Aug. 18, 1942. W. H. INMAN 2,293,342

BOX STRUCTURE

Filed March 14, 1940

Fig. 2

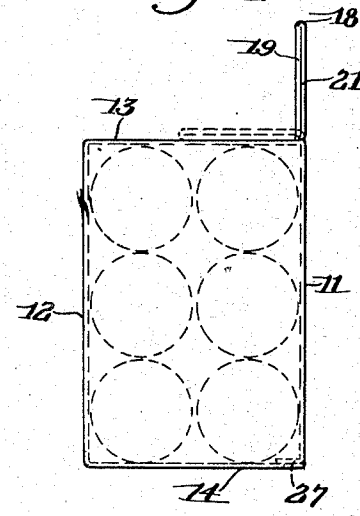


Fig. 1

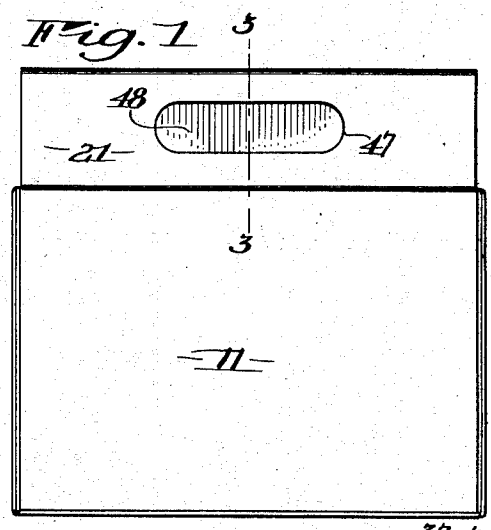


Fig. 3

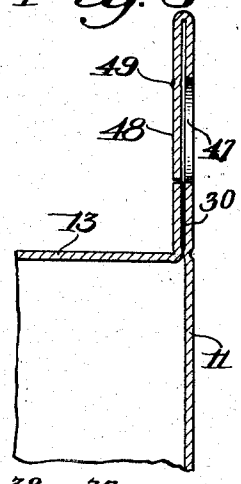


Fig. 4

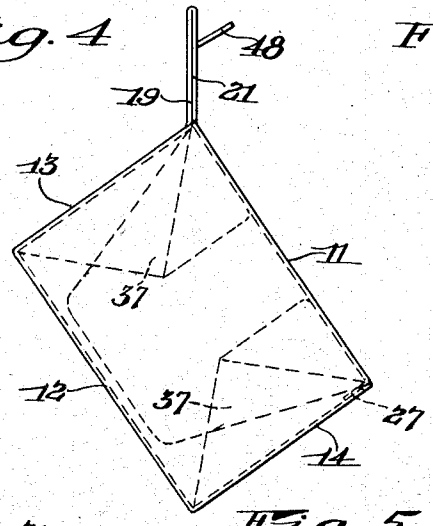


Fig. 6

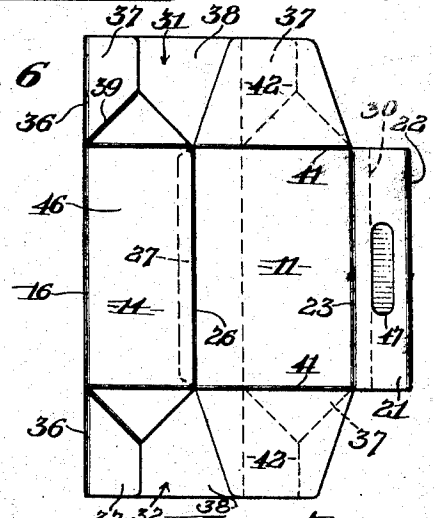


Fig. 7

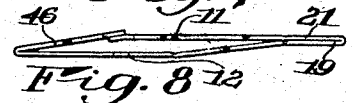


Fig. 8

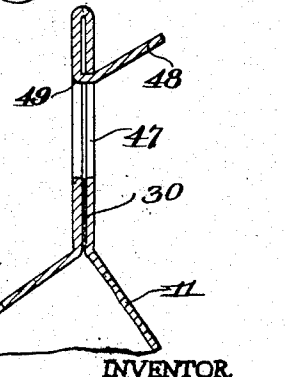
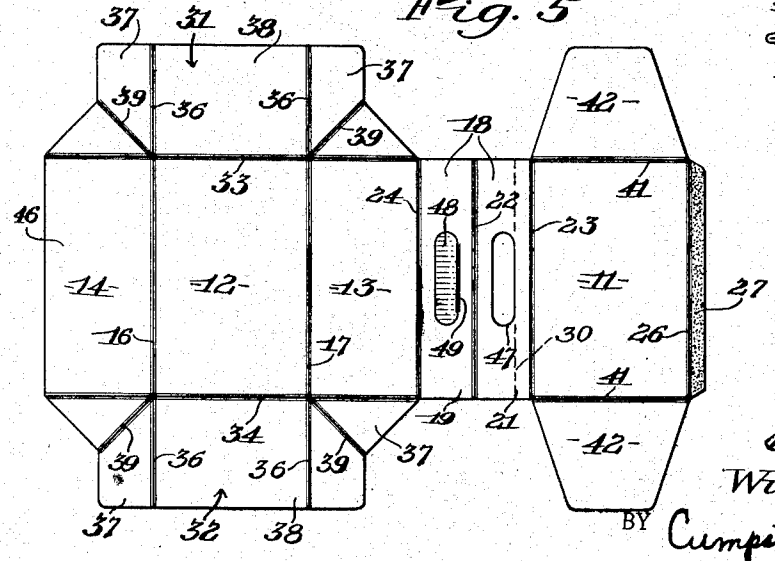


Fig. 5



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BOX STRUCTURE

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Application March 14, 1940, Serial No. 323,879

2 Claims. (Cl. 229—52)

My invention relates to box structures.

An object of my invention is to provide a box which may be inexpensively fabricated and which is convenient to pack and handle.

Another object of my invention is to provide an improved box structure in which a handle section is provided formed integrally with the box and adapted to be folded down flatwise against the side walls of the box.

Other objects and advantages of my invention will be particularly pointed out in the claims and will be apparent from the following description, when taken in connection with the accompanying drawing, in which:

Fig. 1 is a side elevation of the novel box structure of my invention;

Fig. 2 is an end elevation of the box showing, in dotted lines, cans contained in the box structure;

Fig. 3 is a sectional view taken substantially on the line 3—3 of Fig. 1;

Fig. 4 is an end elevation of the box, with the box in carrying position;

Fig. 5 is a view showing the manner in which the blank for making the box is cut and scored;

Fig. 6 is a view showing the blank of Fig. 5 folded in the position the parts occupy when shipped from the box manufacturer;

Fig. 7 is an end elevation of Fig. 6, and

Fig. 8 is a sectional view, similar to Fig. 3, showing the handle structure in active carrying position.

The blank from which the box or carton of my invention is formed, is shown in Fig. 5. The blank may be of any suitable material, but preferably is of relatively stiff paperboard or cardboard. The blank is cut and scored so as to provide, what may be considered, a top wall 11, a bottom wall 12, and front and rear walls 13 and 14, respectively. The bottom wall 12 is separated from the front and rear walls by score lines 16 and 17, and between the front wall 13 and the top wall 11 a handle section, generally indicated by the numeral 18, is provided.

The handle section 18 comprises two flaps 19 and 21 which are separated by a fold line 22. The handle section 18 is separated from the top wall 11 by a fold line 23, and from the front wall 13 by a fold line 24. Formed integral with the top wall 11 and separated therefrom by a fold line 26, is a flap 27, the surface of which is covered with any suitable adhesive.

Formed integral with the bottom, front, and rear walls are a pair of flaps, generally indicated by the numerals 31 and 32. The flaps are separated from the bottom, front, and rear walls by fold lines 33 and 34. Formed as extensions of the score or fold lines 16 and 17 are score lines 36 which divide the flaps 31 and 32 into flap sections 37 and 38. Extending diagonally outward from the corners of the bottom section 12, and dividing the flap sections 37 into two parts, are fold lines 39.

Formed integral with the top section 11 and separated therefrom by score lines 41 are flaps 42 which preferably taper toward their outer margins. After the blank has been cut and scored, as shown in Fig. 5, the top 11 and the flap 21 of the handle section are folded on the score or fold line 22, so that the top is superposed with respect to the front wall 13. The rear wall 14 and the flaps 37 are then folded along the score lines 16 and the extensions thereof 36, so as to superpose the rear wall 14 with respect to the bottom 12. This brings the edge 46 in overlapping relation with the glue flap 27, so that the rear wall 14 is adhesively secured to the flap 27. The box is then in the condition shown in Figs. 6 and 7. In this condition the box is adapted to be shipped from the box manufacturer to the manufacturer of the articles with which the box is to be used.

In the drawing, I have illustrated the box of my invention in use for packaging canned goods. However this is merely by way of illustration, as it will be readily apparent that the box is suitable for other purposes. For example, by varying the dimensions, it may be used for shipping bottled goods or for any other desired purpose.

When the box is to be used to package cans, as illustrated in the drawing, the parts of the box may be shifted to a position such that the top wall 11 lies above and is parallel to the bottom wall 12. With the parts in this position, the flaps 42 and 31, at one end of the box, may be used to form an end closure. This is accomplished by folding the flap sections 37 inwardly along their diagonal score lines 39 so that parts of the flap sections 37 are superposed with respect to each other and overlie portions of the flap 38. A pocket is thus formed between the inner wall of the flap 38 and the flap sections 37, into which pocket the flap 42 may be tucked. After the flap 38 has been moved to a right angle position with respect to the top wall, an end closure is formed in which the flap or tongue 42 lies in the pocket formed by the flap section 31, so as to lock the parts in this position. The opposite end of the box is then open and may be filled with cans by moving the cans into the box

in an endwise manner. After the box has been filled with the number of cans for which it is designed, as for example six cans, as shown in the drawing, the flap sections 32 and 42 at the open end of the box, are closed and locked in position in the manner previously described. The box then forms a complete closure for the cans.

Formed in each of the handle sections 19 and 21 is a hand hole 47, in one of which the material is entirely cut out, and in the other of which the flap 48 is provided by leaving a hinge line 49 along one edge. The flap 48 is normally adapted to lie as shown in Fig. 3, but may be hinged on the fold line 49 so as to extend through the opening 47 formed in the other handle flap section 21, so that the structure appears as shown in Fig. 8. Adjacent the hand hold, I preferably employ a line of gluing 36. This glue area, when the handle sections are superposed with respect to each other, extends preferably from the lower edge of the hand hold to the fold lines 23 and 24 and prevents the flaps 19 and 21 of the handle sections from separating and the adjacent portions of the box from spreading adjacent the handle. The use of a glue area to hold the flaps of the handle together is particularly desirable when the box is made from relatively thin stock. If desired the flaps of the handle section may be secured together by staples or other suitable means.

While the box or carton structure of my invention is adapted to be used by itself and shipped, as shown in the drawings, it is usual to package a number of boxes or cartons, similar to that shown, in an enveloping carton. For example, two, four, six, or more of the boxes of my invention may be enclosed within an enveloping carton, so as to provide a twelve, twenty-four, or thirty-six can package. When the boxes or cartons of my invention are packaged in the enveloping carton the handle section may be swung upon the fold lines 23 and 24 so as to lie flatwise against one of the side walls of the box. As shown in dotted lines in Fig. 2, the handle section has been swung so as to lie flatwise against the front wall 13. If desired, the handle could be swung so as to lie flatwise against the top wall 11.

After the carton has been received by the retailer or other dealer in the goods packaged, the goods may be sold in their individual boxes or cartons. The custom of merchandising goods by selling a number of cans at a somewhat reduced price is quite prevalent, and the box of my invention makes it convenient for the retailer to sell, for example, six cans of goods in a completely enclosed package, which the consumer may handle conveniently in transporting the cans from the store to his home.

While I have shown the box or carton in use for packaging six cans, it will be appreciated that the carton may be of any desired size, within the limits dictated by the convenient handling thereof. When the box is carried by the handle, the box swings with respect to the handle to the position dictated by its center of gravity, so that the box is carried in a somewhat diagonal position, as shown in Fig. 4.

Of importance, in connection with the box of my invention, is the fact that the box may be filled endwise. Moreover, the handle is formed by extending the side walls so that the handle lies along a longitudinal edge of the box. Thus the strain caused by the weight of the articles in the box, when the box is carried, is not applied on the end closures. This is of importance in connection with boxes of this character, as it will be appreciated that the end flaps are not sealed in any manner, and if the weight of the cans were applied on these flaps they would be likely to open.

While I have shown the handle as being formed by two flaps 19 and 21, by cutting the blank somewhat differently, the handle section may be formed from a single flap, or, if desired, the blank may be cut so as to provide a handle flap section at each end of the blank. While I have shown and described the preferred form of my invention, it will be apparent that various changes and modifications may be made therein, particularly in the form and relation of parts, without departing from the spirit of my invention as set forth in the appended claims.

I claim:

1. A box adapted to be formed into initial collapsed condition upon folding a flat blank of paperboard sheet material on only two fold lines, said box including four side wall sections, two handle sections, and a securing flap all integrally hinged to each other and formed from a single piece of paperboard sheet material, said two handle sections being integrally hinged directly to each other and each of the handle sections being integrally hinged directly to one of the side wall sections, said two handle sections being folded upon each other about the hinge line between them and being secured in superimposed relation to each other, said securing flap being integrally hinged directly to one of the side wall sections and being overlapped with and secured to another of the side wall sections remote from the wall section to which said flap is hinged when the parts are in flat blank condition but adjacent thereto when the parts are formed into said initial collapsed condition, said securing flap when the box is in formed condition being spaced from said handle sections by the width of at least one of the side wall sections.

2. A blank of paperboard sheet material adapted, upon being folded along only two fold lines, to be formed into a collapsed box capable of being later erected, said blank being subdivided by score lines to form four side wall sections, two handle sections, a securing flap, and a plurality of end closure sections, the two handle sections lying adjacent each other and between two of the side wall sections, three of the side wall sections being on one side of the two handle sections and the fourth side wall section being on the other side of the two handle sections, the end closure sections being adjacent the end edges of the side wall sections, and the securing flap being next to the edge remote from the handle sections of said fourth side wall section, the parts being proportioned so that when said blank is folded upon itself about a first fold line between the second and third side wall sections from the handle sections, and also about a second fold line between the two handle sections, the two handle sections will be brought into superimposed relation to each other and the securing flap will be brought into superimposed relation to a free marginal portion of said third side wall section.

WILLIAM H. INMAN.