taken on line 16—16 in Fig. 13 showing the mechanics of the re-closure arrangement.

An embodiment of the novel dispensing closure comprehended by the present invention is illustrated as being adapted to folding carton type containers. Various forms of blanks used for forming folding cartons may be easily modified to form the dispensing closure without necessitating any substantial alteration in the general equipment and conventional methods employed for fabricating and closing such containers.

Conventional folding cartons are made with various forms of dispensing arrangements embodied in the carton which is intended for the convenience of the consumer in removing the contents of the carton. Such forms of dispensing arrangements however are difficult to open, and when opened the cartons are usually not re-closed efficiently due to the inherent springing characteristics of the paper board material of which the cartons are made. When the cartons are opened they invariably remain partially open as they invariably lack proper means with which to effectively reclose them.

The present invention contemplates improvements that provides a tightly sealed sanitary dispensing closure that may be easily opened with the fingers for efficient dispensing purposes, the closure arrangement providing means to lock the reclosed carton in an effective manner.

The blank 9 of Fig. 1 illustrates a simple form of a cut and creased carton forming blank provided with closure forming panels modified in accordance with the invention. The lower half of the blank (not shown) may be provided with plain flaps with which to form the bottom closure of the carton. The body side walls of the carton are formed of the panels 10, 11, 12 and 13. Panel 10 is defined with a pair of parallel longitudinal crease lines 14, 15 and a pair of transverse horizontal crease lines 16. Along side of panel 10 is panel 11 defined with longitudinal parallel crease lines 15, 17 and a pair of horizontal parallel crease lines 18. Along side of panel 11 is panel 12 defined with longitudinal parallel crease lines 17, 19 and a pair of horizontal parallel crease lines 20. Along side of panel 12 is panel 13 defined as being outwardly of the longitudinal crease line 19 and having an outer longitudinal side edge 21 and a pair of horizontal crease lines 22. Panel 10 is provided with an outwardly extended marginal wall portion 23, the margin being disposed outwardly of crease line 14.

The horizontal crease lines 18, 22 are disposed in linear alignment. Each crease line 16 is disposed upwardly of crease line 18. Each crease line 20 is disposed upwardly of both the crease lines 18, 22 and crease line 16. Side wall forming panels 11, 13 are each provided with a pair of opposing foldable end flaps 24 extending upwardly of crease lines 18 and 22 respectively. Panel 10 is provided with a closure forming panel 25 which extends upwardly of crease line 16. The panel 25 is defined with parallel side edges 26, 27, the outer side edge 26 having a lower junction with the transversely disposed end edges 28 of the marginal portion 23 of the blank. Each of the edges 28 are disposed inwardly of crease lines 16. A lower portion of the opposing side edge 27 is separated from the adjacent end flap 24 with a slit line 29 which terminates at the crease line 18. Panel 25 is further defined as having separated end side edges 30 disposed in straight linear alignment. A substantially central U-shape slot is cut from an end portion of the panel 25 the slot having parallel side edges 31 and a horizontal base end edge 32. The said panel is also provided with a U-shape slit wall portion having a base slit line 33 which joins a pair of opposed right angular slit lines 34. The U-slit wall portion in the panel 25 is located substantially central of the side edges 26, 27 of the panel and downwardly of the base end edge 32 and upwardly of the crease line 16 which defines the base folding junction of the panel.

Side wall forming panel 12 in the blank is provided with a closure forming panel 35 which extends upwardly of crease line 20. The panel is defined with a pair of parallel side edges 36 and an end edge 37, the lower portions of the edges 36 being separated from the adjacent end flaps 24 with slit lines 38 which terminate at the crease lines 18, 22 respectively. The panel 35 is provided with a partially severable inner disposed sub-panel 39 defined with a pair of parallel perforated cut lines 40 which extend upwardly from crease line 20 and terminate at crease line 41 which is disposed transversely between the

said perforated lines 40. A slot 42 is cut through the panel 35, the lower side edge 43 thereof defining the outer end edge of the sub-panel portion 39. A pair of vertically opposed slit lines 44 extend downwardly of the end edge 43 and terminate substantially at the traverse crease line 41. The vertical slit lines sub-divides an end portion of the inner disposed sub-panel 39 to provide a pair of opposing end tabs 45 and a centrally disposed end tab 46. The outer sides of the tabs 45 are slit with whole lines extending upwardly of the perforated lines 40.

The surface of the blanks for forming the cartons may be coated with protective material such as lacquer or other resinous liquid solutions. Alternatively, they may be laminated with pellicle material such as aluminum foil, vinyls, polyethylene or other suitable web or film. The treating of the blanks may be processed in rolls or sheets before the blanks are cut. Usually the blanks are printed before being cut from the rolls or sheets. In some cases and for special purposes the blanks may be sprayed with liquid plastic dispersions after being printed, cut and creased.

The blank 9 may be folded by the usual conventional carton folding machinery which will fold the blanks at a high rate of speed on crease line 15, then on crease line 19 which brings the marginal portion 23 in overlapping relationship against a portion of the panel 12. The marginal portion 23 receives a deposit of suitable adhesive just prior to the folding operation to be used to unite a marginal portion of the folded panel 13 which overlaps the said adhesive coated margin which unites the said margins together to constitute a longitudinal body seam of the folded carton. Blanks that have been treated with plastic coating material require an adhesive that will be compatible with such coating in order to form a strong bond for the said longitudinal seam of the carton. The folded cartons in collapsed form are usually shipped in this condition to packers. Various types of carton set-up machinery are used by packers which opens the body of the carton and closes the bottom end thereof just prior to the filling operation.

The carton 48 of Fig. 2 is illustrated as having been shaped of the blank 9 and made ready for filling as hereinbefore described. After being filled with the product intended for the carton, the pair of flaps 24 are folded inwardly at right angles to their depending side walls. The closure forming panel 25 may be first folded outwardly and downwardly to receive an application of suitable adhesive upon the inner surface thereof just prior to being folded back to its original position, and further folded inwardly and downwardly in overlapping relationship with the previously folded flaps 24 as illustrated in Fig. 3. The adhesive applied to the panel 25 unites the panel to the upper surfaces of the folded flaps 24 in seam forming relationship. The side edges 31, 32 of the open slot in the folded panel 25 forms an aperture 49, an upper interior surface margin of the side wall 12 of the carton constituting the outer end side of the said aperture. The opposing end sides 29, 38 of the folded flaps 24 are disposed in abutments with interior marginal portions of the opposing side walls 10, 12 of the carton. The longitudinal end edges of the first folded flaps 24 have edge portions adjacent the side edges 31 of the aperture.

The closure forming panel 35 in the approximate position illustrated in Fig. 3 receives an application of suitable adhesive prior to being folded upwardly in the up-right position shown in dot and dash lines, the panel being further folded inwardly and downwardly to engage in overlapping relationship with the previously folded panel 25. The aperture 49 and U-shape slit lines 33, 34 are covered by the last folded panel 35 to complete the closure, the adhesive uniting the overlapping panels together in seam forming relationship.

The completed closure of the carton is illustrated in Fig. 4. A cross-section of the completed closure is illustrated in Fig. 5. The slot opening 42 through the folded panel 35 provides accessibility to the end edges 43 of the

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sub-panel portions 39 of the closure. The said slot is closed by a wall portion of the inner disposed folded panel 25. The perforated cut lines 40 of the panel part 39 and slit lines 44 therein are disposed against the exterior surface of the panel 25. Hence, the main closure of the carton and its dispensing portion is rendered tightly closed for the protection of the carton contents. The tabs 45, 46 provide the means for opening the dispensing part of the closure as hereinafter described. The shape of the aperture 49 provided in the closure of the carton 48 serves only to illustrate this particular embodiment of the present invention. The carton is illustrated in square rectangular shape, the aperture being suitably shaped for dispensing powdered or granular type of commodities. Many variations in the shape of the carton and dispensing aperture may be devised for modifying the carton in specific instances for distributing other types of consumer products.

A slightly modified dispensing closure arrangement within the main closure of the container 50 intended for liquids is illustrated in Figs. 6, 7. The container closure arrangement is similar in construction to the closure of the carton hereinbefore described. The closure is provided with a novel shape orifice 51 in the folded panel 52, the orifice being defined with a circular shape hole having an open slot out of the base of the hole. The slot portion of the orifice is of relatively narrow width having substantially parallel side edges 53. An upper extremity of an interior margin of the side wall 54 of the container provides the outer-most end side for the orifice.

The liquid dispensing closure of the container 50 may be opened by raising the tab portions 55, 56 disposed at the end of the sub-panel 57 in the main panel 58 of the closure. The said tabs may be grasped with the fingers pulling them upwardly and outwardly which severs the sub-panel 57 on the pair of parallel perforated cut lines 58' freeing two sides of the panel to hinge on the corner 60. This action exposes the pouring orifice 51 adjacent to and at the end of the inner disposed panel 52 of the closure. The partially severed sub-panel 57 is swingingly moved on the hinge 60 upwardly then downwardly and inwardly to position the opened sub-panel adjacent an upper portion of the exterior of the side wall 54 of the container. The pivot hinge 60 is a central part of the original folding junction of the main closure panel 58. The sub-panel is preferably retained in the position described while the container is tilted in a position to start the pouring of the liquid contents of the container as illustrated in Fig. 7. The flow of liquid through the orifice 51 is drawn relatively thin at the base thereof by the influence of the slot sides 53 at the base of the orifice. The liquid is therefore confined to flow over a narrow portion of the corner extremity 60 of the side wall 54 and outwardly bent sub-panel 57.

This dispensing orifice arrangement presents highly efficient means to avoid any interferences of wall surfaces which otherwise would disrupt the orderly flow of liquid. This arrangement also provides efficient means to keep the pouring liquid clear of the severed edges 58 and the adjacent side portion of the pivot 60 of the opened adjacent sub-panel. While pouring liquid from the container the opened sub-panel 57 serves as a shield to prevent any liquid fouling of the side wall 54 of the container. When the container is being righted to shut off the flow of liquid, the partially severed sub-panel is swingingly moved on the corner pivot 60 in an upwardly position as illustrated in Fig. 8. Substantially, any droplets of liquid that may deposit upon the inner shielding surface of the opened sub-panel will run back into the orifice. The sub-panel is further folded inwardly and downwardly to close the orifice. During this re-closing operation the central tab portion 56 of the sub-panel 57 is bent inwardly and downwardly on the crease line 63, the longitudinal end of the bent tab making contact with a yieldable wall portion 64 disposed in the panel 52. The

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tongue wall portion 64 will yield downwardly of the surrounding U-shape slit line 62, 63 thus permitting the end side edge of the tab 56 to enter through and under the slit edge 62 as illustrated in Figs. 9 and 10. A downwardly push applied upon the crease line 63 will complete the tab insertion into the slit 62. As the sub-panel is flattened down against the wall 52 of the closure, the yielding wall portion 64 causes the inserted tab portion 56 to substantially straighten out as illustrated in the cross-section of the re-closure as shown in Fig. 10, the cross-section being shown exaggerated. The tabs 55 are again disposed substantially upon the exterior surface of the panel wall 52 thus co-operating with the inserted tab portion in retaining the re-closed panel in securely locked position.

The dispensing part of the closure arrangement after being initially opened, may be again opened and re-closed repeatedly without impairment of its efficiency. The re-opening of the closure is accomplished by simply pulling upwardly on the tabs 55 which withdraws the inserted tab portion 56 from the slit end edge 62 freeing the sub-panel to be moved to the initial position for dispensing from the container as hereinbefore described.

The dispensing closure arrangement comprehended by the present invention constitutes an improvement with many advantages over the structure of the dispensing orifice disclosed in my copending application Serial No. 414,242 filed March 5, 1954. In this disclosure the construction of the closure is dependent upon a specific structure of the container side and end walls and therefore is not readily adaptable to various forms of conventional containers which is a principal object of the present invention.

Another feature embodiment of the instant invention is illustrated with the container 66 in Fig. 11. The open mouth of the container is provided on two opposing sides with a pair of relatively narrow marginal ledges 67. The ledges being folded inwardly and downwardly of the container side walls with a marginal portion of each ledge folded in doubled back self-superimposed relationship which generate resiliency against other opposing closure forming panels when they are folded downwardly thereupon to form the dispensing closure of the container. The particular form of these closure forming resilient ledges increases the structural efficiency of closures for containers. Several of my co-pending applications disclose these resilient ledges in various forms of adaptation in container structures, being first disclosed in my co-pending application Serial No. 302,961, filed August 6, 1952 now Patent No. 2,737,336, issued March 6, 1956.

The top surface of each folded ledge is provided with a dry film (a) of suitable thermoplastic adhesive to be used for sealing the closure when constructed. The container 66 is also provided with a closure forming panel 68 which for purposes of clear illustration is shown disposed outwardly in a horizontal position with respect to the container body. The panel is provided with a circular shape hole 69 having a slot opening through the outer end thereof. The opposing side edges 70 of the slot separate the end side edges 71 of the panel. The panel is also provided with a pair of openly spaced U-shape slits 72 cut through the material of the panel. The slits are located outwardly of the folding junction 73 of the foldable panel 68 and inwardly of the inner-most part of the hole 69 opposite to the slot portion thereof. Preferably, the panel is provided with a dry film of thermoplastic adhesive (b) applied upon two marginal sides of the panel to coincide with the adhesive (a) upon the ledges 67.

The oppositely disposed closure forming panel 73 is also shown in an outer horizontal position with respect to the body of the container. This panel is provided with a sub-divided panel portion 74, the sub-panel being adapted to co-operate with the panel 68 when forming the closure. The sub-panel 74 is defined with two op-

posed parallel perforated cut lines 75 which extend outwardly from the corner folding junction 76 of the main panel 73. The perforations extend longitudinally of the panel ending at the terminal ends of the traverse crease line 77 disposed in the sub-panel wall portion. Each of the two perforated cut lines are spaced inwardly of the side edges of the panel to leave a substantial margin of wall space outwardly of each cut line. The sub-panel is provided with a pair of transversely opposite end tabs 78 extending outwardly of crease line 77. Side edges of these tabs are severed on three sides with border slit lines 78'. A semi-circular finger tab wall portion 79 is disposed centrally of the tabs 78 and also extends outwardly of the crease line 77. A crescent shape hole 80 is cut through the main panel 73. The inner disposed end edge of the arc portion of the crescent hole provides the outer circular side of the finger tab 79.

The side wall 81 of the container 66 is provided with an upwardly disposed embossed rib 82 which extends horizontally between the folded ledges 67, the ends of the impressed rib terminating at the inner-most doubling back corners of the folded ledges 67. The rib 82 is embossed inwardly of the exterior side of the wall 81 as illustrated in Fig. 16.

Panel 68 is folded inwardly and downwardly upon the folded ledges as illustrated in Fig. 12, the dry films of thermoplastic (a, b) being brought together in overlapping relationship. The openly spaced end edges 71 of the folded panel 68 are disposed in abutments with upper interior marginal portions of the side wall 81. The under side of the abutted end edges rest upon the upper shoulder of the embossed rib 82. The sides 70 of the slot and hole 69 in the folded panel 68 constitutes a dispensing orifice 83, a marginal portion of the upper extremity of the interior wall surface of side wall 81 forming the outer side end of the orifice.

A portion of the surface of the closure forming panel 68 may be provided with a patterned outline coating of masking lacquer as shown in stipple effect in Fig. 12. The lacquer used for masking should be substantially free of thermoplastic properties and have a relatively high softening point compared with the thermoplastic adhesive that is provided on the panels for sealing the closure. The masking coat (c) is intended to substantially cover an area on the exterior side of the folded panel 68 to coincide with the area and border outline of the sub-panel portion 74 in the closure forming panel 73 in Fig. 12.

The panel 73 is provided with a dry film of thermoplastic adhesive (d) as shown in stippled dots in Fig. 12. The panel is folded upwardly, inwardly and downwardly upon the previously folded panel 68 as illustrated in Fig. 13 which represents the completed structure of the dispensing closure. Heat and pressure is applied to the exterior surface of the folded panel 73 which activates the applied thermoplastic adhesive bonding the closure panel structure together in seam forming relationship. The masking coat of lacquer on the inner disposed surface of the panel 68 is surrounded on three marginal sides with securely sealed bonded areas of the closure. The corner side 81 of the folded panel 73 seals the fourth side thereof. The effective action of the heat imposed upon the closure wall softens the thermoplastic adhesive on the overlapping panel 73 and while in this viscous condition forms an effective sealing film of plastic over the masked area (c) of the lapped panel 68 sealing the orifice 83 and the slit penetrations 72.

An effective method for applying heat and pressure to seal the closure may be accomplished by entering the closed container into a conveyor arrangement having a moving steel belt which is pre-heated and controlled in a suitable manner. The belt may press and carry the container any desired distance necessary for the time requirements of imparting sufficient heat with which to activate the thermoplastic adhesive and thereby seal the closure. The heated closure may be subjected to a chilling action

to quickly harden the activated adhesive at the exit end of the conveyor belt arrangement.

The dispensing closure of the container may be opened for dispensing purposes in a similar manner described hereinbefore for the other embodiments of the dispensing closure arrangements. The finger tab 79 is rendered accessible for being lifted upwardly by the adjacent crescent shape opening 80 in the outer disposed panel of the closure. The tab is grasped with the fingers and pulled upwardly and outwardly. This action severs the sub-panel 74 along the perforated lines 75 in the same manner as heretofore described for the container 50 in Fig. 6. However, the masked area (c) on the panel 68 is effective in permitting the partially severed sub-panel 74 to peel from the surface of the masked area without pulling up the fibres of the paper board material of the panel and leave soft nap absorbing surface over this exposed area. The bond of the thermoplastic adhesive upon the sub-panel 74 is greater than its film retention to the masked area therefore, both the land surface of the masked area (c) and the inner surface of the opened sub-panel 74 are free of liquid absorbing surfaces. This embodiment of the dispensing closure greatly enhances the sanitary facilities afforded by the invention. The container may dispense its contents in the same manner as illustrated in Fig. 7 however, in dispensing from the container 66 a central portion of the embossed shoulder of the rib 82 passes across the base of the slot in the orifice 83. This portion of the rib deflects the pouring stream of liquid as substantially illustrated in Fig. 15. The entrained lower part of the liquid stream is deflected upwardly by the inner shoulder of the rib portion crossing the bottom of the orifice. The liquid is thus controlled to flow cleanly from the orifice and substantially clear of the adjacent outer corner end 76 of the opened sub-panel 74. The sub-panel is hatch-like in function and in the opened position illustrated in Fig. 15 serves as an efficient shield to protect the adjacent side wall 81 from being fouled with liquid particles.

As the container is righted the shielding hatch is swung upwardly so that any droplets of liquid that may deposit thereupon will readily drain back into the orifice. The plastic surface of the panel prevents the droplets from being absorbed into the surface of the hatch panel.

A dispensing closure in a container to be efficient, must have simple means provided with which to effectively re-close the dispensing orifice in a sanitary manner after it has been initially opened. It is equally important to retain the reclosure in locked position yet have means with which the closure may be opened and closed repeatedly without impairing its dispensing and sanitary efficiency. The illustration given in Fig. 16 shows the simple means provided for re-closing the orifice after dispensing from the container. The pair of tabs 78 are bent downwardly at near right angles to the wall of the opened hatch panel 74, the ends of the tabs being directed to contact the inner wall portions of the U-slit areas 72, a downward push upon the hatch panel inserts the tabs 78 into the slits 72 in a similar manner as described for the illustration given for the container 50 in Fig. 10. Pulling upwardly on the central tab 79 will unlock and withdraw the inserted tabs from the slit openings when it is desired to again open the dispensing closure. The re-closure locking arrangement thus described is effective to maintain a sanitary condition of the dispensing part of the closure and substantially protect the remaining contents in the container from any extraneous contaminating effects.

The invention will suggest other modifications and adaptations of the closure for containers to those skilled in this art, all within its scope.

Having thus described my invention in what I now believe to be comprehensive embodiments,

What is claimed is:

1. A flat blank of foldable material adapted to be formed into a rectangular shaped container having four

side walls arranged in opposing pairs and a closed end, said blank being treated with plastic material, which comprises a sheet of said treated material provided with scored lines defining four side wall forming panels and cut to define a pair of foldable minor end closing segments integral with two alternate wall panels and having continuous longitudinal end edges, and a first and second foldable major end closing panel each integral with one of the other of said wall panels, each segment of said pair of minor segments being further defined with a longitudinal score line separating its dependent side wall forming panel and the pair of said score lines being longitudinally aligned with each other, said first foldable major end closing panel having a longitudinal score line separating its dependent side wall forming panel and said score line being spaced outwardly of the line of first mentioned pair of score lines, the longitudinal outer end of said first major panel being separated by a substantially central open section of the panel extending inwardly at right angles from outer opposed edge portions of said longitudinal end, and said panel being further provided with a U-shape section defined with slit lines that are spaced inwardly of and between the longitudinal inner edge of said central opening and its panel portion defining score line, said second foldable major end closing panel being defined with a longitudinal score line separating its dependent wall panel and said score line being spaced outwardly of the line of the score line of said first major panel, said second panel being further defined as having a substantially central severable panel portion provided with a pair of opposed parallel perforated lines extending outwardly transverse from said dependent wall panel defining score line and spaced inwardly of parallel side edges of the panel, and said lines terminating at the intersection with a longitudinal score line extending between said lines that defines an outwardly extended marginal end of said severable panel portion, said marginal end having a longitudinal edge that constitutes the inner edge of an open slot cut through the panel, the outer longitudinal edge of the slot being spaced inwardly of the outer longitudinal end of the panel, said extended marginal portion being further defined as having opposed slit sides extending outwardly from said perforated lines and the margin having another pair of parallel slit lines that are spaced inwardly of said sides and disposed between the longitudinal end edge and margin defining longitudinal score line, the marginal portion between the last mentioned pair of transverse slit lines being spaced to be coincident with slit sides of said U-shape section in said first major panel when folding the blank to form said container and, said pair of parallel perforated lines in said second major panel, being spaced to be outwardly of the side edges of said central open section of said first major panel.

2. The flat blank according to claim 1 wherein the surface constituting the interior of panel walls, foldable segments and end closing panels being provided with a coating of thermoplastic material to provide seam bonding means when forming the container of said blank including means to provide substantially impervious enclosure wall protection for intended products to be packed in said container.

3. A container constructed from the blank of claim 1 and having said pair of minor segments folded inwardly of dependent side walls, said first major end closing panel being folded downwardly upon the minor segments in seam forming relationship and the longitudinally spaced end edges of the folded first major panel being disposed in direct contact abutment in sealed relation with a corresponding interior face margin of the opposing side wall having said second major panel, the space for the edge to face flat abutment being provided by said defined spaced relationship of score lines in said blank, said second major panel being folded in overlapping seam forming surface relationship with the first folded panel, said pair of parallel

perforated lines being disposed flatly upon the exterior surface of the first major panel and each perforated line being spaced outwardly of inwardly defined side edges of the central open section extending inwardly transverse of said edge to face abutment whereby, the outer longitudinal corner defining edge of said central open section in the first major folded panel defines the bendable hinge line of said severable wall portion of the second folded end closing panel, marginally opposed lateral wall portions extending outwardly of said perforated lines including portions outwardly of the transverse marginal end of said severable and openable wall portion being permanently bonded with the underlying first folded panel in seam forming relationship.

4. A dispensing closure formed of end segments integral with side wall panels of a container, which comprises a minor pair of said segments being first folded inwardly and downwardly of depending side walls, a second end closing panel being folded inwardly and downwardly upon said first folded minor segments in seam forming relationship, the score line defining the hinge line of said second folded panel being spaced upwardly of the score line defining the hinge line of each said minor folded segments, the outermost end of said second folded panel having a substantially central opening cut inwardly of remaining opposed end edge portions of the panel, said edges being abutted upon the interior corresponding face of an opposing adjacent side wall that provides a boundary side for said opening, said abutment of edge portions being disposed upwardly of adjacent abutted side edges of said first folded minor segments that have inner transverse end edges spaced outwardly of the transverse side edges of said opening, a third end closing panel being folded inwardly and downwardly in direct seam forming surface contact with the surface of said second folded panel, said third panel having a substantially central openable wall portion thereof defined with a pair of parallel severable lines extending outwardly from the transverse corner edge that defines the hinge of the panel and said lines terminating inwardly of a slot opening in said third panel that is spaced inwardly of its outer end edge, said openable wall portion of third panel closing said opening in the second folded panel and the defining severable parallel sides of the openable wall portion of third panel being disposed outwardly of the side edges of the closed opening in said second panel, and said severable lines including said slot opening in the third panel being closed in sealed relationship by marginal surface portions of the second panel.

5. A closure as set forth in claim 4 wherein said second folded panel being provided with a U-shape yieldable tongue-like marginal portion defined with slit lines positioned inwardly of outer defining edges of said slot opening in the third folded panel, the outer end of said openable wall portion of third panel having a bendable marginal portion provided with a pair of opposed transversely slit lines that are coincident with slit sides of said U-shape tongue margin in the underlying wall of second panel, and upon severing and opening said openable wall portion of the overlying third panel, the defining corner hinge thereof providing a corner edge over which to pour when dispensing contents from the container through the exposed opening in said second panel, and upon reclosing said opening, the central slit defined portion of said bendable marginal portion of the third panel, being inserted into said U-slit yielding tongue in the second panel, the outer opposed lateral portions of said inserted margin overlapping the outer lateral surface of the second panel being permanently bonded together whereby, the reclosed wall portion is flatly restored substantially in the position originally initiated and with respect to said permanently bonded outer lateral wall portions of the constructed dispensing closure.

6. A dispensing closure construction for a carton-like container having four side walls arranged in opposing pairs and a closed end, which comprises a pair of in-

folded flaps integral with corresponding side walls, the transverse opposite side edges of said folded flaps being disposed in edge to face abutment with the interior corresponding surface of said side walls, a second folded panel integral with another adjacent side wall of the container being downwardly disposed in sealed relationship upon said flaps, and the outer end of said panel having a substantially central opening extending inwardly transverse of said end and between two opposed end edges of the panel that are abutted upon the corresponding marginal interior face of the opposite adjacent side wall, the surface of said abutted edges being coplanar with the surface of the underlying abutted edge portions of said flaps, a third folded end closing panel in overlapping relationship with said second panel being provided with a tongue-shaped openable wall portion having opposed sides defined with two substantially parallel perforated lines extending inwardly from the transverse corner folded edge of the panel and said lines terminating at the ends of a transverse scored line defining a further extended marginal portion of said tongue portion and having its end edge spaced inwardly of a slot opening in the panel that is spaced inwardly of the outer end of said panel, and the slot being closed by the underlying second panel whereby, said slot constitutes a recess to expose the outer end edge of said tongue-shaped portion of the third panel, the marginal wall portions of said second and third overlapping panels defined as being outwardly of said perforated lines and recess, being permanently bonded together in seam forming relationship.

7. A dispensing closure as set forth in claim 6 wherein said pair of perforated lines that defines sides of said tongue, are sealed by the wall of the underlying second panel, the marginal end portion of the tongue shaped wall portion having its longitudinal edge exposed by said recess formed in the third panel, and said margin being further defined as having a pair of slit lines extending inwardly from said exposed edge thereof and terminating at said score defining longitudinal line of the margin, said underlying second panel wall being provided with a yieldable tongue marginal portion defined with a slit line that is aligned coincident with a central portion of said score defining line of the overlying margin, and a pair of opposed transversely slit lines being arranged coincident with said pair of slit lines in said overlying margin, said slit lines defining sides of the yieldable tongue portion being extended inwardly from the score defining line of said overlying margin.

8. A liquid dispensing closure construction for a container made of sheet material treated with thermoplastic material and having four side walls arranged in opposing pairs to provide a body portion of rectangular shape in horizontal cross section and a closed end, said closure comprising a pair of end segments integral with corresponding side walls and each being folded inwardly and downwardly at right angles of its dependent side wall and a half longitudinal marginal portion of the in-folded margin being folded upwardly, outwardly and downwardly in selfsuperimposing marginal relationship that provides a pair of strengthened inwardly opposed closure sealing ledges having opposed side edges thereof firmly abutted upon upper corresponding interior plastic surface coated portions of the other pair of opposing adjacent side walls, a second end closing panel integral with one of said other pair of side walls, being folded inwardly and downwardly flatly upon the plastic surface of said ledges, the end edge of the second panel being separated

by a central open section extended inwardly of said end, the outwardly opposed end edges of the panel being firmly abutted upon the interior plastic surface of the opposite side wall of said other walls, each of said edges lying in face relationship with each of the lower adjacent abutted edge portions of said ledges, and a central upper portion of the side wall between said edge abutments constituting a closed side of said opening in the second folded panel, a limited exterior surface area of said second panel adjacent the edges of said open section being provided with a pattern coating of non-thermoplastic material, a third end closing panel integral with the opposite side wall of said other walls, being folded inwardly and downwardly upon the upper surface of the previously folded second panel, said third panel being provided with an openable wall portion lying over said opening in the second panel and said portion being defined with a pair of opposed perforated lines that extend inwardly from the transverse corner edge of the folded dependent panel and said lines terminating at ends of a transverse score line that defines an outer extended tab portion constituting the outer end of said openable wall portion of the panel, the end edge of said tab being exposed by an outer extended open wall portion provided in the panel, the defining edges of the opening being spaced inwardly of the outer end of said panel, the underlying second panel being provided with a yieldable tongue-shaped margin defined with slit lines that are arranged in coincident relation to said tab portion of the openable wall portion of overlying third panel, pressure and heat being applied downwardly upon the exterior face of the third panel activating said thermoplastic material, said superimposed ledges firmly resisting said downward pressure whereby, the plastic surfaces of engaging wall and edge portions of ledges and panels disposed laterally outward of said pattern coated surface area on the second panel, being permanently bonded together in seam forming relationship.

9. A liquid dispensing closure according to claim 8 wherein said perforated lines and outer extended open portion in the third folded panel are sealed by the wall of said underlying second panel, said exposed end of the tab providing finger grasping means to shear apart said pair of perforated lines and open the defined third panel wall portion made surface yielding by said pattern coated surface portion of the second panel and expose its open section for container dispensing purpose to cleanly pour liquid contents thereof outwardly over a corner edge portion of the adjacent side wall of the container, the opened section of the closure being restored in closed position substantially as originally initiated by inserting said tab into said yieldable tongue-like margin, the severed sides of the restored wall portion fitting to the other portion of severed edges that define inward boundary of the permanently bonded wall portions of the closure.

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