

Jan. 23, 1945.

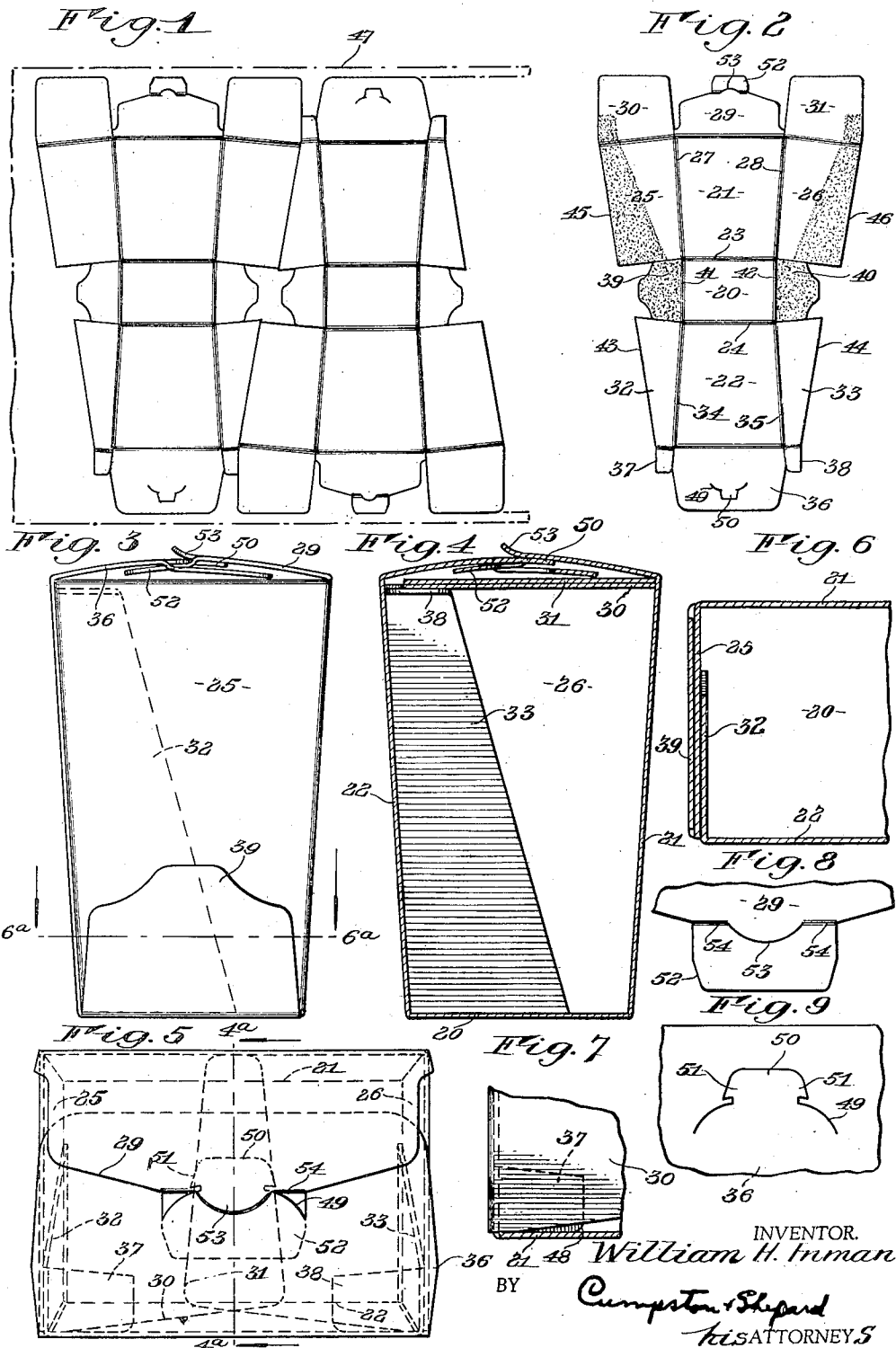
W. H. INMAN

2,367,780

CARTON

Filed June 22, 1940

2 Sheets-Sheet 1



Jan. 23, 1945.

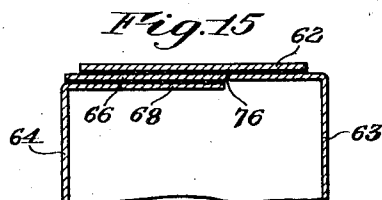
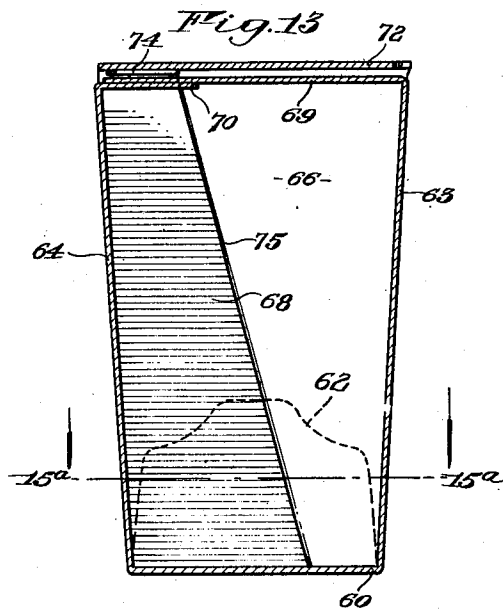
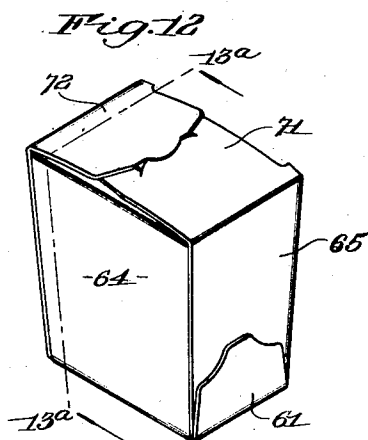
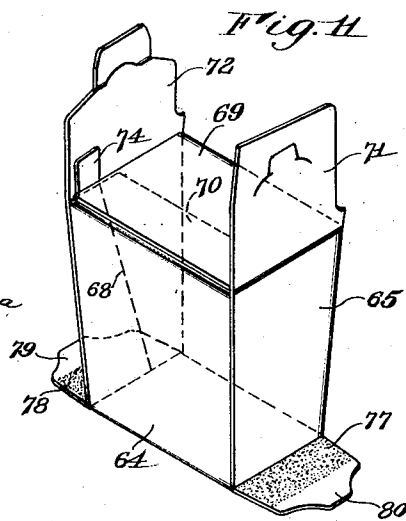
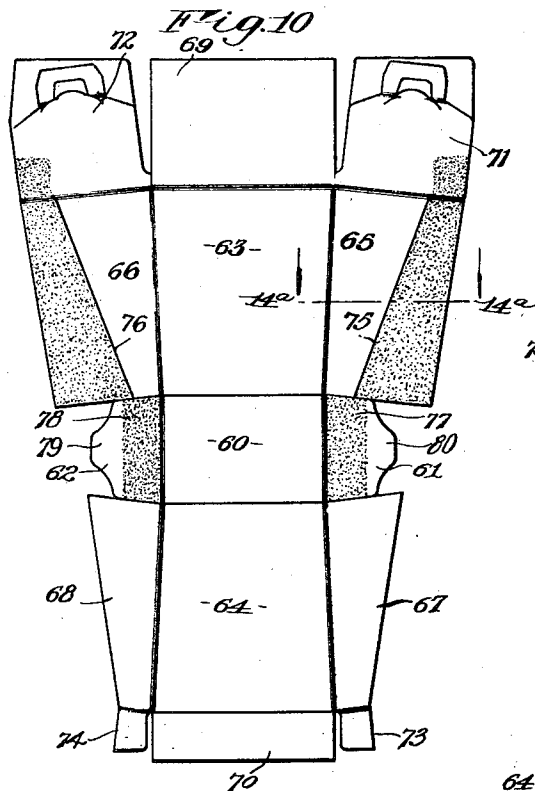
W. H. INMAN

2,367,780

CARTON

Filed June 22, 1940

2 Sheets-Sheet 2



INVENTOR
William H. Inman
BY *Cumpton & Shepard*
his ATTORNEYS.

UNITED STATES PATENT OFFICE

2,367,780

CARTON

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poration of New York

Application June 22, 1940, Serial No. 341,947

3 Claims. (Cl. 229—26)

This invention relates to containers for articles such, for example, as food products, made of cardboard or like material, capable of being cut into blanks from a stock sheet and folded, set up and secured in container form.

One object of the invention is to provide a container of the above character having a strong, practicable construction, capable of being manufactured economically from a minimum of material. Another object of the invention is to provide such containers made from blanks so arranged and shaped that they may be cut from a stock sheet in abutting relation to one another, with a minimum wastage of stock.

A further object is the provision of containers of the above character having also a construction which adapts the folded portions to be manually and readily detached and unfolded into substantially flat condition, to free the contents for ready access.

To these and other ends the invention resides in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Fig. 1 is a view showing two carton blanks embodying the present invention arranged as cut from a stock sheet shown in dotted lines;

Fig. 2 is a view of one of the blanks detached;

Fig. 3 is an enlarged side elevation of the carton set up from such blanks;

Fig. 4 is a sectional elevation on the line 4a—4a in Fig. 5;

Fig. 5 is a top plan view of the carton;

Fig. 6 is a fragmentary section on the line 6a—6a in Fig. 3;

Fig. 7 is a fragmentary top plan view, partly in section, of a detail shown in Fig. 5;

Figs. 8 and 9 are fragmentary views of cooperating closure locking means;

Fig. 10 shows a blank of modified construction;

Fig. 11 is a perspective view of a carton partly set up from the blank of Fig. 10;

Fig. 12 is a similar view showing the carton set up and closed;

Fig. 13 is an enlarged sectional elevation on the line 13a—13a of Fig. 12;

Fig. 14 is an enlarged sectional detail on the line 14a—14a in Fig. 10, and

Fig. 15 is a fragmentary sectional plan view on the line 15a—15a in Fig. 13.

Similar reference numerals throughout the several views indicate the same parts.

The invention is embodied in the present in-

stance, by way of illustration, in a container made from a cardboard blank cut, scored, folded, set up and glued to form a carton having tapered sides and a filling opening at its top, of the variety known as "a pail," and commonly employed for distributing food products, such as ice cream, as well in a blank for making the same.

The blank for forming the carton is shown in Fig. 1 in the arrangement in which it is cut from a sheet of stock, and in Fig. 2 it is separated and glued ready to be set up. This blank may be made of any foldable cardboard or like material of suitable thickness and character for such purposes, as well understood in the art, and comprises a rectangular bottom portion 20, with oppositely extending, tapered side walls 21 and 22 adapted to be folded upwardly from the bottom along score lines 23 and 24, respectively. Side wall 21 has oppositely extending, tapered side flaps 25 and 26, formed by folding along the score lines 27 and 28 therebetween. Side walls 21 and 22 correspond in size and shape to opposite side walls of the carton, and side flaps 25 and 26 are relatively wide and preferably correspond substantially in size and shape with the adjacent side walls. That is, side flaps 25 and 26 are provided to form, with other flaps described below, the opposite side walls lying between the side walls 21 and 22.

Side wall 21 is extended to form an outer closure flap 29 and side flaps 25 and 26 are extended to form inner top closure flaps 30 and 31, respectively, having a size and shape capable of substantially closing the top filling opening of the carton.

Side wall 22 is extended at opposite sides to form the relatively narrow side flaps 32 and 33 folded therefrom about the score lines 34 and 35. Side wall 22 is extended to form also an outer top closure flap 36, and side flaps 32 and 33 are extended to form small strengthening top flaps 37 and 38.

The bottom 20 has opposite extensions 39 and 40 folded upwardly about score lines 41 and 42 to form parts of the side walls of the carton in the position hereafter described.

It will be noted that side flaps 32 and 33 have outer edges 43 and 44 lying substantially parallel, in blank form, with the outer edges 45 and 46 of the cooperating side flaps 25 and 26, respectively. That is, the shape of said flaps 32 and 33 is made complementary to the shape of side flaps 25 and 26 so that, as indicated in Fig. 1, the blanks are of generally trapezoidal shape with opposite parallel bases and relatively inclined

opposite sides, as shown, and may be successively cut from the stock sheet 47, in alternately reversed, substantially abutting relation, so as to employ a minimum quantity of stock in the cartons and reduce wastage to a minimum. While it is preferred to employ the parallel relation referred to above, and maintain the outer side flaps 25 and 26 of substantially the full size and shape of the corresponding side walls, it is contemplated that other relations of such size edges may be employed within the described complementary principle.

In setting up the carton, side walls 21 and 22 are erected, the relatively narrow side flaps 32 and 33 are folded inwardly to form the adjacent or intermediate side walls, and side flaps 25 and 26 are folded inwardly and glued in overlapping relation on the outer sides of flaps 32 and 33, respectively, as shown in Figs. 3, 4, and 6 of the drawings. Bottom flaps 39 and 40 are brought up and glued in overlapping relation on the outer sides of flaps 25 and 26, as shown, thus forming a strong, fluid tight bottom structure. To this end the bottom edges of all of the side flaps are preferably cut to include a slightly enlarged angle with the adjacent fold lines of the flaps so that their bottom edges extend downwardly toward the outer edges to maintain tight engagement with the bottom 20 of the carton, adjacent each other, and within the bottom flaps 39 and 40.

It has been found that the narrow width of said flaps 32 and 33, particularly adjacent their tops, may be made practicable by providing them with top flaps 37 and 38 which overlap and are glued to the undersides of the adjacent large top closure flaps 30 and 31, as shown in Figs. 4 and 7. With this construction, there is provided a continuity of fibrous structure around the adjacent corner of the carton, and the tops of the narrow side flaps 32 and 33 are continued up above the filling opening and stayed to the substantial flaps 30 and 31, thus affording a relatively strong top corner structure, for resisting strains imposed during the filling of the carton, for example.

In this form of the invention, the top flaps 37 and 38 are preferably shaped, as shown in Fig. 7, so as to project as at 48 sufficiently beyond the edge of the adjacent flap 31 to closely engage the adjacent side wall 21, to form a tight corner closure.

After the carton has been filled, the inner top closure flaps 30 and 31 are folded down on the contents, and then the outer top closure flaps 29 and 36 are folded down as shown in Figs. 3, 4, and 5, and a novel locking means is provided for immovably locking these flaps together, such locking means forming the subject matter of my Letters Patent No. 2,342,543, dated February 22, 1944. This locking means, as shown in Figs. 8 and 9, preferably comprises a curved slit 49 cut in one flap, as 36, so as to form an outwardly projecting and tapered tab 50 having undercut side portions forming projecting shoulders 51 adjacent its base. The other flap, as 29, is preferably formed with an outwardly projecting and tapered tongue 52, at the base of which is cut a curved slit 53 of slightly less length and effective span than the width of tab 50 across its shoulders 51. The base of the tongue at the ends of the slit is preferably scored along lines 54, to facilitate bending of the tongue.

As the flaps 29 and 36 are brought together, the outer end of flap 36 is depressed so as to open the slit 49 and leave tab 50 in a relatively

raised position. Tongue 52 is then depressed and inserted under tab 50 in tight engagement at its sides with the ends of slit 49. At the same time, slit 53 is similarly opened for the reception of tab 50 which is slightly compressed by bending, so that shoulders 51 spring past the ends of the slit 53 and then expand and interlock therewith. This provides multiple and tight engagement between flaps 29 and 36 at four spaced points, namely, the ends of slits 49 and 53, so as to hold the flaps immovably interlocked and aligned with one another and so prevent any twisting or distortion of the pail, which might tend to cause opening at its joints and leakage of the contents.

It has been further found that the efficient type of construction described above also affords another advantageous way of constructing a pail of the general type disclosed in Patent No. 1,908,251, granted to me and Harrison C. Bloomer; that is, one capable of being readily unfolded and collapsed to render the contents accessible. This form of the present invention is particularly illustrated in Figs. 10 to 15, inclusive, of the drawings.

In the blank for this modification, which is of the same general shape described above, as illustrated in Fig. 10, the bottom portion 60 has similar bottom flaps 61 and 62, with side walls 63 and 64, and the latter have similar pairs of side flaps 65 and 66, and 67 and 68, respectively. However, the relative positions of the inner and outer top closure flaps are reversed, in that the pair of inner top closure flaps 69 and 70 are folded from the side walls 63 and 64, while the outer, interlocking top closure flaps 71 and 72 are folded from the side flaps 65 and 66. The flap 70 is preferably short, as shown, and flap 69 is substantially the same size as the filling opening, while outer flaps 71 and 72 complete the closure as in the case of flaps 29 and 36 of the first modification, and are secured together by the same interlocking means.

In this modification also the narrow side flaps 67 and 68 are extended to provide top closure flaps 73 and 74, generally similar to flaps 37 and 38 in the first modification, and these flaps are glued to the outer top closure flaps 71 and 72, with the same advantages, except that in this modification the inner top closure flaps form a tight closure for the filling opening, and flaps 73 and 74 lie within the outlines of flaps 71 and 72.

In this modification also the inner surfaces of side flaps 65 and 66 are preferably weakened by any suitable form of scoring or punching, along lines 75 and 76 extending adjacent the edges of flaps 67 and 68, for the purpose of terminating and directing any stripping of the surface fibers as the side flaps are separated in collapsing the carton.

The bottom flaps 61 and 62 of this modification are preferably glued to the outer surfaces of the outer side flaps 65 and 66 over a portion only of the area of flaps 61 and 62, as indicated at 77 and 78, leaving the free portions 79 and 80 adapted to be grasped for stripping flaps 61 and 62 free from the side flaps.

Except for the changes noted above, this modification is set up, filled, and closed as described above in connection with the first modification. When this modification is opened, the outer top closure flaps 71 and 72 provide readily unfolded portions, kept free from the contents by the inner

closure flaps 69 and 70, so that they are not softened by the liquid contents and may also be grasped without soiling the fingers. These flaps 71 and 72 thus serve as portions which may be conveniently grasped and pulled outwardly and downwardly to strip the side flaps 65 and 66 from their glued attachment to the inner side flaps 67 and 68. In this operation the top flaps 73 and 74 remain united with flaps 71 and 72 and are readily torn from the side flaps 67 and 68 along the line of fold therewith, while the side flaps 67 and 68 are retained by the side wall 64 and their adhesion to the contents of the pail. This separation of the side flaps is facilitated by the narrow width and relatively small area of the side flaps 67 and 68.

In the operation of this modification, after unlocking and raising the top flaps 71 and 72, the free portions 79 and 80 of the bottom flaps are grasped and pulled until the bottom flaps are freed from the side walls, as shown in Fig. 11. Then the top flaps 71 and 72 are grasped and pulled outwardly and downwardly as above described, to separate the side flaps, after which the side walls 63 and 64 may be moved outwardly to collapse the blank and free the contents, as above described.

The described embodiments thus accomplish the purposes of the invention and while such embodiments have been disclosed in detail, by way of illustration of the principles involved, it is contemplated that the invention is capable of other embodiments. The invention is not to be limited, therefore, to the precise constructions disclosed, but is intended to comprise variations and modifications thereof falling within the scope of the appended claims.

I claim:

1. A tapered container formed from a one-piece folded cardboard blank of generally trapezoidal shape capable of being cut from a stock sheet in alternately reversed, substantially abutting positions to reduce wastage and comprising a bottom, a pair of tapered side walls extending from opposite sides of said bottom toward the parallel bases of said blank, respectively, a pair of relatively narrow side flaps extending oppositely from said side wall adjacent the narrow base of said blank, a second pair of relatively wide side flaps extending oppositely from said other side wall adjacent the wide base of said blank and overlapping and glued to the outer side of said first pair of side flaps to form a second pair of side walls, the area of gluing of said side flaps being limited by the width of said narrow side flaps to facilitate stripping the same apart, a pair of flaps extending oppositely from said bottom and overlapping and partially glued to the outer sides of said second pair of side walls but having a free portion adapted to be grasped for stripping the same free of said side walls, a pair of inner top closure flaps on said first pair of side walls, a pair of outer top closure flaps on the outer side flaps of said second pair of side walls provided with means for interlocking engagement with each other and, when unlocked, providing portions adapted to be grasped for stripping said side flaps apart, for collapsing said container to expose its contents.

2. A tapered container formed from a one-piece, folded, cardboard blank of generally trapezoidal shape capable of being cut from a stock

sheet in alternately reversed, substantially abutting positions to reduce wastage and comprising a bottom, a pair of tapered side walls extending from opposite sides of said bottom toward the parallel bases of said blank respectively, a pair of relatively narrow side flaps extending oppositely from said side wall adjacent the narrow base of said blank, a second pair of relatively wide side flaps having substantially the full width of the container and extending oppositely from said other side wall adjacent the wide base of said blank and overlapping and glued to the outer side of said first pair of side flaps to form a second pair of side walls, the area of gluing of said side flaps being limited by the width of said narrow flaps to facilitate stripping the same apart, a pair of flaps extending oppositely from said bottom and overlapping and partially glued to the outer sides of said second pair of side walls and having a free portion adapted to be grasped for stripping the same free of said side walls, a pair of inner top closure flaps on said first pair of side walls, a pair of outer top closure flaps on said wide and narrow side flaps of each of said second pair of side walls, said outer top closure flaps being glued together in pairs and provided with means for interlocking engagement with each other and, when unlocked, providing portions adapted to be grasped for stripping said side flaps apart, for collapsing said container to expose its contents.

3. A tapered container formed from a one-piece folded cardboard blank of generally trapezoidal shape capable of being cut from a stock sheet in alternately reversed, substantially abutting positions to reduce wastage and comprising a bottom, a pair of tapered side walls extending from opposite sides of said bottom toward the parallel bases of said blank, respectively, a pair of relatively narrow side flaps extending oppositely from said side wall adjacent the narrow base of said blank, a second pair of relatively wide side flaps having substantially the full width of the container and extending oppositely from said other side wall adjacent the wide base of said blank and overlapping and glued to the outer side of said first pair of side flaps to form a second pair of side walls, the side walls of said first pair being wider than those of said second pair, the lateral edges of said side flaps on each side of said blank lying substantially parallel with each other in blank form, the gluing of said side flaps being limited by the width of said narrow flaps to facilitate stripping the same apart, lines of weakening formed in the outer of said side flaps adjacent the edges of the inner of said side flaps to terminate stripping of surface fibers, a pair of flaps extending oppositely from said bottom and overlapping and partially glued to the outer side of said second pair of side walls but having a free portion adapted to be grasped for stripping the same free of said side walls, a pair of inner top closure flaps on said first pair of side walls, a pair of outer top closure flaps on said wide and narrow side flaps of each of said second pair of side walls, said outer top closure flaps being glued together in pairs and provided with means for interlocking engagement with each other and, when unlocked, providing portions adapted to be grasped for stripping said side flaps apart, for collapsing said container to expose its contents.

WILLIAM H. INMAN.

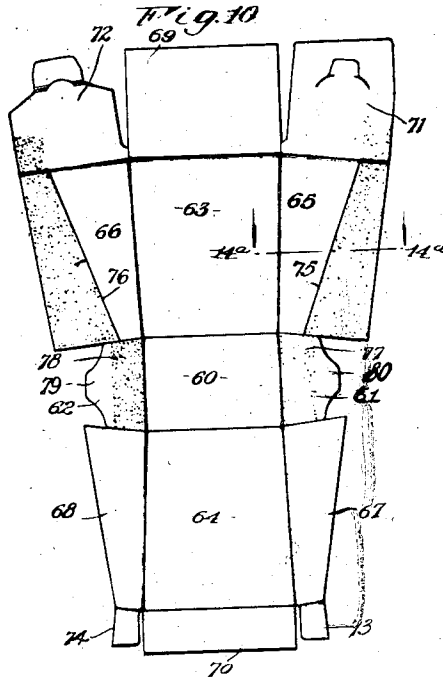
CERTIFICATE OF CORRECTION.

Patent No. 2,367,780.

January 23, 1945.

WILLIAM H. INMAN.

It is hereby certified that error appears in the above numbered patent requiring correction as follows: In the drawing, Sheet 2, Figure 10 should appear as shown below instead of as in the patent -



and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 19th day of June, A. D. 1945.

Leslie Frazer

Acting Commissioner of Patents.

(Seal)