

Dec. 29, 1931.

S. RAFTENBERG

1,838,154

PAPER BOX

Filed June 19, 1930

2 Sheets-Sheet 1

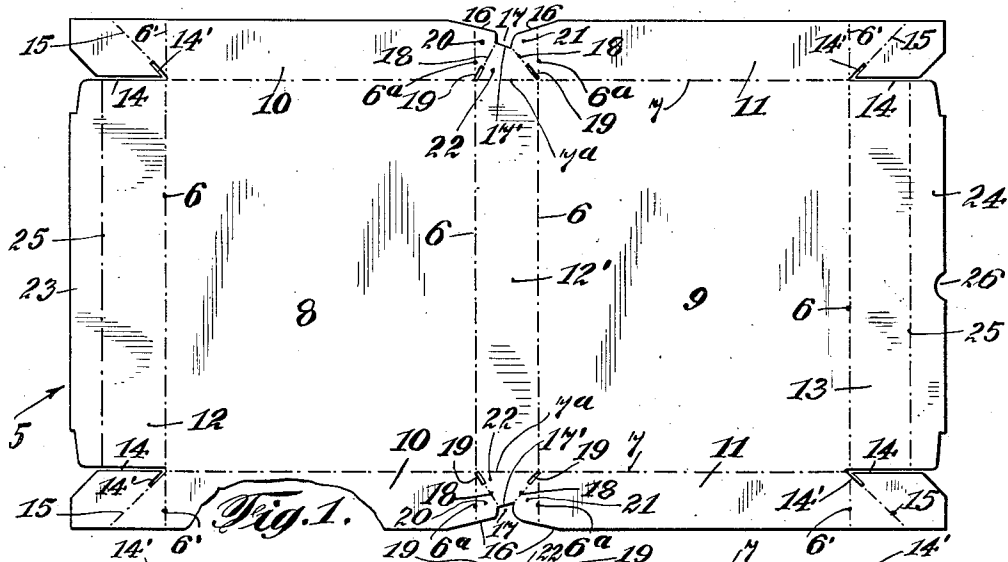
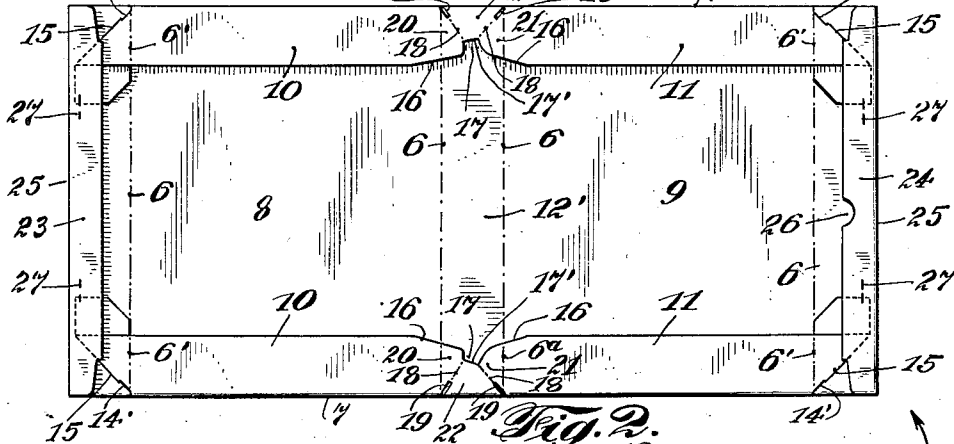
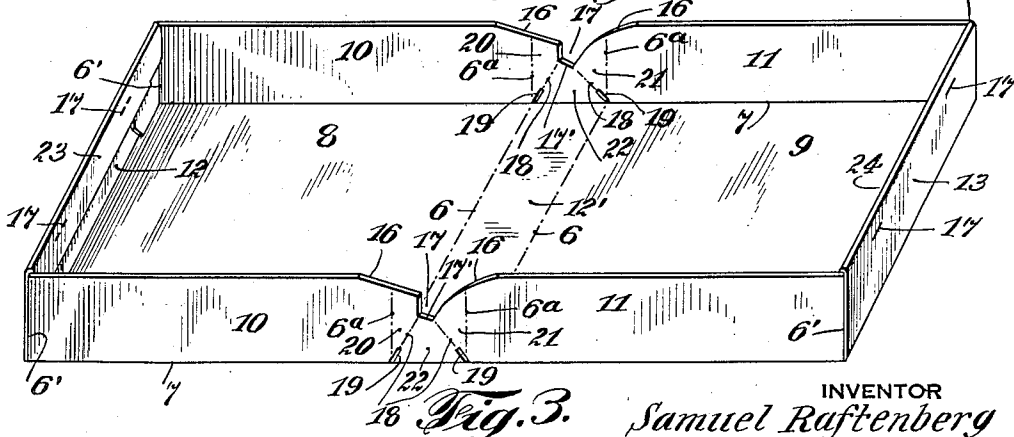


Fig. 3.

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2 Sheets-Sheet 2

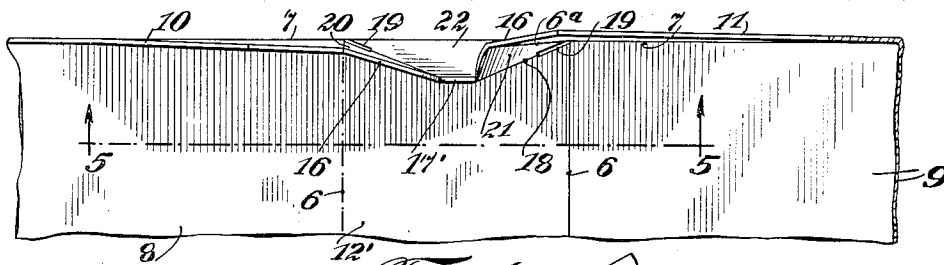


Fig. 4.

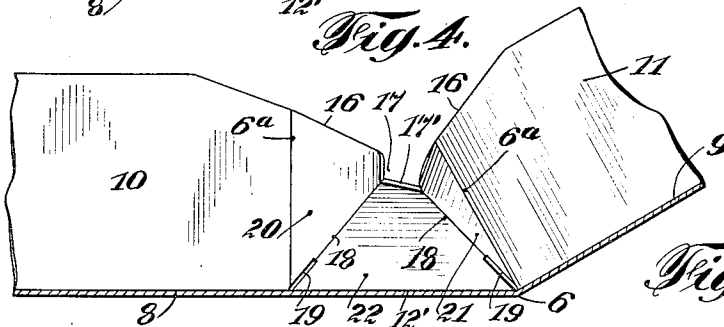


Fig. 5.

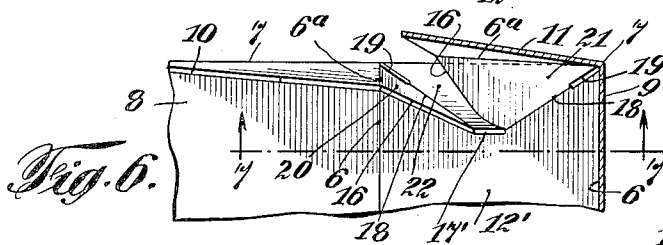


Fig. 6.

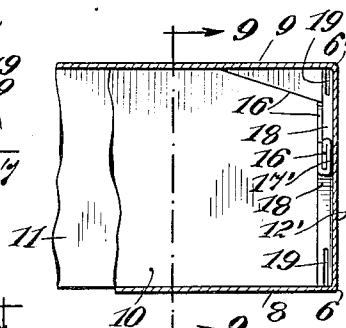


Fig. 7.

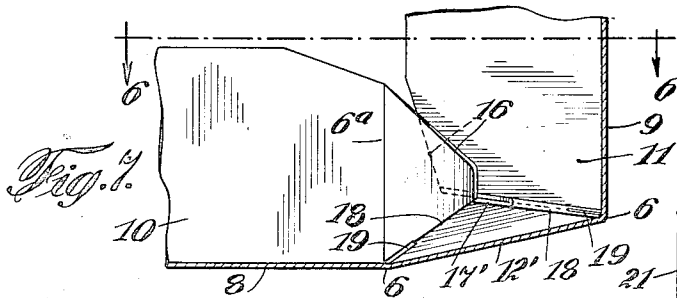


Fig. 8.

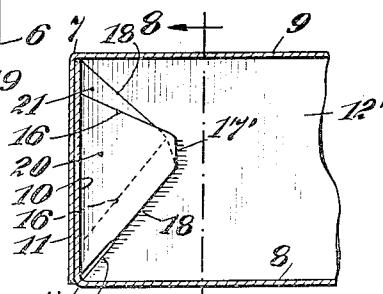
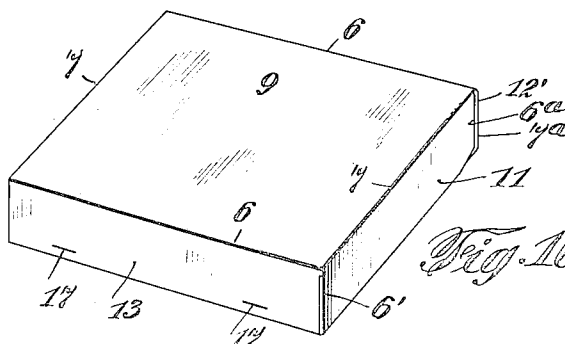


Fig. 9.



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UNITED STATES PATENT OFFICE

SAMUEL RAFTENBERG, OF NEW YORK, N. Y., ASSIGNOR TO BLUM FOLDING PAPER BOX CO. INC., OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK

PAPER BOX

Application filed June 19, 1930. Serial No. 462,209.

This invention relates to paper boxes, and has for its primary object to provide a box formed from a single sheet of cardboard or like material embodying complementary integrally connected telescoping cover and body sections, and having certain novel features of construction whereby a large number of the boxes in a folded or knocked down condition may be very compactly arranged for storage purposes but which enables the marginal walls of the complementary box sections to be easily and quickly arranged and strongly braced in their erected positions.

It is a further very important object of my invention to provide relatively foldable parts between the marginal walls of the body and cover sections at each side of the box formed and related to each other in such manner as will result in the automatic folding of said parts as the cover section is telescoped upon the body section of the box and which operate to prevent abutting edge contact between the marginal walls of the two box sections.

It is a further general object of the invention to provide a one-piece paper box of the above type, which may be very cheaply produced, is strong and durable in its construction and may be employed as a container or package for various kinds of commodities or merchandise.

With the above and other objects in view, the invention consists in the improved folding box and in the form, construction and relative arrangement of its several parts, as will be hereinafter more fully described, illustrated in the accompanying drawings, and subsequently incorporated in the subjoined claims.

In the drawings, wherein I have illustrated one simple and practical embodiment of my invention, and in which similar reference characters designate corresponding parts throughout the several views,—

Figure 1 is a plan view of the paper or cardboard blank from which the box is formed;

Fig. 2 is a similar view showing the marginal side and end walls of the two box sections connected and in folded or collapsed position for the purpose of storage;

Fig. 3 is a perspective view showing the marginal side and end walls of the box arranged in their set up or erect positions;

Fig. 4 is an enlarged fragmentary plan view illustrating the action of the relatively foldable connecting parts between the corresponding marginal side walls of the two box sections in the initial stage of the folding movement of the cover section of the box;

Fig. 5 is a vertical sectional view taken on the line 5—5 of Fig. 4;

Fig. 6 is a view similar to Fig. 4 taken on the line 6—6 of Fig. 7, showing the relative positions of the foldable connecting parts after a further movement of the cover section towards its closed position;

Fig. 7 is a vertical sectional view taken on the line 7—7 of Fig. 6;

Fig. 8 is a fragmentary vertical section through the closed box at the back or rear side thereof taken on the line 8—8 of Fig. 9;

Fig. 9 is a fragmentary vertical section taken on the line 9—9 of Fig. 8, through the closed box looking towards the rear marginal wall thereof; and

Fig. 10 is a perspective view of the closed box.

Referring in detail to the drawings, the box embodying my present improvements is preferably made from a single sheet of cardboard or other suitable material of the required weight, strength and thickness in connection with the particular purpose for which the box is to be used. This cardboard sheet is of course, of the dimensions required to produce a box of predetermined capacity, and is cut or stamped out by means of suitable dies to provide the blank as shown in Fig. 1 of the drawings. This cardboard blank generally designated by the numeral 5 is creased or scored along the lines 6 and 7 to provide bottom and top walls 8 and 9 of the body and cover sections respectively, of the box and the foldable marginal walls 10 and 11 extending along each of the opposite side edges of the body and the cover sections of the box and the marginal walls 12 and 13 respectively, which extend between the outer ends of the respective side walls 10 and 11 and are separated therefrom by the cuts 14, 100

said cuts at their inner ends being extended for a short distance in an outward direction along an oblique line into the ends of the foldable walls 10 and 11, as indicated at 14', said end portion and each of said walls being further obliquely creased from the cuts or incisions 14' to the outer longitudinal edges of said walls as shown at 15. It will also be noted that the fold lines or creases 6 at the juncture between the walls 8 and 9 with the marginal walls 12 and 13 are extended transversely across the foldable marginal walls 10 and 11 as at 6'. The other spaced creases or fold lines 6 provide the rear or back marginal wall 12' integrally connecting the walls 8 and 9 with each other and are also extended transversely across the side marginal walls 10 and 11 as at 6^a.

The outer longitudinal edges of the marginal walls 10 and 11 at each side of the box are obliquely and convergently inclined towards each other from points spaced laterally from the fold lines 6^a, as shown at 16 to the opposite sides of a notch or recess 17 in the cardboard material between the fold lines 6^a. The base edge of this notch is obliquely inclined as at 17', and from the opposite ends thereof to the juncture of the fold lines 6^a with the fold lines 6 extending at right angles thereto, the material is scored or creased as at 18, and at the inner ends of these creases and extending in line therewith, I preferably provide the incisions or cuts shown at 19 so as to facilitate the easy relative folding movement of the parts 20, 21 and 22. It will be noted that due to the form or shape of the notch or recess 17, the outer ends of the scores 18 are not in alignment, and the said scores extend at relatively different angles in relation to the spaced scores 6^a. Thus, the part 21 is of somewhat greater area than the part 20, while the part 22 intermediate of the parts 20 and 21 is of the greatest area and hingedly connects said parts with each other and with the back marginal wall 12' with which part 22 is connected along the score or fold line 7^a.

Each of the marginal walls 12 and 13 has a reinforcing section 23 and 24 respectively, connected therewith along the score line 25 and the outer longitudinal edge of the section 24 is centrally notched as at 26 to provide a convenient means for visually differentiating between the body and cover sections of the body.

After the blank is cut and creased in the manner above explained, the outer ends of the marginal portions 10 and 11 thereof are folded along the oblique lines 15, and said marginal portions are then folded inwardly and downwardly upon the body and cover walls 8 and 9. The parts 23 and 24 are then folded inwardly on the marginal walls 12 and 13 and upon the folded ends of the walls 10 and 11 and are permanently fastened

or secured to the marginal walls 12 and 13 by means of suitable metallic fastening devices indicated at 27. In this condition, a large number of the collapsed boxes may be arranged in superimposed relation upon each other and compactly bound together and stored in a relatively small space.

When the box or container is to be used, it is only necessary to raise or lift the marginal walls 10, 11, 12 and 13 to upright or erect positions at right angles to the plane of the walls 8 and 9 respectively. It will be noted that the fastening elements 27 are so located that the end portions of the parts 23 and 24 are capable of flexing sufficiently so that as the end portions of the walls 10 and 11 between the fold lines 6' and 15 are moved to erect positions parallel with the planes of the marginal walls 12 and 13, they will ride under the downwardly extending reinforcing parts 23 and 24. It is understood of course, that the extremities of the walls 10 and 11, beyond the score lines 15, are permanently secured to the inner faces of the walls 12 and 13 by means of a suitable adhesive. If desired, the fastener 27 may also extend through these fixed end portions of the box walls 10 and 11. The box parts thus disposed in set up position, are clearly illustrated in Fig. 3 of the drawings.

The merchandise is placed within the body section of the box upon the wall 8 thereof, and the cover section of the box is then lifted or moved upwardly. The cover section first hingedly moves with respect to the connecting marginal walls 16 as indicated in Fig. 5 of the drawings, in which said cover section is shown disposed at an angle of substantially 30° with respect to the outer wall 8 and the rear or back wall 16. It will be observed upon reference to Fig. 4, that owing to the angles of the score lines 18 and the form of the recess 17, in this first movement of the cover section, the part 21 is angularly moved with respect to the part 22 and folded in an outward direction while the part 22, together with the part 20 are simultaneously drawn inwardly from the plane of the end edge of the back wall 16. In Fig. 7, the top wall 9 of the cover section is shown raised to a position of substantially 90° with respect to the bottom wall 8, and it will be observed that the relative folding of the parts 20, 21 and 22 has continued, the part 21 tending to flex the end of the marginal wall 11 connected with the top wall 9 in an outward direction while the part 20 folding inwardly flexes the opposed end of the marginal wall 10 connected with the bottom wall 8 in an inward direction. Thus, as the closing of the box is continued so that the cover section telescopes upon the body section, the marginal walls 11 of the cover section are caused to slide freely and without obstruction upon the outer faces of the marginal walls 10 of the body

section of the box. Thus, by an entirely automatic action of the parts 20, 21 and 22, the possibility of edge to edge abutting contact between the marginal walls 10 and 11 is obviated and the box may be easily and quickly closed without requiring other manual manipulations of individual parts of the box.

After the box has thus been closed, the parts 20, 21 and 22 lie in closely compact relation to each other against the inner face of the rear or back wall 16 of the box. The proper relative folding movement between these parts inclosing the box is further assured by the provision of the slits or incisions 19 at the lower ends of the oblique fold lines 18.

From the foregoing description considered in connection with the accompanying drawings, it will be seen that I have produced a box which may be cheaply manufactured from paper, cardboard or other suitable material, and in which the several parts of the box remain always in permanently connected relation with each other and it is not necessary to manually manipulate interlocking tabs or extensions generally provided in boxes of this type. Also my improved box construction has an advantage, that when in the collapsed condition seen in Fig. 2, the parts lie perfectly flat so that a large number of the collapsed boxes can be compactly bound together for transportation or storage in a comparatively small space.

I have herein shown and described an embodiment of the device which has been found entirely satisfactory in practical use. Nevertheless, it is to be understood that the essential features of my present improvement might also be embodied in various other alternative structural forms, and I therefore, reserve the privilege of resorting to all such legitimate changes in the several detail parts thereof as may be fairly incorporated within the spirit and scope of the invention as claimed.

I claim:

1. A container comprising integrally connected body and cover sections each having marginal walls and formed from a single piece of sheet material of uniform width, one of the marginal walls flexibly connecting said sections for relative folding movement into superposed relation to close the container, relatively folding means connecting the aligned marginal walls at opposite sides of the container sections, each of said means consisting of a plurality of parts of said sheet of material flexibly connected respectively with said aligned marginal walls and with the connecting marginal wall between the container sections, said parts being hingedly connected with each other along oblique fold lines extending at relatively different angles with relation to the fold lines connecting said

parts with the marginal walls, said parts automatically folding into closely superimposed relation with each other and upon the inner face of the connecting marginal wall between the container sections as the container is closed and operating to position the contiguous confronting edge portions of the aligned marginal walls in different planes to prevent abutting contact between said edges and cause said walls to assume a closely overlapped relation to each other when the container is completely closed.

2. A container comprising integrally connected cover and body sections having marginal walls and formed from a single piece of sheet material of uniform width, one of said marginal walls flexibly connecting said sections for relative folding movement into superimposed telescoping relation to close the container, a plurality of relatively foldable parts connecting the aligned marginal walls at each side of the container, one of said parts being also flexibly connected with the marginal connecting wall between the container sections, and another part being hingedly connected with the marginal wall of one of the container sections, each of the latter parts extending beyond said first named part to the free edge of the marginal wall and hingedly connected to one edge of said first named part along an oblique fold line, said fold lines extending at relatively different angles with relation to the fold lines connecting said second named parts with the marginal walls and the material being pierced along said oblique fold lines adjacent to the connection between said first named part and the marginal connecting wall between the container sections.

3. A container comprising integrally connected cover and body sections having marginal walls and formed from a single piece of sheet material of uniform width, one of said marginal walls flexibly connecting said sections for relative folding movement into superimposed telescoping relation to close the container, a plurality of relatively foldable parts connecting the aligned marginal walls at each side of the container, one of said parts being also flexibly connected with the marginal connecting wall between the container sections, and another part being hingedly connected with the marginal wall of one of the container sections, each of the latter parts extending beyond said first named part to the free edge of the marginal wall and hingedly connected to one edge of said first named part along an oblique fold line, said fold lines extending at relatively different angles with relation to the fold lines connecting said second named parts with the marginal walls and the material being pierced along said oblique fold lines adjacent to the connection between said first named part and the marginal connecting wall between the container sections,

and the projecting ends of said second named parts being separated by a recess having an obliquely inclined base edge extending between the other ends of said oblique fold lines.

5 In testimony that I claim the foregoing as my invention, I have signed my name hereto.

SAMUEL RAFTENBERG.

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