Dec. 2, 1947. W. P. FESSENDEN 2,431,744

DISPENSING SLIDE CLOSURE FOR PAPERBOARD CONTAINERS

Filed July 19, 1943 7 Sheets-Sheet 1

Fig. 1

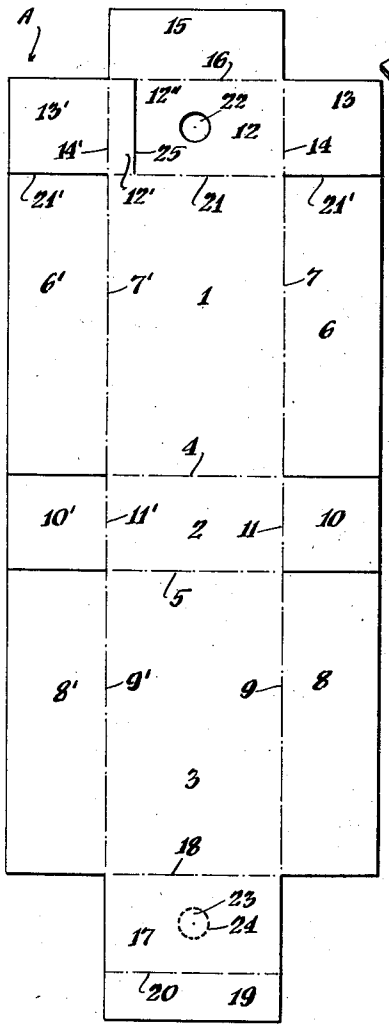


Fig. 3

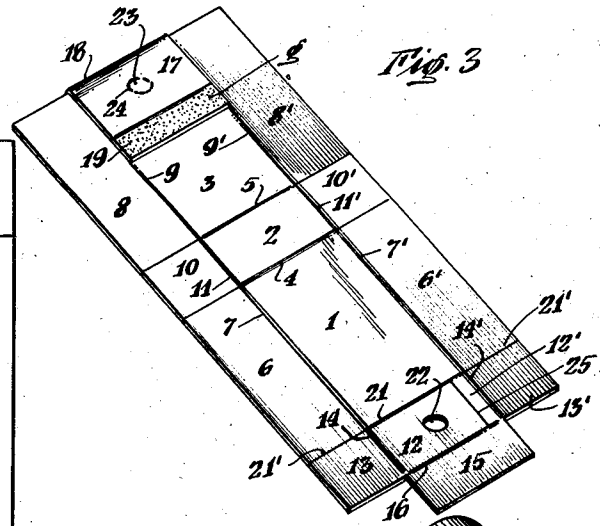


Fig. 4

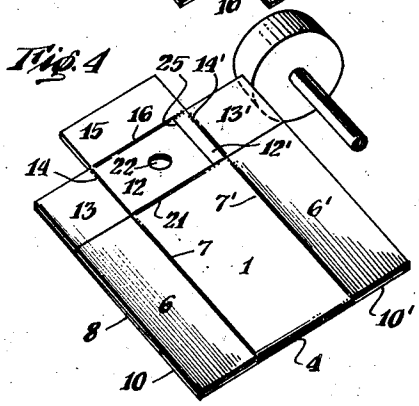


Fig. 5

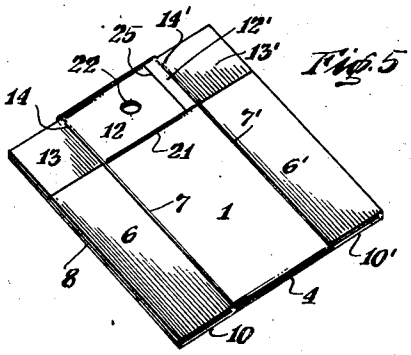
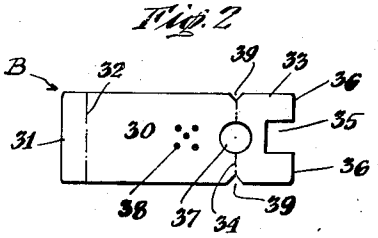


Fig. 2



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Dec. 2, 1947. W. P. FESSENDEN 2,431,744

DISPENSING SLIDE CLOSURE FOR PAPERBOARD CONTAINERS

Filed July 19, 1943 7 Sheets-Sheet 2

Fig. 6

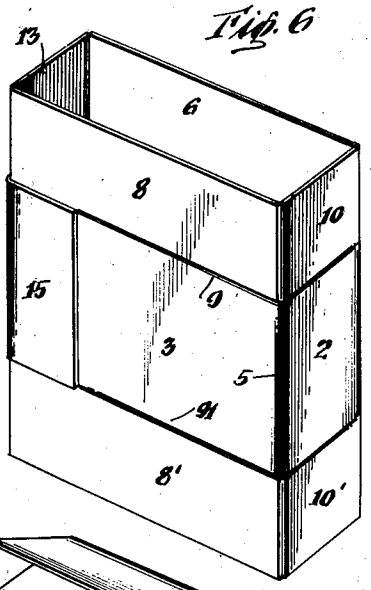


Fig. 7

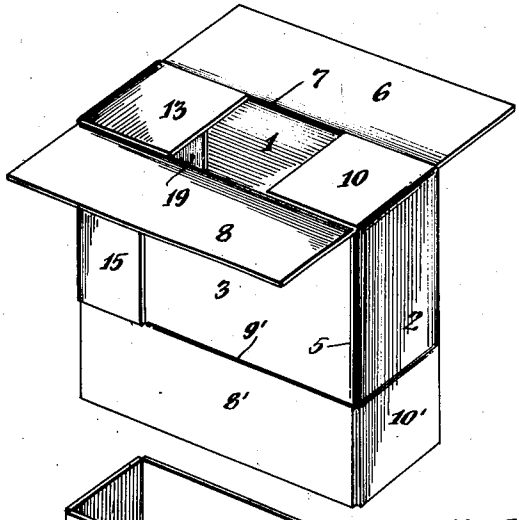


Fig. 8

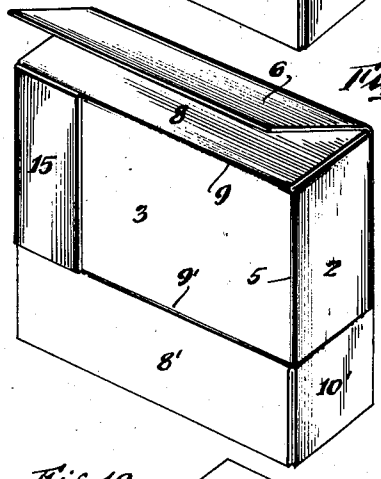


Fig. 9

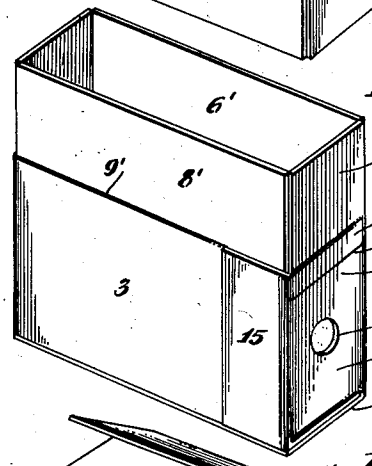


Fig. 10

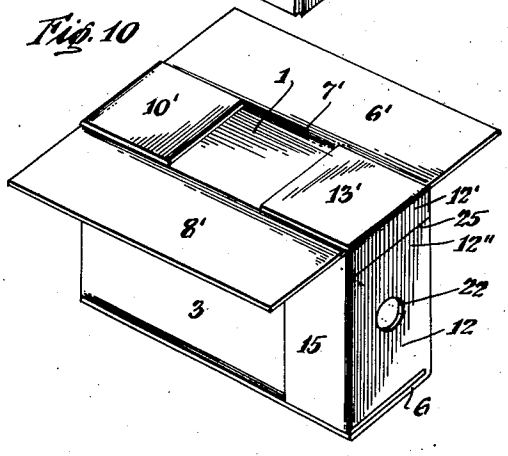
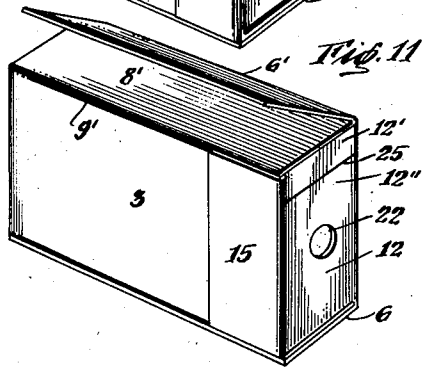


Fig. 11



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DISPENSING SLIDE CLOSURE FOR PAPERBOARD CONTAINERS

Filed July 19, 1943 7 Sheets-Sheet 3

Fig. 12

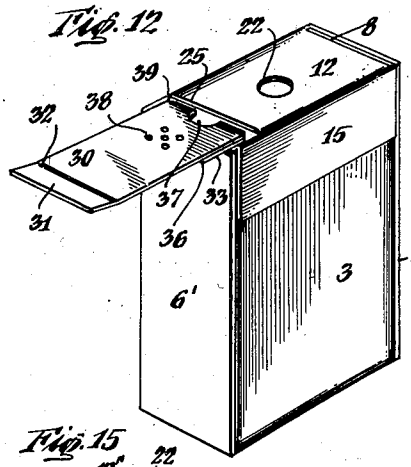


Fig. 13

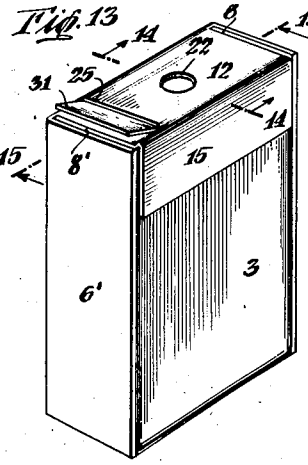


Fig. 14

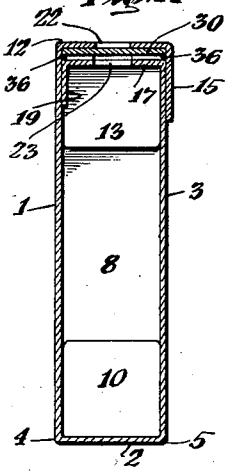


Fig. 15

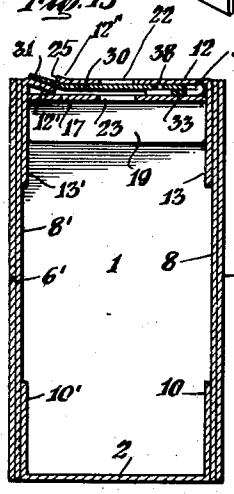


Fig. 16

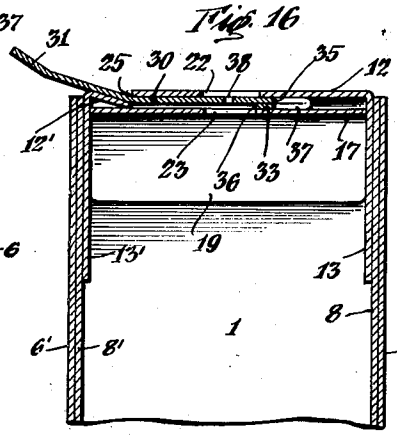


Fig. 18

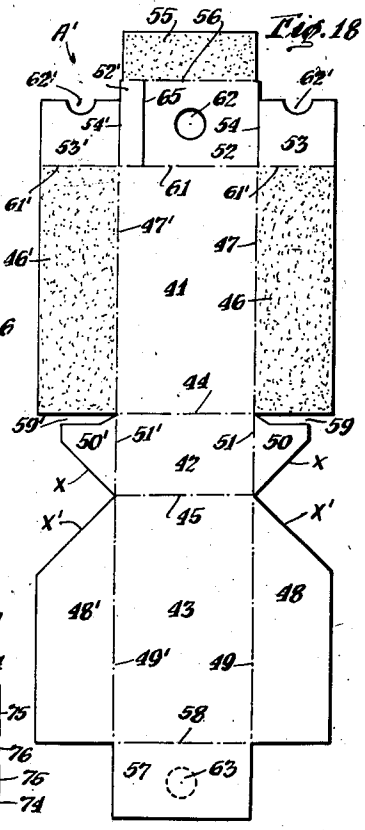


Fig. 17

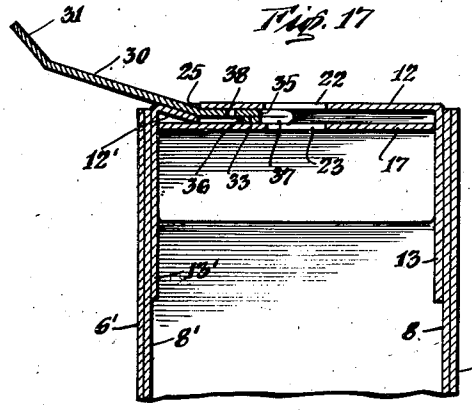
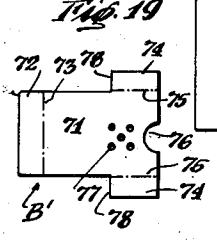


Fig. 19



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Dec. 2, 1947. W. P. FESSENDEN 2,431,744

DISPENSING SLIDE CLOSURE FOR PAPERBOARD CONTAINERS

Filed July 19, 1943 7 Sheets-Sheet 4

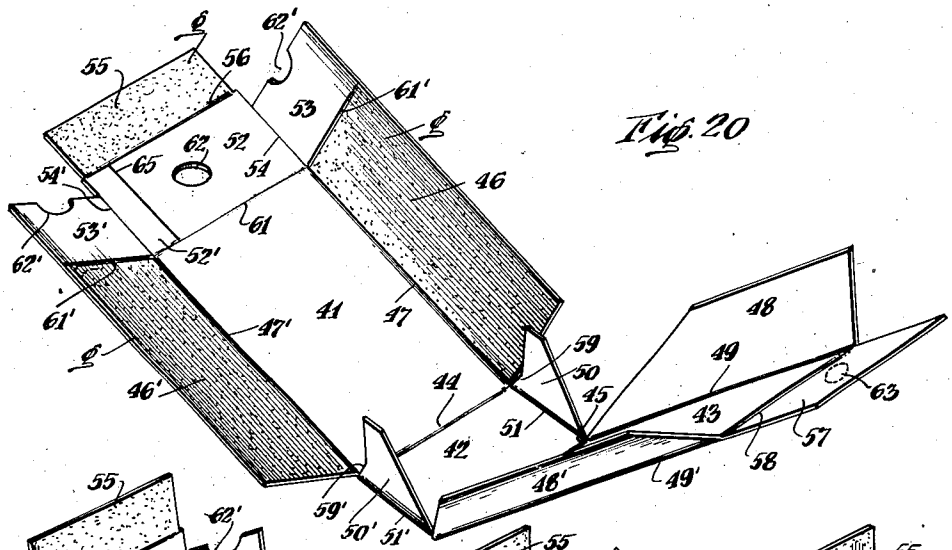


Fig. 20

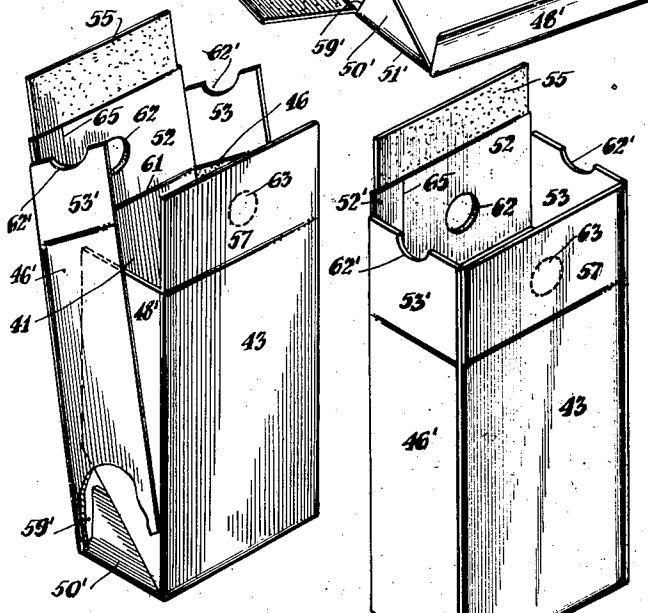


Fig. 21

Fig. 22

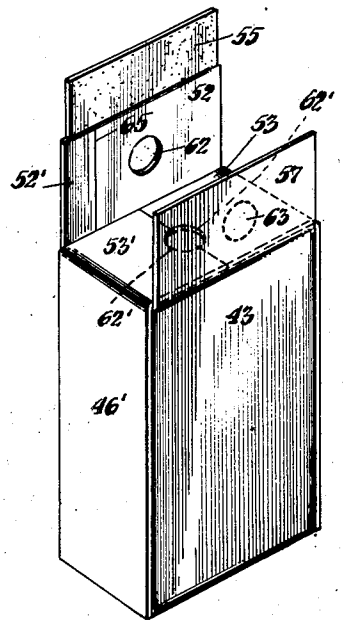


Fig. 23

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DISPENSING SLIDE CLOSURE FOR PAPERBOARD CONTAINERS

Filed July 19, 1943 7 Sheets-Sheet 5

Fig. 24

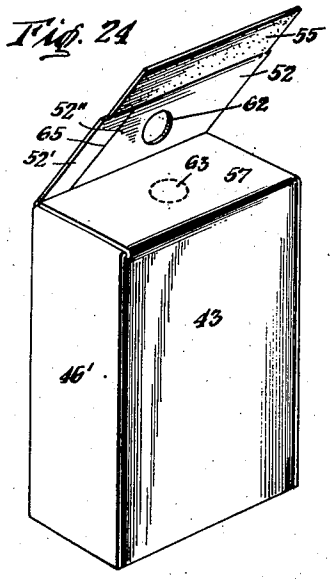


Fig. 25

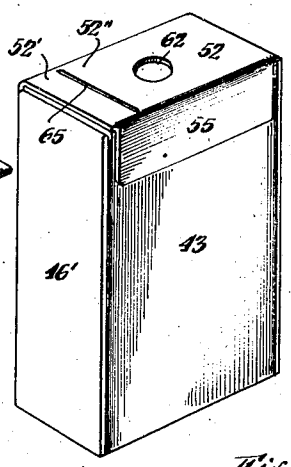


Fig. 26

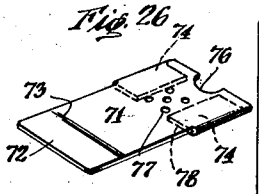


Fig. 27

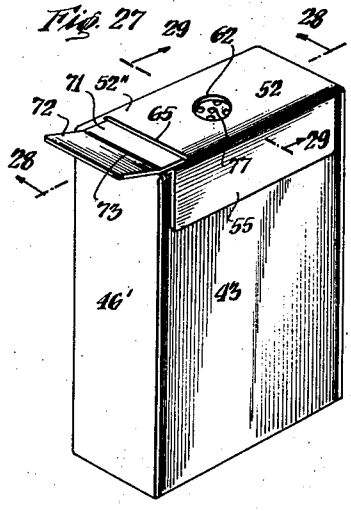


Fig. 28

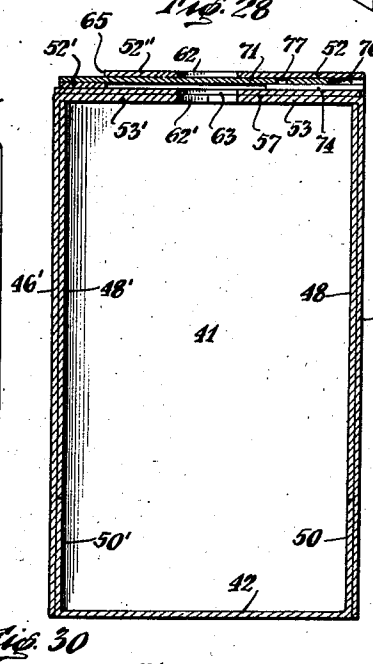


Fig. 29

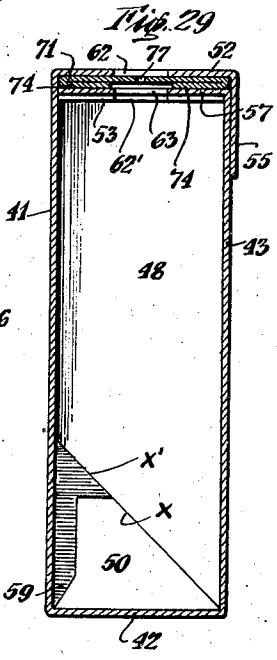
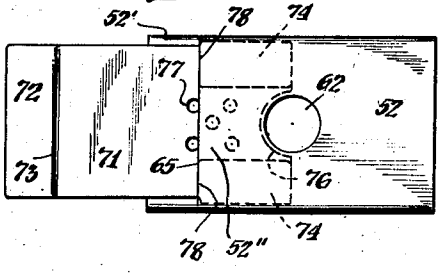


Fig. 30



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Dec. 2, 1947. W. P. FESSENDEN 2,431,744

DISPENSING SLIDE CLOSURE FOR PAPERBOARD CONTAINERS

Filed July 19, 1943 7 Sheets-Sheet 6

Fig. 31

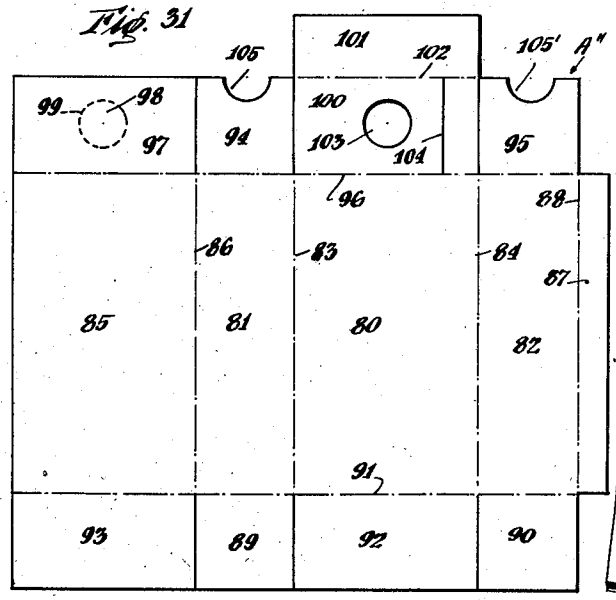


Fig. 33

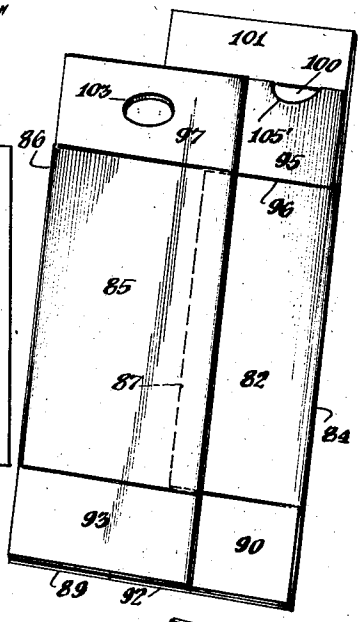


Fig. 32

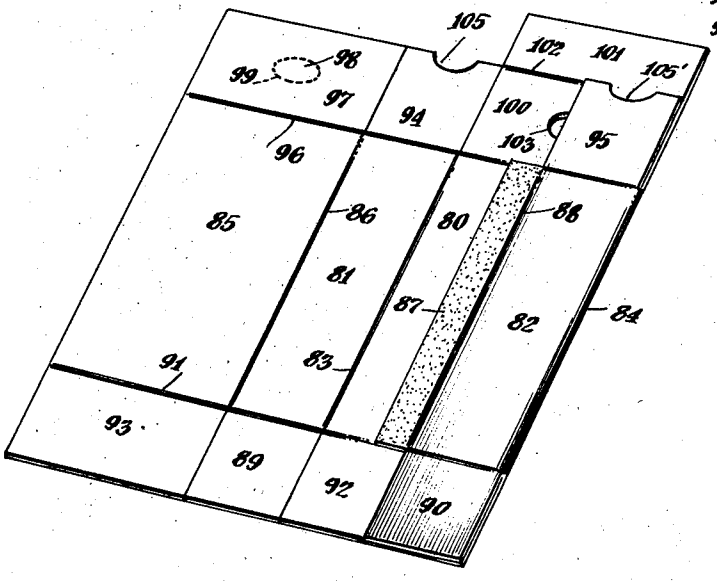
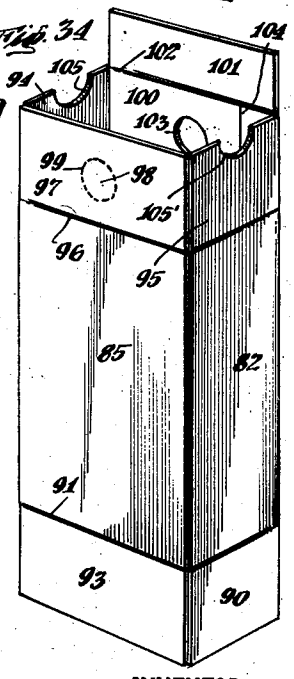


Fig. 34



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DISPENSING SLIDE CLOSURE FOR PAPERBOARD CONTAINERS

Filed July 19, 1943 7 Sheets-Sheet 7

Fig. 35

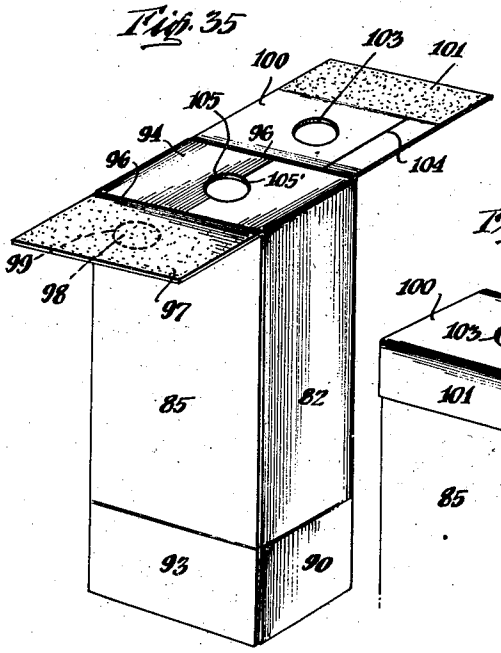


Fig. 36

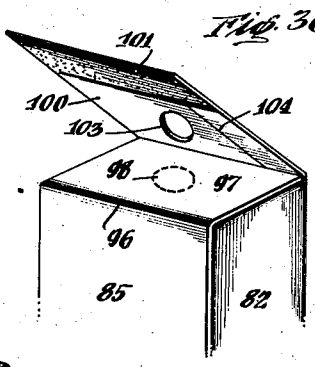


Fig. 37

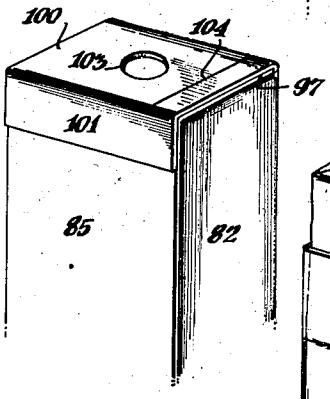


Fig. 38

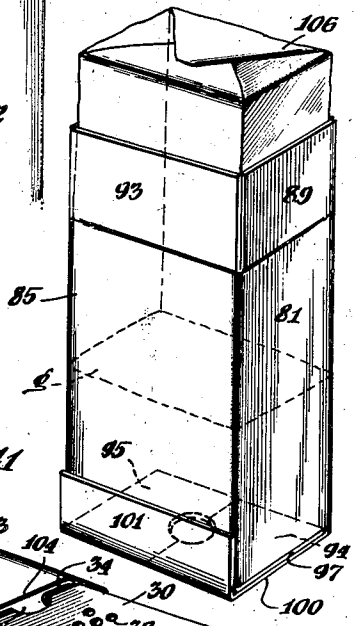


Fig. 39

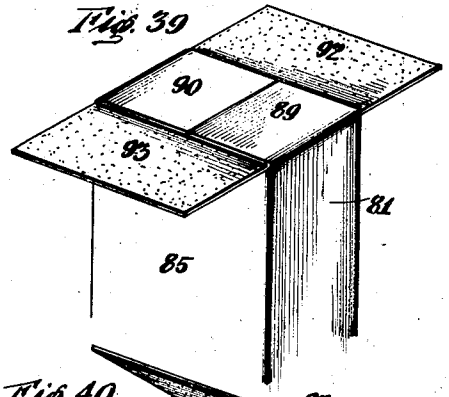


Fig. 40

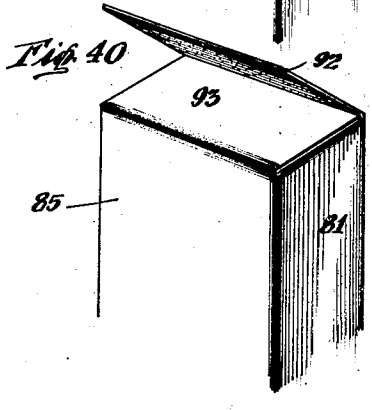
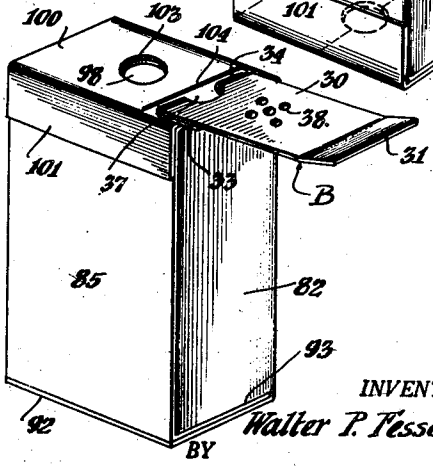


Fig. 41



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Patented Dec. 2, 1947 2,431,744

UNITED STATES PATENT OFFICE

2,431,744

DISPENSING SLIDE CLOSURE FOR PAPERBOARD CONTAINERS

Walter P. Fessenden, Chicago, Ill., assignor, by mesne assignments, to National Folding Box Company, Incorporated, a corporation of Connecticut

Application July 19, 1943, Serial No. 495,287

12 Claims. (Cl. 229—17)

1

This invention relates to containers, and more particularly to an improved dispensing container formed from paperboard material, adapted for use as a packaging and dispensing medium for powdered and granular products and similar materials which have heretofore usually been packaged in cans and canisters formed in whole or in part from sheet metal or like relatively rigid material.

In accordance with this invention a dispensing container is provided in which the container itself is formed from a single blank of paperboard or similar material and which upon assembly into container form may receive a dispensing slide formed from a blank of suitable material which may be manipulated by the user to close the dispensing opening or present a sifting opening or a bulk discharge opening by a simple manipulation of the slide.

The container itself may be formed from a single blank of paperboard or like material which can be produced at a high production rate and suitably shaped and scored by running large sheets or rolls of the material through high speed cutting and scoring machines. The sheets or rolls need be finished or imprinted on one side thereof only, since only one side of the finished blank is presented as the exposed outside surface of the finished container.

An important feature of this invention is to provide a blank which is so shaped and formed as to permit automatic high speed assembly of the blank into container form on standard box assembling machines presently available. The blanks are also substantially rectangular in outline, resulting in a minimum of waste of the material. The flat blanks may be shipped by the box maker to the merchandise manufacturer in flat stacked condition, or they may be assembled in the form of collapsed shells. In either form the blanks occupy a minimum space during shipment and storage and thus permit substantial savings in shipping and storage costs as compared with more rigid set-up containers.

The merchandise manufacturer need only be provided with the necessary number of standard box assembling machines of the proper type, and complete assembly of the blanks into container form may proceed as the containers are needed for the packaging of merchandise. The merchandise material may be inserted into the partially assembled container and thereafter the containers may be sealed and closed. As the final operation, the dispensing slide may be inserted into position through a slit provided for the purpose in the outer top wall panel of the container as constructed, the dispensing slide being held in position by an underlying and inner top wall panel.

2

The completed dispensing containers present neat and attractive packages with finished appearing outside surfaces; the finished containers are sturdy and strong in construction and are readily adapted for packing in the usual shipping cases or for display on the dealer's shelves. The containers may be manufactured at substantially less cost than more rigid containers formed in whole or in part from sheet metal, are substantially equally as serviceable, may be assembled and formed on standard box assembling machines and equipment at a high production rate and at low cost with a minimum of skilled labor, and require only inexpensive readily available material for their assembly.

Other objects, features and advantages of this invention will appear more fully from the detailed description which follows accompanied by drawings showing for the purpose of illustration preferred embodiments of the invention.

The invention also consists in certain new and original features of construction and combination of parts hereinafter set forth and claimed.

Although the novel features which are believed to be characteristic of this invention will be particularly pointed out in the claims appended hereto, the invention itself, its objects and advantages and the manner in which it may be carried out, may be better understood by referring to the following description taken in connection with the accompanying drawings forming a part thereof, in which:

Fig. 1 is a plan view of a prepared blank from which my improved dispensing container may be formed;

Fig. 2 is a plan view of a prepared blank from which the dispensing slide may be formed;

Fig. 3 is a perspective view of the blank shown in Fig. 1 as it appears at an initial stage of assembly;

Fig. 4 is a perspective view of the blank at a further advanced stage of assembly;

Fig. 5 is a perspective view of the blank partially assembled in collapsed container form ready for shipment to the merchandise manufacturer;

Fig. 6 is a perspective view of the partially assembled blank expanded into container form with its side wall closing flaps in an open position;

Fig. 7 is a perspective view of the partially assembled container showing one set of side wall

forming flaps in the process of being brought into a closed position;

Fig. 8 is another view of the partially assembled container showing one set of the side wall forming flaps at a further advanced stage of closing assembly;

Fig. 9 is a perspective view of the partially assembled container resting on its closed side and ready for filling through its opposite open side;

Fig. 10 is a perspective view of the partially assembled container as it appears when filled with merchandise and with the other set of side wall forming flaps in the process of being brought into a closed position;

Fig. 11 is a perspective view of the container as it appears when filled and substantially completely assembled, showing its last side wall forming flaps being brought into a closed position;

Fig. 12 is a perspective view of the fully assembled container showing the dispensing slide in the process of being inserted into position;

Fig. 13 is a perspective view of the fully assembled container showing the dispensing slide in fully inserted closed position, the container being ready for shipment;

Fig. 14 is a vertical cross-sectional view through the fully assembled container as the same appears when viewed along line 14—14 of Fig. 13;

Fig. 15 is a vertical cross-sectional view through the fully assembled container taken longitudinally thereof as it appears when viewed along line 15—15 of Fig. 13;

Fig. 16 is an enlarged and fragmentary vertical cross-sectional view taken longitudinally through the upper portion of the container, showing the dispensing slide drawn into position which will permit sifting dispensing of the contents;

Fig. 17 is another enlarged and fragmentary vertical cross-sectional view taken longitudinally through the upper portion of the container, showing the dispensing slide drawn to its full dispensing position to permit bulk dispensing of the contents;

Fig. 18 is a plan view of a prepared blank of somewhat modified form which can be assembled into a dispensing container by assembly procedure somewhat different from that followed in the assembly of the blank shown in Fig. 1;

Fig. 19 is a plan view of a prepared blank from which a dispensing slide of somewhat modified construction may be formed;

Fig. 20 is a perspective view of the blank shown in Fig. 18 as it appears at an initial stage of assembly;

Fig. 21 is a perspective view of the blank shown in Fig. 20 at a further advanced stage of assembly;

Fig. 22 is a perspective view of the body portion of the container but with its top plan forming blank in open position for filling with merchandise;

Fig. 23 is a perspective view of the container showing its top wall forming flap in process of being brought into closed position;

Fig. 24 is a perspective view of the container showing its top wall forming flap further advanced into its closed position;

Fig. 25 is a perspective view of the fully assembled container as formed from the blank shown in Fig. 18;

Fig. 26 is a perspective view of the dispensing slide fully assembled from the blank shown in Fig. 19;

Fig. 27 is a perspective view of the dispensing slide inserted in the top wall of the container and positioned for sifting dispensing of the contents;

Fig. 28 is an enlarged vertical cross-sectional view taken longitudinally through the fully assembled container showing the dispensing slide in closed position;

Fig. 29 is a transverse cross-sectional view through the container and dispensing slide as the same appear when viewed along line 29—29 of Fig. 27;

Fig. 30 is a top elevational view of the fully assembled container showing the dispensing slide drawn out to permit bulk dispensing of the contents;

Fig. 31 is a plan view of a prepared blank of modified form which can be assembled into a dispensing container by an assembly procedure somewhat different from that followed in the assembly of the blank shown in Figs. 1 and 18;

Fig. 32 is a perspective view of the blank shown in Fig. 31 as it appears at an initial stage of assembly;

Fig. 33 is a perspective view of the blank shown in Fig. 31 at a further advanced stage of assembly in which a sleeve structure is formed;

Fig. 34 is a perspective view of the expanded sleeve structure of Fig. 33;

Fig. 35 is a perspective view of the expanded sleeve structure shown in Fig. 34 after initial folding and gluing operations;

Fig. 36 is a fragmentary perspective view of the expanded container at a further advanced stage of assembly;

Fig. 37 is a fragmentary perspective view of the expanded container with its top wall structure completed;

Fig. 38 is a perspective view of the inverted container with its bottom flaps open to permit insertion of merchandise;

Fig. 39 is a fragmentary perspective view of the inverted container shown in Fig. 38, the bottom flaps being in process of being brought into closed position;

Fig. 40 is a fragmentary perspective view of the inverted container with its last bottom flap being brought into closed position; and

Fig. 41 is a perspective view of the filled and sealed container, a dispensing slide being inserted between the top panels.

Similar reference characters refer to similar parts throughout the several views of the drawings and the specification.

In accordance with this invention, the container itself is formed from a single blank of suitable material which has been so cut and scored as to permit assembly thereof on standard available box assembling machines. The dispensing slide may also be formed from a single blank of suitable material which may be assembled in slide form by a simple and quickly executed assembly operation and then inserted into position to form an operating part of the fully assembled dispensing container.

In one form of the invention the container itself is assembled from the blank A as shown in Fig. 1, which is substantially rectangular in outline and may be cut and scored from large sheets or rolls of material on an automatic cutting and scoring machine at a high production rate. If desired, only one side of the material need be finished and imprinted, which side, when the blank is assembled, forms the outside surfaces of the container.

The blank as shown in Fig. 1 comprises a panel 1, which for convenience in description may be called the rear wall panel, which is hinged to a

bottom wall panel 2 along a transversely extending score line 4. An opposite panel 3, which for convenience in description may be called the front wall panel, is hinged to the opposite side edge of the bottom wall panel 2 along a transversely extending score line 5. Opposite side wall forming flaps 6 and 6' are hinged to the opposite side edges of rear wall panel 1 along parallel extending score lines 7 and 7' which extend longitudinally of the blank. Similar side wall forming flaps 8 and 8' are hingedly connected to the opposite side edges of the front wall panel 3 along parallel extending score lines 9 and 9' which extend longitudinally of the blank and substantially in alignment with the score lines 7 and 7' respectively. Bottom tabs 10 and 10' are hingedly connected to each end of the bottom wall panel 2 along parallel extending score lines 11 and 11' which are arranged slightly out of alignment with the score lines 7 and 7' respectively to permit assembly of the blank into container form. A top wall forming flap 12 is hinged to the upper end of the rear wall panel 1 along a transversely extending score line 21. Infolding tabs 13 and 13' are hinged to the opposite ends of the outer top wall forming flap 12 along parallel extending score lines 14 and 14' respectively. The score lines 14 and 14' are slightly out of alignment with the score lines 7 and 7' respectively to permit folding assembly of the folding tabs 13 and 13'.

A sealing flap 15 is hinged to the outer top wall forming panel 12 along a transversely extending score line 16 which extends substantially parallel to the score line 21. The infolding tabs 13 and 13' are separated from the adjacent side wall forming flaps 6 and 6' respectively by cuts 21' which extend substantially in alignment with the score line 21. The inner top wall panel 17 is provided with a securing flap 19 hinged thereto along a score line 20 which extends substantially parallel to the score line 18. The securing flap 19 is adhesively secured to the inside face of the rear wall panel 1 adjacent the upper end thereof, as will be hereinafter more fully brought out.

A suitable dispensing opening 22 is provided in the outer top wall panel 12 which, when the container is assembled, aligns with the dispensing opening 23 provided in the inner top wall panel 17. The dispensing opening 23 may be formed by a line of perforations 24 which permit removal of the circumscribed disc as desired to provide the opening. A slit 25 is provided in the outer top wall panel 12 which extends transversely between score lines 21 and 16. The slit 25 provides an opening through which the dispensing slide may extend so as to overlie and depress portion 12' of the outer top wall panel and underlie and bulge upwardly or outwardly portion 12'' of the outer top wall panel 12.

The blank A shown in Fig. 1 may be quickly assembled into collapsed shell form at the box factory by running the same through an automatic strip gluing and folding machine. Such machine operates to apply a strip of adhesive to the outside face of securing flap 19 as the blank passes through the machine and then operates to fold the inner top wall panel 17 about score line 18 so as to overlie the inside face of the front wall panel 3. As the blank continues to advance through the machine the rear wall panel 1 is folded about score line 4 so as to overlie the inside face of bottom wall panel 2 and front wall panel 3, bringing the upper end of the rear wall panel 1 into adhesive contact with the securing tab 19. Pressure, applied by a suitable pressure

roller, presses the securing tab 19 into firm adhesive engagement with the inside face of the rear wall panel 1 adjacent the score line 21. Further travel of the blank through the machine operates to apply adhesive to the inside face of the sealing flap 15, which operation may be performed by advancing the partially assembled blank, as shown in Fig. 4, so that sealing flap 15 comes in contact with the glue roller R. During further advance, the sealing flap 15 is folded under and is pressed into adhesive contact with the outside face of the top wall panel 3, adjacent the score line 18. The assembled but collapsed blank is ejected from the machine in the form shown in Fig. 5, in which form the blanks can be stacked in a limited space and shipped to the merchandise manufacturer to be further assembled and filled as needed.

The merchandise manufacturer may continue and complete the assembly of the collapsed shell quickly and expeditiously on standard box assembling equipment. As shown in Fig. 6, the assembled bottom wall panel 2, front wall panel 3, rear wall panel 1, and adjacent inner and outer top wall forming panels 12 and 17, are expanded into tubular form. The inner top wall panel 17 is secured to rear wall panel 1 by the securing flap 19, while the outer top wall panel is secured to the front wall panel 3 by the sealing flap 15.

The partially assembled shell thus expanded is run through an end sealing machine which, as shown in Fig. 7, operates to fold the paired infolding tabs 10 and 13 inwardly to close one open side of the box. Side wall forming flap 8 is then folded so as to overlie the inturned tabs 10 and 13, adhesive is applied to the inside face of the other companion side wall folding flap 6, which is thereupon folded over and pressed into adhesive engagement with the outside face of the inturned side wall forming flap 8, as illustrated in Fig. 8.

With one side wall thus closed, the partially assembled container may be inverted into the position shown in Fig. 9, so as to rest on its closed side, whereupon the contents may readily be inserted through the other open side thereof. When the filling operation is completed the unclosed side wall may then be closed by infolding the infolding tabs 13' and 10' as shown in Fig. 10, folding the side wall forming flap 8' so as to overlie the inturned tabs 13' and 10', applying adhesive to the inside face of the companion side wall forming flap 6', and folding the side wall forming flap 6' so as to overlie and adhesively engage the outside face of the companion side wall forming flap 8'. The container as fully assembled, filled and sealed, appears as shown in Fig. 12.

A dispensing slide is provided to serve as a movable closure for the aligned dispensing openings 22 and 23 in the outer top wall panel 12 and the inner top wall panel 17 respectively. The dispensing slide may be formed from a single blank B of suitable material, as shown in Fig. 2. The blank B forming the dispensing slide may be cut and scored from large sheets or rolls of suitable material on an automatic cutting and scoring machine at high speed and economical cost.

The blank B as shown in Fig. 2 comprises a body section 30 having a finger grip section 31 hinged to the body section 30 along a transversely extending score line 32. A foot section 33 is hinged to the other end of the body section 30 along a transverse score line 34. The foot sec-

tion 33 is designed to be folded under one side of the body section 30. A dispensing opening 37 is provided which straddles the score line 34. The dispensing opening 37 may, if desired, be circular in form. When the foot section 33 has been folded under the body section 30 the dispensing opening appears as a notch in one end of the body section. Foot portion 33 is provided with a notched cut-out 35 and abutment edges 36. Sift holes 38 may be provided in the body section 30 and a small notch 39 may be provided at each end of the score line 34 to facilitate insertion of the slide B between the top wall panels of the container as will later appear.

The blank B shown in Fig. 2 may be assembled into dispensing slide form by merely folding the foot section 33 so as to overlie the inside face of the body section 30. The notch 35 in the foot section leaves the dispensing holes 38 in the body section 30 fully exposed and unobstructed.

As shown in Fig. 12, the dispensing slide is inserted through the slit 25 provided in the outer top wall panel 12. Insertion is effected by depressing portion 12' of panel 12 and outwardly bulging portion 12'' of panel 12 to permit insertion of the foot section and of the slide through the slit 25. The slide is pushed into position until the entire body section 30 is positioned between portion 12'' of the outer top wall panel 12 and the inner top wall panel 17. When thus positioned the finger grip section 31 will overlie the depressed portion 12' of the outer top wall panel 12 permitting convenient manipulation of the slide B for opening and closing the aligned dispensing apertures 22 and 23.

When the dispensing slide B is in fully closed position the unperforated portion of the body section 30 will lie between the aligned openings 22 and 23, as illustrated in Figs. 13, 14 and 15, so as to effectively seal these openings and prevent any loss of the contents. In the event it is desired to remove the contents by sifting, the finger grip section 31 is grasped and the dispensing slide pulled so as to bring the sift openings 38 into alignment with the dispensing openings 22 and 23. If bulk dispensing of the contents is desired, the dispensing slide is further moved so as to bring the dispensing opening 37 in the end of the body section 30 into alignment with the aligned openings 22 and 23, permitting bulk dispensing of the contents as illustrated in Fig. 17. It will be noted that when the slide is in the bulk dispensing position as shown in Fig. 17, the slide cannot be further withdrawn since the edges 36 of the foot section will abut the depressed edge of portion 12' of outer top wall panel 12. If due to denting or excessive pressure on the outer top wall panel 12 the top panel is forced inwardly, the foot section 33 of the closure member may slide under the end portion 12' of the top panel, thus providing an additional safeguard against an accidental removal of the closure slide B from between the top panels 12 and 17. The dispensing slide may be returned to closed position by exerting a pushing force on the finger grip section 31 so as to push the body section 30 into the closed position in which it will lie fully within the confines of the top wall panel 12.

By cutting and scoring the container blanks in the form shown in Fig. 18, a highly satisfactory dispensing container may be formed therefrom by the use of standard box assembling machines of somewhat different kind than used to form the container shown in Fig. 1. The blank A' as shown in Fig. 18 need be finished or imprinted on one side thereof only, and may be cut and scored at a high production rate on an automatic cutting and scoring machine. The blank comprises a panel 41, which may be termed the front wall panel, which is hingedly connected to a bottom wall panel 42 along a horizontally extending score line 44. An opposite or what may be called a rear wall panel 43 is hingedly connected to the bottom wall panel 42 along a horizontally extending score line 45 extending substantially parallel to the score line 44. Side wall forming flaps 46 and 46' are hinged to the opposite side edges of the front wall panel 41 along parallel extending score lines 47 and 47' respectively. Side flaps 48 and 48' are likewise hinged to the opposite side edges of the rear wall panel 43 along parallel extending score lines 49 and 49' respectively. Side tabs 50 and 50' are hinged to the opposite ends of bottom wall panel 42 along parallel extending score lines 51 and 51' respectively. Score lines 49 and 49' are substantially in alignment with score lines 47 and 47' respectively, and score lines 51 and 51' are slightly out of alignment with the respective score lines 47 and 48', to permit folding assembly of these tabs.

An outer top wall panel 52 is hinged to the upper end of the front wall panel 41 along a horizontally extending score line 61. A tuck-in tab 53 is hinged to the upper end of the side wall flap 46 along horizontally extending score line 61' while a similar tuck-in tab 53' is hingedly connected along transversely extending score line 61' to the upper end of side wall flap 46'. Score lines 61' are slightly out of alignment with score lines 61 to permit infolding of the tabs 53 and 53'. Tabs 53 and 53' are separated from the end of outer top wall panel 52 by cuts 54 and 54' respectively. An inner top wall panel 57 is hingedly connected to the upper end of the rear wall panel 43 along a horizontally extending score line 58. A sealing flap 55 is hingedly connected to the outer top wall panel 52 along horizontally extending score line 56 which extends parallel to score line 61.

The outer top wall panel 52 is provided with a dispensing opening 62 which is arranged to align with a dispensing opening 63 in the inner top wall panel 57 when the container is assembled. The outer top wall panel 52 is also provided with a slit 65 extending between the score lines 56 and 61. The dispensing slide, assembled from the blank B' shown in Fig. 19, is adapted to be inserted in position through the slit 65 when the container is assembled. Each of the top tabs 53 and 53' is provided with a cut-out 62' at the free ends thereof, which cut-outs are arranged to align with the dispensing opening 62 when the tabs 53 and 53' are in inturned container assembled position. It will also be noted that the bottom tabs 50 and 50' are separated from the lower ends of the side wall forming flaps 46 and 46' respectively by limited notched cut-outs 59 and 59'. The opposite side edge of the bottom tabs 50 and 50' are cut on a bevel at x so as to interfit and abut the beveled lower end x' of the adjacent side wall flaps 48 and 48' respectively.

The blank A' shown in Figure 18 is assembled into container form by applying adhesive to the inside faces of the side wall flaps 46 and 46'. The machine on which this blank is assembled is provided with a plunger which seats on the bottom wall panel 42. Elements associated with the machine operate to raise the bottom tabs 50 and 50' at right angles to the bottom wall panel 42, raises the back wall panel 43 at right angles to the bot-

tom wall panel 42, swings the side wall flaps 48 and 48' into alignment with the bottom tabs 50 and 50' respectively, raises the front wall panel 41 into positoin substantially at right angles to the bottom wall panel 42, as shown in Fig. 21, and then folds the side wall flaps 46 and 46' into overlying adhesive engagement with side flap 48 and bottom tab 50 and side flap 48' and bottom tab 50' respectively. At the conclusion of this assembly operation the container will be partially assembled in the form shown in Fig. 22.

The container shown in Fig. 22 is then ready to be filled with contents. After filling the container is run through an end sealing machine which operates to fold the top tabs 53 and 53' inwardly into alignment as shown in Fig. 23, with the cut-outs 62 together forming a dispensing opening. The inner top wall panel 57 is then folded to overlie the inturned tabs 53 and 53', outer top wall panel 52 is folded to overlie the inner top wall panel 57, adhesive is applied to the inside face of the sealing flap 55 and, finally, the sealing flap 55 is folded over and pressed into adhesive engagement with the outside surface of the rear wall panel 43. The container as thus assembled, filled and sealed appears as shown in Fig. 25.

The dispensing slide for the container shown in Fig. 25 may be formed from blank B' shown in Fig. 19. The blank B' comprises a body section 71 having a finger section 72 hinged to the body section 71 along a transversely extending score line 73. A wing section 74 is hinged to each side edge of the body section 71 along score lines 75. The free end of the body section 71 may be provided with a dispensing cut-out 76, while the body section 71 may also be provided with a series of sift openings 77 in advance of the dispensing cut-out 76.

The blank B' shown in Fig. 19 is assembled into a dispensing slide, by folding and, if so desired, adhesively securing the wing sections 74 to the body section 71. It will be noted by referring to Fig. 26 that the wing sections 74 when infolded and secured to the body section 71 do not cover or obstruct the sift openings 77. The ends 78 of the wing sections 74 provide abutment edges which prevent removal of the dispensing slide when the dispensing slide has been inserted into operative position through the slit 65 of the container. Insertion of the dispensing slide is accomplished by depressing portion 52' of the outer top wall panel 52, inserting the appropriate end of the slide through the slit 65, and pushing the slide until substantially the entire body portion 71 thereof is positioned between portion 52'' of the outer top wall panel 52 and the inner top wall panel 57, as illustrated in Figs. 27 and 28. When thus positioned, the slide will close the aligned dispensing openings 62, 63 and 62' so that the contents cannot escape. If it is desired to sift out the contents, the finger grip section 72 is grasped and a pull exerted on the slide until the sift openings 77 therein align with the aligned dispensing openings 62, 63, 62'. If bulk dispensing of the contents is desired, the dispensing slide is further withdrawn, as shown in Fig. 30, until the dispensing cut-out 76 aligns with the aligned dispensing openings 62, 63 and 62'. Further withdrawal of the dispensing slide is prevented since the ends 78 of the wing sections 74 will then abut the depressed edge portion 52' of the outer top wall panel 52.

By cutting and scoring the container blank in the form shown in Fig. 31 a highly satisfactory dispensing container may be formed therefrom by the use of standard strip gluing, folding and end sealing machinery. The blank A'' as shown in Fig. 31 need be finished or imprinted on one side only and may be cut and scored at a high production rate on an automatic cutting and scoring machine.

The blank is shown with its inside surface facing the observer and comprises a panel 80, which will be termed a front wall panel for convenience of description. The front wall panel 80 has side wall panels 81 and 82 hingedly connected thereto along vertically extending score lines 83 and 84. An opposite panel 85, which for convenience may be called a rear wall panel, is hingedly connected to the side wall panel 81 along a vertically extending score line 86. An end flap 87 is hingedly connected to the side wall panel 82 along a vertically extending score line 88. Bottom tabs 89 and 90 are hingedly connected to the side wall panels 81 and 82 respectively along a horizontally extending score line 91, and bottom panels 92 and 93 are hingedly connected to the front and rear wall panels 80 and 85 respectively along the same score line 91.

Supporting tabs 94 and 95 are hingedly connected to the side wall panels 81 and 82 along a horizontally extending score line 96 which is parallel to score line 91. An inner top wall panel 97 is hingedly connected to the rear wall panel 85 along the score line 96 and is suitably provided with a dispensing knock-out opening 98 formed by a line of perforations 99.

It will be understood that the individual sections of score lines 91 and 96 lying between the vertical score lines 86, 83, 84 and 88 are slightly out of alignment with one another according to the thickness of the material of the blank, to permit proper folding and assembling of the container.

An outer top wall panel 100 having a sealing flap 101 hinged thereto along a horizontal score line 102 is hinged to the front wall panel 80 along the horizontal score line 96. The outer top wall panel 100 is provided with a dispensing aperture 103 adapted to register with the dispensing aperture 98 in the assembled container. A slit 104 extends across the face of the outer top wall panel from score line 96 to 102 and permits insertion of a closure member therethrough to open and close the aligned dispensing apertures 98 and 103. Notches 105 and 105' are provided in the supporting tabs 94 and 95 and so arranged as to align with the dispensing openings 98 and 103 in the assembled container.

Blank A'', shown in Fig. 31, may quickly be assembled into collapsed shell or sleeve form at the box factory by running the blank through an automatic strip gluing and folding machine. Such machine operates to apply a strip of adhesive to the outside face of the end flap 87 as the blank passes through the machine and then operates to fold the side panel 82 about the score line 84 so as to overlie the inside surface of the front wall panel 80, as shown in Fig. 32. As the blank continues to advance through the machine, the rear wall panel 85, together with the bottom and inner top wall panels 93 and 97 connected to the side edges thereof, is folded about the score line 86 so as to overlie the inside face of the side wall panel 81 bringing the rear wall panel 85 into adhesive contact with the sealing flap 87. Pressure applied, as by a suitable pressure roller, presses the sealing flap 87 into firm ad-

hesive engagement with the inside face of the rear wall panel 85 adjacent its outer edge.

Thus prepared, the blank forms a collapsed shell or sleeve structure as shown in Fig. 33, which is discharged from the machine ready for stacking and shipping to the plant where it may be expanded and filled as needed.

The merchandise manufacturer can continue and complete the assembly of the collapsed shell quickly and expeditiously on standard box assembling equipment. For this purpose the assembled shell or sleeve structure is first expanded into tubular form as shown in Fig. 34. The partially assembled shell is run through an end sealing machine which, as shown in Figs. 34 to 37, closes the top end wall consisting of the supporting tabs 94 and 95, the inner top wall panel 97 and the outer top wall panel 100.

In the initial stage the machine operates to fold the paired supporting tabs 94 and 95 inwardly to close the open top side of the container. The inner and outer top wall panels 97 and 100 are then folded outwardly about the score line 96 and adhesive is applied to the inside face of the inner top wall panel 97 and the sealing flap 101, as shown in Fig. 35. As the container progresses through the machine the inner top wall panel 97 is pressed into firm adhesive engagement with the supporting tabs 94 and 95, as shown in Fig. 36. Thereafter the outer top wall panel 100 is folded over so as to overlie the inner top wall panel 97 and the sealing flap 101 is pressed into firm adhesive engagement with the top portion of rear wall panel 85 adjacent its top score line 96. Thus assembled the container has the form shown in Fig. 37 and is ready for filling with merchandise.

For the purpose of filling and final sealing the container is either placed on its side or top, depending upon the type of end sealing machine used.

For the purpose of illustration it will be assumed that a top end sealer is used, requiring inversion of the prepared container so as to rest it on its top wall structure, as illustrated in Fig. 38. Merchandise, which may either be loose or in the form of contents enclosed in a bag 106, is inserted into the container through the open bottom flaps 89 and 90 and bottom panels 92 and 93. The package may or may not have adhesive g applied to one end thereof so as to become adhesively secured to the inside of the supporting flaps 94 and 95, if this is desired.

After insertion of the contents the filled container passes through the end sealing machine, which in its first operation folds the bottom flaps 89 and 90 inwardly to close the bottom and folds the bottom panels 92 and 93 outwardly, as shown in Fig. 39. Adhesive is applied to the inside surfaces of the bottom panels 92 and 93 and the panels are then folded inwardly in succession to close the container, as shown in Fig. 40.

After sealing of the bottom, the container may be set upright as shown in Fig. 41 and a closure member B may be inserted through the slit. Obviously, the closure member may be of any suitable form, such as illustrated, for example, in Figs. 2 and 19. The closure member includes a finger operable tab portion 31, a main body portion 30, and an abutment portion 33 folded underneath the body portion 30 about a score line 34. The closure member after insertion into the completed and filled container may be moved into three distinct positions. In the first position the cut-out portion 37 registers with the dispensing apertures 98 and 103 for bulk dispensing, in the second position the fist openings 38 register with dispensing apertures 98 and 103 for sift dispensing, and in the third position the imperforate portion of the closure member closes the dispensing apertures 98 and 103 completely.

After reaching the consumer the container is opened by first moving the closure member B into its open position, in which the knock-out 98 is removed and the package 106 punctured underneath the dispensing opening if the contents are enclosed in such a package.

Manifestly the sliding closure member may be inserted before filling of the container with merchandise, i. e., at the stage of assembly of the container shown in Fig. 37.

It is now seen that I have provided a convenient dispensing container which is neat and attractive in appearance, and which may be easily manipulated either to sift dispense or bulk dispense the contents therefrom. The container itself is formed from a single blank of paperboard or other suitable material which is so shaped and formed as to permit assembly thereof on high speed automatic box assembly machines of standard design. The blanks are so shaped and cut as to be substantially rectangular in outline and result in little waste of material. The blanks need to be imprinted or finished on one side thereof only since only one face of a blank is presented as the exposed face of the assembled container. The dispensing slide may likewise be formed of a single piece of suitable material and may be assembled by a simple gluing and folding operation. The slide is so formed as to permit insertion through the slit provided in the outer top wall panel of the container after the container itself has been fully assembled and filled with the contents. Once the slide has been inserted into position it cannot be withdrawn but yet can be easily manipulated either to close off the dispensing opening, to present sift openings for dispensing purposes, or present a larger opening for bulk discharge of the contents.

The blank unassembled or partially assembled in collapsed shell form at the box plant, permits packing for shipping and storage purposes within a minimum of space, thereby effecting decided economies as compared with the shipment and storage of rigid set-up containers. The merchandise manufacturer may conveniently and economically assemble or complete the assembly of the container on standard box assembly equipment, which is substantially automatic and requires no highly skilled labor for its operation. The improved dispensing containers may be advantageously employed for the packaging of powdered or granular materials which have heretofore been packaged in cans or canisters wholly or partly formed from sheet material, or other more costly material.

While certain novel features of the invention have been disclosed herein, and are pointed out in the annexed claims, it will be understood that various omissions, substitutions and changes may be made by those skilled in the art without departing from the spirit of the invention.

What is claimed is:

1. A paperboard box blank comprising relatively foldable sections to provide a box body including, a bottom, a front panel and a back panel, each panel having lateral extensions on its side edges foldable upon one another to form side walls, each panel having at one end a group of integrally connected relatively foldable flaps, the

first group comprising a first top flap having a first dispensing aperture therethrough and an end flap for connection to the opposite panel, the second group comprising a second top flap having side flaps, and an end flap for connection to the opposite panel, said second top flap having further a second dispensing aperture therethrough located to register with said first aperture, and a slit to accommodate a closure member for said apertures.

2. A box or carton having a substantially rectangular end wall formed by a main panel and a supplementary panel lying therebeneath, both panels being unattached and having a central dispensing aperture therethrough, the main panel having further a slit therethrough, in combination with a closure member for opening and closing said dispensing aperture, said member being arranged between said main and said supplementary panel and resting on the top surface of the supplementary panel, said member comprising a finger operable end portion extending through said slit, said member being of substantially the size of the panel so as to extend approximately to one edge of said panel with the edge of its tab portion when the member is in one end position, said member comprising further a main portion having a group of small dispensing openings therethrough adapted to be brought into registry with said aperture when said member is moved into an intermediary position, and an abutment portion, the abutment portion including a flap folded back upon the main portion and providing an abutment edge cooperating with an edge of said slit to prevent withdrawal of said member through said slit, the abutment portion being cut away at its folding edge sufficiently fully to open said dispensing aperture when the member is moved into the other end position.

3. A box or carton comprising, in combination, a bottom; front and back panels integral with said bottom; lateral extensions integral with, and extending to, either side of each panel folded upon each other to form side walls; an outer top flap integral with, and connected to the end edge of, one of said panels, said outer top flap having a substantially centrally located aperture therethrough and a slit extending across the top flap parallel to one edge thereof to accommodate a closure member; an end flap hingedly connected to said outer top flap, said end flap being adhesively secured to the outside surface of the other panel; an inner top flap hingedly connected to the end edge of said other panel, the inner top flap lying beneath the outer top flap, the opposed surfaces of said outer top flap and said inner top flap being unattached, the inner top flap having a substantially centrally located second aperture therethrough registering with said first aperture; a tab hingedly connected to each of said extensions along the top edges thereof adjacent said outer top flap, said tabs being arranged below said inner top flap to hold the same in place in a position parallel to and beneath said outer top flap; and a closure member for said apertures inserted between said outer and inner top flaps for sliding movement on said inner top flap, said closure member having a finger operable end portion extending through said slit, a main body portion, and two abutment tabs integral with, and connected to, said body portion along the longitudinal edges thereof, said tabs being folded over and in contact with the back surface of said body portion to form an abutment edge cooperating with one edge of said slit and preventing complete withdrawal of said member through said slit.

4. A blank formed from a single piece of paperboard material from which a dispensing carton may be formed comprising a bottom wall panel, a front wall panel and a rear wall panel hinged to opposite side edges of the bottom wall panel, a side wall flap hinged to and extending from each side edge of said rear wall panel and said front wall panel, an inner top wall panel and an outer top wall panel hinged to the opposite end of said front and rear wall panels, a securing flap hinged to the end of said inner top wall panel and a sealing flap hinged to the opposite end of said outer top wall panel, an inturning flap hinged to each end of said bottom wall panel and to each end of said outer top wall panel, a dispensing opening in said inner top wall panel and said outer top wall panel arranged to align with one another when the container is assembled, and a slit in the outer top wall panel to accommodate a slidable closure member.

5. A box or carton having a substantially rectangular end wall formed by a main panel and a supplementary panel lying therebeneath, both panels having a central dispensing aperture therethrough, the main panel having further a slit therethrough, in combination with a closure member for opening and closing said dispensing aperture, said member being arranged between said main and said supplementary panel and comprising a finger operable end portion extending through said slit, said member being of substantially the size of the panel so as to extend approximately to one edge of said panel with the edge of its tab portion when the member is in one end position, said member comprising further a main portion having a group of small dispensing openings therethrough adapted to be brought into registry with said aperture when said member is moved into an intermediary position, and an abutment portion, the abutment portion including a pair of tabs integrally connected to said main portion along the longitudinal edges thereof, said tabs being folded over and in contact with said main portion to provide an abutment edge cooperating with one edge of said slit to prevent withdrawal of said member through said slit, the main portion being cut away at the lateral edge remote from said finger operable tab portion fully to open said dispensing aperture when the member is moved into the other end position.

6. A box or carton comprising a multi-sided tubular body formed of side walls, and foldable flaps for closing its ends, one side wall consisting of an inner panel and an outer panel, said inner panel having a securing tab hinged thereon secured to the inner surface of the wall panel adjacent said outer panel, said outer panel having a securing tab hinged thereon secured to the outer surface of the wall panel adjacent said inner panel, said inner and outer panels lying unattached face to face, each panel having an aperture therein, the apertures being in registry, the outer panel having a slit therein; and a slide member inserted between said inner and outer panels, said slide member having a finger operable tongue projecting through said slit, whereby said slide member may be moved to open and close said apertures.

7. A box or carton comprising a multi-sided tubular body formed of side walls, and foldable flaps for closing its ends, one side wall consisting of an inner panel and an outer panel, said inner

panel having a securing tab hinged thereon secured to the inner surface of the wall panel adjacent said outer panel, said outer panel having a securing tab hinged thereon secured to the outer surface of the wall panel adjacent said inner panel, said inner and outer panels lying unattached face to face, each panel having a dispensing aperture therein, the aperture being in registry, the outer panel having further a slit therein; and a closure member inserted between said outer and inner panels with freedom to slide therebetween, said closure member having a finger operable portion extending through said slit and having further an abutment edge adapted to cooperate with an edge of the slit to provide a stop limiting the longitudinal movement of said closure member.

8. A dispensing box or carton adapted to be pre-formed as a tubular collapsed blank in which the top wall including dispensing means, bottom, front and back walls are hingedly connected and assembled, the said blank being adapted to be expanded and filled through the side walls and sealed, the box comprising, in combination, front and back vertical walls; a bottom to which both said front and back walls are hinged along bottom fold lines, four side wall forming panels, said panels being hingedly connected to the front and back walls, respectively, along side fold lines and foldable one on top of the other into carton closing position; an inner top flap formed integral with one of said vertical walls and extending to the wall opposite said one vertical wall, said flap having a first aperture cut in the body thereof; means for securing said inner top flap to said opposite vertical wall; an outer top flap arranged above the inner top flap and formed integral with another of said vertical walls, said outer top flap having a slit and a second aperture cut in the body thereof, said second aperture registering with said first aperture; means for securing said outer top flap to the wall opposite said other vertical wall leaving the opposed surfaces of the said outer and inner top flap unattached; and a dispensing slide for said apertures insertable between said outer and inner top flaps for sliding movement on said inner top flap, said dispensing slide having a finger operable portion at one end extending through said slit and an abutment portion near the other end, the abutment portion cooperating with one edge of said slit and preventing complete withdrawal of said slide through said slit.

9. A dispensing box or carton adapted to be pre-formed as a tubular collapsed blank in which the top wall including dispensing means, bottom, front and back walls are hingedly connected and assembled, the said blank being adapted to be expanded and filled through the side walls and sealed, the box comprising, in combination, front and back vertical walls; a bottom to which both said front and back walls are hinged along bottom fold lines, four side walls forming panels, said panels being hingedly connected to the front and back walls, respectively, along side fold lines and foldable one on top of the other into carton closing position; an inner top flap formed integral with one of the said vertical walls and extending to the opposite vertical wall, said flap having a first aperture cut in the body thereof; an end flap integral with said inner top flap and secured to the inside of said opposite vertical wall; an outer top flap arranged above said inner top flap and formed integral with another of said vertical walls, said outer top flap having an inner surface unattached to said inner top flap and having a slit and a second aperture cut in the body thereof, said second aperture registering with said first aperture; an end flap integral with said outer top flap and secured to the outside of the vertical wall opposite said other wall; and closure slide for said apertures insertable between said outer and inner top flaps for sliding movement on said inner top flap, said closure slide having a finger operable end portion extending through said slit and an abutment cooperating with one edge of said slit and preventing complete withdrawal of said slide through said slit.

10. A dispensing box or carton adapted to be pre-formed as a tubular collapsed blank in which the top wall including dispensing means, bottom, front and back walls are hingedly connected and assembled, the said blank being adapted to be expanded and filled through the side walls and sealed, the box comprising, in combination, front and back vertical walls; a bottom to which both said front and back walls are hinged along bottom fold lines, four side walls forming panels, said panels being hingedly connected to the front and back walls, respectively, along side fold lines and foldable one on top of the other into carton closing position; two side flaps hingedly connected to the side edges of the bottom, said side flaps being adapted to underlie said side wall forming panels to form sealing flaps resting against the inside surface of the side walls; an outer top panel integral with, and connected to the end edge of, one of said front and back walls, said outer top panel having a substantially centrally located aperture therethrough and a slit extending across the top flap parallel to one edge thereof; an end flap integral with, and connected to, said outer top panel, said end flap being adhesively secured to the outside surface of the wall opposite said one wall; an inner top panel integral with, and connected to the end edge of, said opposite wall, the inner top panel lying beneath the outer top panel and having a substantially centrally located aperture therethrough registering with said first aperture; means for securing said inner top panel in position parallel to and beneath said outer top panel, the opposed surfaces of said outer and inner top panels remaining unattached; and a closure member for said apertures inserted between said outer and inner top panels for sliding movement on said inner top panel, said closure member having a finger operable end portion extending through said slit and an abutment cooperating with one edge of said slit and preventing complete withdrawal of said member through said slit.

11. A box or carton comprising, in combination, a bottom; front and back panels hingedly connected to said bottom along bottom fold lines; side wall forming panels hinged to said front and back panels along side fold lines, said side wall forming panels being foldable upon each other to close the carton and form side walls of double thickness; an outer top panel integral with, and hinged to the end edge of, one of said front and back panels, said outer top panel having a substantially centrally located aperture therethrough and a slit extending across the top panel parallel to one edge thereof to accommodate a closure member; an end flap integral with, and connected to, said outer top panel, said end flap being adhesively secured to the outside surface of the panel opposite said one panel whereby a

tubular structure is formable of the box blank adapted to be expanded into hollow carton form and sealed by folding and sealing of the side wall forming panels; an inner top panel integral with, and connected to the end edge of, said opposite panel, the inner top panel lying beneath the outer top panel and having a substantially centrally located second aperture therethrough registering with said first aperture, the opposed surfaces of said outer and inner top panels being unattached; a tab hinged to certain of said side wall forming panels along the top edges thereof adjacent said inner top panel, said tabs being foldable below said inner top panel to hold the same in place in a position parallel to and beneath said outer top panel; and a closure member for said apertures inserted between said outer and inner top panels for sliding movement on said inner panel, said closure member having a finger operable end portion extending through said slit and an abutment cooperating with one edge of said slit and preventing complete withdrawal of said member through said slit.

12. A box or carton comprising, in combination, front and back vertical walls; double thickness side walls formed by panels hinged to said front and back walls, respectively, along side fold lines; a bottom to which said vertical walls are hinged along bottom fold lines; an inner top flap formed integral with one of said vertical walls and extending to the wall opposite said one vertical wall, said flap having a first aperture cut in the body thereof; means for maintaining said flap at right angles to said vertical walls; an outer top flap arranged above said inner top flap and formed integral with another of said vertical walls, said outer top flap having a slit and a second aperture cut in the body thereof, said second aperture registering with said first aperture; means for securing said outer top flap to the wall opposite said other vertical wall leaving the opposed surfaces of said outer and inner top flap unattached, whereby a tubular structure is formable on the carton blank ready to be expanded into hollow form and sealed by folding and sealing of the side walls; and a closure member for said apertures inserted between the opposed surfaces of said inner and outer top flaps to rest and slide on the surface of the inner top flap, said closure member extending through said slit and having an abutment cooperating with an abutment edge formed by said slit in said outer top flap preventing complete withdrawal of said member through said slit.

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