June 13, 1939. N. GROSSMAN 2,162,169

COLLAPSIBLE SHIPPING CONTAINER

Original Filed July 10, 1933

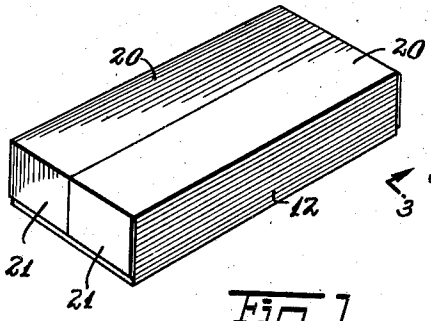


Fig. 1.

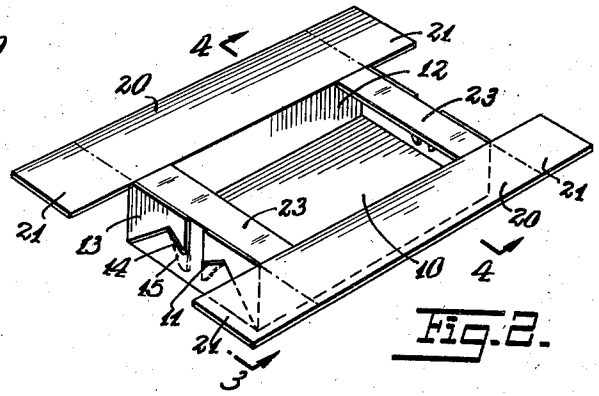


Fig. 2.

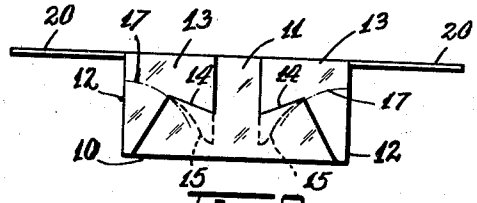


Fig. 3.

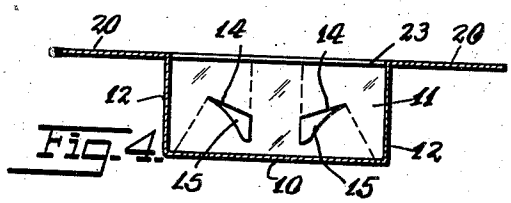


Fig. 4.

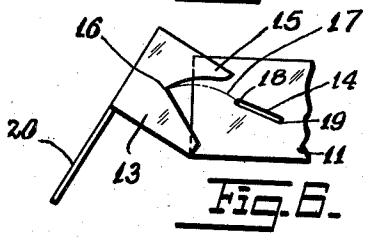


Fig. 6.

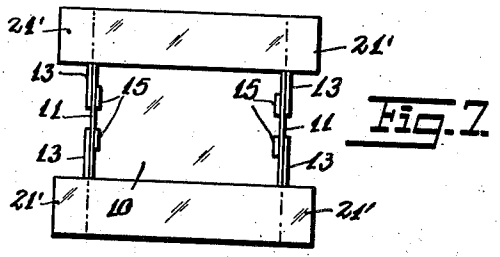


Fig. 7.

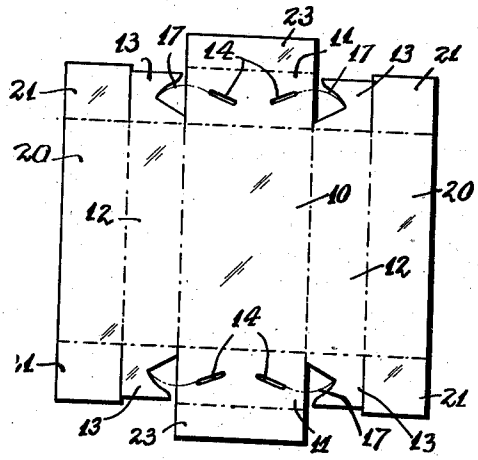


Fig. 5.

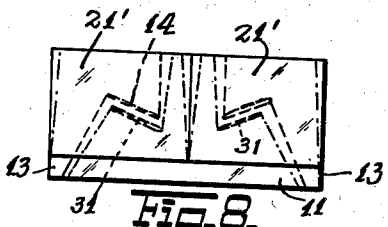


Fig. 8.

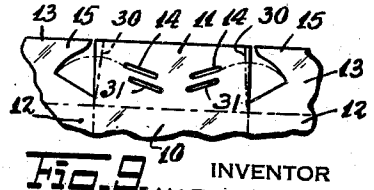


Fig. 9.

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COLLAPSIBLE SHIPPING CONTAINER

Nathan Grossman, Reading, Pa., assignor to Benjamin Grossman, New York, N. Y.

Substituted for abandoned application Serial No. 679,595, July 10, 1933. This application June 29, 1937, Serial No. 150,983

3 Claims. (Cl. 229—36)

This invention relates to new and useful improvements in a collapsible shipping container. The present subject matter is a refile of my abandoned application, Serial Number 679,595, filed July 10, 1933.

The invention has for an object the construction of a collapsible shipping container which is especially adapted for receiving and holding cloaks, suits, dresses and furs.

Still further, the invention contemplates the construction of the collapsible shipping container which is characterized by a container formed from bendable sheet material having a bottom wall, end walls, side walls, attachment flaps for detachably connecting the side and end walls, half covers for closing the top of the container and connected with top edges of the side walls, and cover flaps connected upon the ends of the half covers for extending downwards over the end walls.

More particularly, it is proposed to so arrange the various elements mentioned in the previous paragraph that the collapsible shipping container may be constructed from a blank stamped from a sheet of material.

The advantages of a collapsible shipping container, as above described, are as follows:

1. Has the advantages of easier packing, same as two-piece boxes now in use, and still has the benefits and advantages of a one-piece box for better and safer closing.
2. Simplicity of packing.
3. Occupies less space.
4. Weighs less.
5. Less sealing tape necessary.
6. When set up, the inner flaps act as the framework for the upper sides and thereby give it further strength and protection.
7. Safer transportation:

(a) The outer flanges completely conceal the two ends and reinforce them, giving them further strength.

(b) The contents cannot be removed without breaking or releasing sealing paper.

8. Neater box.
9. Stronger box.

Still further the invention contemplates a novel construction of the shipping container wherein it may be placed into position in a manner so that the half covers slightly overlap to insure such closing of the container when desired.

Still further, the invention contemplates the construction of an article, as mentioned, which is simple and durable and which may be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a perspective view of a collapsible shipping container constructed according to this invention.

Fig. 2 is a perspective view of the container illustrated in Fig. 1, but shown with the cover opened.

Fig. 3 is an end elevational view of Fig. 2, looking in the direction of the line 3—3 of Fig 2.

Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 2.

Fig. 5 is a plan view of the blank used for forming the collapsible shipping container.

Fig. 6 is an enlarged detailed view similar to a portion of Fig. 3, but illustrating the container in a partially closed position.

Fig. 7 is a plan view of a collapsible shipping container constructed according to another embodiment of this invention.

Fig. 8 is an end elevational view of the container illustrated in Fig. 7, when completely closed.

Fig. 9 is a fragmentary view similar to a portion of Fig. 5, but illustrating the blank for the container shown in Fig. 8.

The collapsible shipping container according to this invention comprises a bendable sheet of material having a bottom wall 10 connected at the ends with end walls 11. Side walls 12 are connected with the sides of the bottom wall 13. Attachment flaps 13 for the purpose of connecting the side walls and the end walls, comprise a flap connected on its side upon each end of each of the end walls 12. The flaps 13 have bottom cutout portions adapted for engagement into slits 14 formed upon the end walls. More particularly, the cutout at the bottom of each flap 13 is arranged of substantially inverted V-shape so as to form a depending finger 15, which is adapted to engage into the slit 14.

The inner side of the finger 15 is constructed so that the root point 16 is of a smaller radius than the other points along said inner side, considering the center at the point where the side wall connects with the bottom wall 10. This theoretical circle is illustrated on the drawing by the hair lines 17. More particularly, the inner side of the finger 15 is so curved as to extend

gradually from its free end to the root point 16. The advantage of this curve lies in the fact that when the container is formed and the fingers 15 engaged through the slots 14, the end walls 11 and the side walls 12 will be drawn together.

For this reason, the slots 14 are properly located so that the end 18 of each of the slots is adapted to coincide with the root point 16 when the container is in the fully closed position. The other end point 19 of each slot is adapted to engage against the outer side of the finger 15 so as to hold the side wall and end wall in a position at right angles to each other.

A half cover 20 is connected upon the upper side of each of the side walls 12. Cover flaps 21 are connected with the ends of the half covers 20 and are adapted to extend downwards over the outer sides of the end walls 11.

The collapsible shipping container according to this invention may be formed from one sheet of material stamped into a blank as illustrated in Fig. 5. The dot and dash lines in this figure represent scoring lines to guide the folding of the sheet into the shipping container. To make the shipping container more rigid, it is equipped with reinforcement flaps 23 connected with the top edges of the end walls 11 and extending the entire lengths of the end walls. These reinforcement flaps are bent inwards at right-angles, as illustrated in Fig. 2, when the shipping container is formed.

When the half covers are bent inwards to the positions illustrated in Fig. 1, then the reinforcement flaps 23 will help prevent the side walls of the container from collapsing inwards under pressure due to carrying or storing of the container or other reasons. The half covers 20 are of such widths that when closed into the position illustrated in Fig. 1, they are in edge contacting relation with each other. Consequently, the cover flaps 21 are also in edge contacting relation with each other.

In Fig. 1, a perspective view shows the collapsible shipping container in complete closed position. In this form, the container may be easily sealed by attaching sealing paper along the lines representing the contacting edges of the cover flaps 21 and the half covers 20. The free ends of the cover flaps 21 may also be sealed down upon the end walls 11. If it is desired, the container may be held closed with suitable twine or cord. In Fig. 2, the container has been illustrated with the half covers opened and the cover flaps extended outwards in the same planes as the half covers. In Fig. 6, the container has been illustrated in an intermediate position while being either closed or opened. As previously explained, the inner side of each of the fingers 15, when each finger is engaged within the slit 14 will serve to cam or wedge for the attachment of the flap firmly upon the end wall 11.

If the shipping container were constructed from sheet metal, which does not have a normal tendency to sag or belly when bent, the end of the depending finger would enter the slit 14 and the arcuate inner edge of the finger would not touch the adjacent end of the slit 18 until the root 16 thereof reached this point. However, this shipping container is not constructed from metal but instead is constructed from cardboard or other paper material which has a natural tendency to belly outwardly in an effort to assume its natural position after portions thereof have been bent at right-angles to the body thereof. This is just what occurs when the end wall 11 is bent to the perpendicular position its inherent resiliency tends to cause it to belly outwardly in an effort to assume its normal position extended out from the base wall 10 thereof. When this belly is formed it requires that the flap 13 be bent slightly to engage it around the end of the end wall 11. As this flap is bent the space in a straight line between the free extremity of the finger 15 and the point of connection between the side wall and the base 10 decreases causing the arcuate inner edge of the finger to assume a position substantially superimposed on the arc 17 shown in Fig. 6. This arc is in a direct line with the end 18 of the slit 14 which means that the inner edge of the finger 15 will bear against the end 18 of the slit. This contact between these parts will cause the end wall 11 and the side wall 12 to be drawn into a position in which they will be at right-angles to each other and in which the root of the finger 15 will bear against the end 18 of the slit 14.

In Figs. 7, 8 and 9, another modified form of the invention has been disclosed in which an arrangement is provided whereby the edges of the half covers and the cover flaps may overlap slightly. This is desirable in certain trades to better protect merchandise placed within the container. Each of the end walls 11 has its ends formed with score lines 30, adapting small portions of the ends to be bent so as to allow the side walls 12 to assume positions, not in true vertical, but slightly inwards.

The attachment flaps 13 are adapted to engage either in the slits 14 previously described or in other slits 31 arranged so as to connect the cover flaps and the end walls in a manner so that the side walls 12 are slightly disposed inwards as just described. Consequently, the adjacent edges of the half covers and cover flaps will overlap slightly. The slits 31 are vary similar to the slits 14, except for the facts that they are in slightly different positions to the slits 14, so that their extremities act against the sides of the fingers 15 of the attachment flaps to hold the attachment flaps in positions in which the side walls 12 are disposed as before described.

More particularly, the slits 31 are arranged so that their extremities are closer to the center of the container. In other respects, this form of the container is similar to the one previously described and similar parts may be recognized by corresponding reference numerals. In Fig. 8, the dot and dash lines illustrate the second position into which the container may be placed. The first position is the one described relative to Figs. 1–6 inclusive. The dot and dash line position is the one obtained when the fingers 15 are engaged through the slits 31.

The embodiment of the invention illustrated in Figs. 7 and 8, further distinguishes from that illustrated in Figs. 1–6 inclusive, in the fact that the reinforcement flaps 23 of the first form have been omitted. In this case, the end walls 11 are depended upon to hold the container in formation. Furthermore, the cover flaps 21' are shorter than the cover flaps 21 so that the ends of the cover flaps do not extend completely down to the bottom of the end walls. This is clearly illustrated in Fig. 8, when this figure is compared with the showing in Fig. 1.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications com-

ing within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. A collapsible shipping container, comprising bendable sheet material in the form of a shipping container and having a bottom wall, end walls connected on the ends of said bottom wall, side walls connected upon the sides of said bottom wall, attachment flaps for connecting the side walls and the end walls and comprising a flap connected on its side upon each end of each side wall and having a cutout bottom side engaging into a slit formed in the end wall, half covers for closing the top of the container and connected at the sides upon the top edges of said side walls, and cover flaps connected at the sides upon the ends of said half covers and extending downwards over the end walls, said end walls being formed with additional slits into which the attachment flaps may engage for holding the side walls in position in which the adjacent edges of the half covers and cover flaps overlap.

2. A collapsible shipping container, comprising bendable sheet material in the form of a shipping container and having a bottom wall, end walls connected on the ends of said bottom wall, side walls connected upon the sides of said bottom wall, attachment flaps for connecting the side walls and the end walls and comprising a flap connected on its side upon each end of each side wall and having a cutout bottom side engaging into a slit formed in the end wall, half covers for closing the top of the container and connected at the sides upon the top edges of said side walls, and cover flaps connected at the sides upon the ends of said half covers and extending downwards over the end walls, said end walls being formed with additional slits into which the attachment flaps may engage for holding the side walls in position in which the adjacent edges of the half covers and cover flaps overlap, the ends of the end walls being formed with score lines to guide bending of small areas to cooperate with the side walls when the attachment flaps engaged the second-mentioned slits.

3. In a container, a container body of flexible material, having a bottom wall, a side wall extending from one side of said bottom wall, and an end wall extending from one end of said bottom wall and being formed with a slit, and a flap extending from the end of said side wall and having a cutout extending inward from the bottom thereof forming a depending finger which is adapted to be engaged into said slit, said slit having one of its ends and said finger having its root point arranged in an arc with its center at the point of connection between said side wall and said bottom wall, the inner edge of said finger being arcuate, and said arcuate inner edge diverging outwardly with respect to said arc, whereby said side wall may be pivoted in an arc so as to engage said depending finger into said slit with the arcuate inner face bearing against the outer end of said slit to draw said end wall and said side wall into a position in which they are at right-angles to each other with said root point engaging the outer end of said slit and the opposite side of said finger engages the other end of said slit to hold said walls against shifting.

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