

Nov. 28, 1961

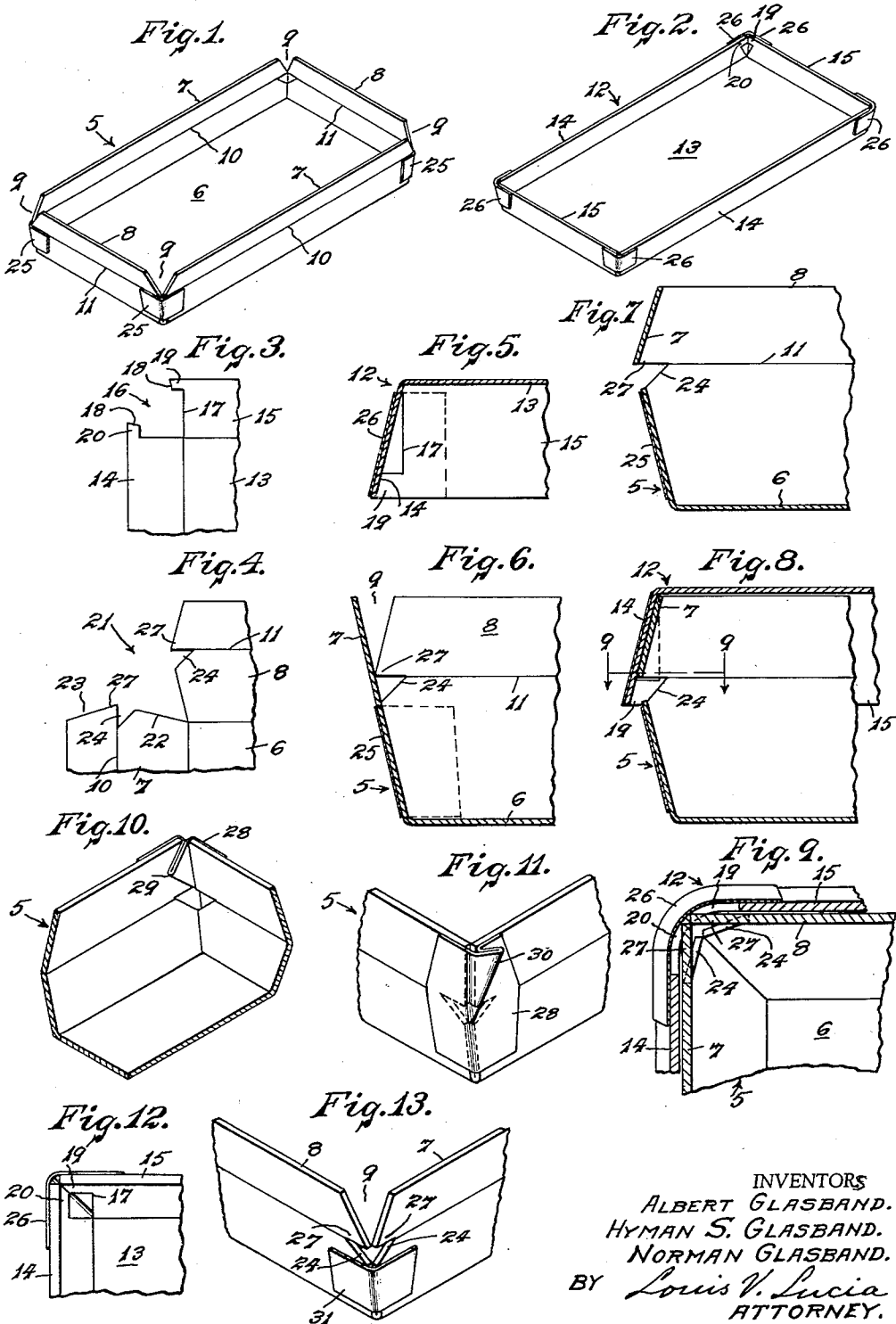
A. GLASBAND ET AL

3,010,634

BOXES

Filed Sept. 2, 1958

2 Sheets-Sheet 1



Nov. 28, 1961

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3,010,634

BOXES

Filed Sept. 2, 1958

2 Sheets-Sheet 2

Fig. 14.

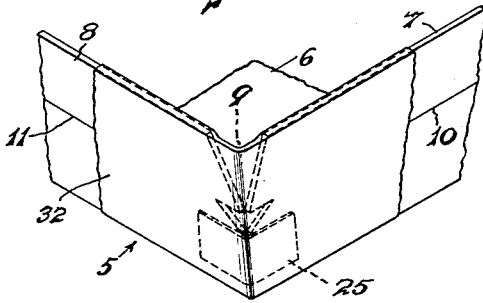


Fig. 15.

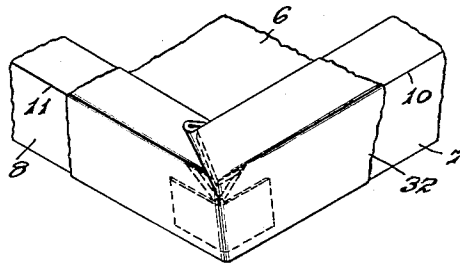


Fig. 16.

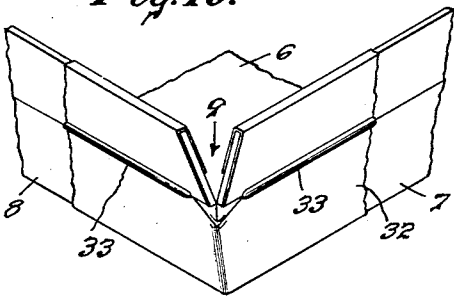


Fig. 17.

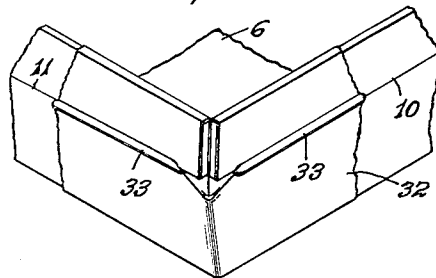


Fig. 18.

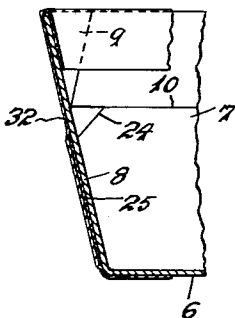


Fig. 19.

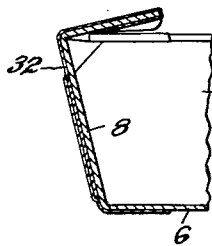


Fig. 20.

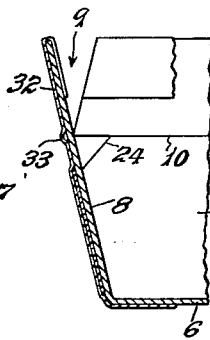
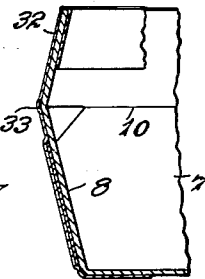


Fig. 21.



INVENTORS
ALBERT GLASBAND.
HYMAN S. GLASBAND.
NORMAN GLASBAND.
BY *Louis V. Lucia*
ATTORNEY.

1

3,010,634
BOXES

Albert Glasband, 1 Coolidge Road, Hyman S. Glasband,
80 Brainard Road, and Norman Glasband, 20 Granby,
all of West Hartford, Conn.

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This invention relates to boxes and more particularly to a box of the commonly known "setup" type which is constructed in final form with rigid corners and which, heretofore, have generally been stacked on top of each other as they are processed through manufacture and also while in storage and transportation.

In order to render such boxes nestable, so as to save space and consequently reduce the cost of manufacture and handling thereof, we have produced nestable setup type boxes such as shown in our copending application Serial No. 729,770, filed April 21, 1958, and an object of the present invention is to provide certain novel improvements over the boxes shown and described in the said copending application and in the method of producing them whereby advantages are gained in the use and manufacture of such boxes.

A further object of this invention is to provide a novel corner construction for such boxes by means of which the cover is secured to the box to prevent it from being lifted by tension in the side walls of the box.

Another object is the provision of a novel method for use in the manufacture of boxes embodying the present invention.

A still further object is the provision of improved locking means in the box and cover which are easy to produce and economical to manufacture.

Further objects and advantages of the present invention will be more clearly understood from the following description and the accompanying drawings in which:

FIG. 1 is an isometric view of a box embodying the present invention.

FIG. 2 is an isometric view showing the cover for said box in inverted position.

FIG. 3 is an enlarged plan view of a corner portion of the blank for the cover shown in FIG. 2.

FIG. 4 is a similar view of a corner portion of the blank for the box shown in FIG. 1.

FIG. 5 is a further enlarged sectional side view of a portion of said cover in inverted position.

FIG. 6 is a similar sectional side view of the box in open position.

FIG. 7 is a similar view showing said box in closed position to receive the cover.

FIG. 8 is a similar sectional side view showing the box with the cover thereon and illustrating diagrammatically the manner in which the cover is locked to the box by our improved retaining means.

FIG. 9 is a sectional plan view on line 9—9 of FIG. 8.

FIG. 10 is an enlarged isometric inside view showing the inside of a corner portion of a modified form of said box in closed position.

FIG. 11 is an enlarged isometric view showing the outside of a corner portion of a further modified form of said box.

FIG. 12 is a plan view of a corner portion of the cover in inverted position.

FIG. 13 is a similar view showing the outside of a corner portion of the box illustrated in FIGS. 1 and 4 to 9.

FIG. 14 is an isometric outside view showing a corner of our improved box of the type which has a covering sheet of paper, or the like, applied to the outer surface

2

thereof for ornamental purposes, or to merely improve its appearance.

FIG. 15 is a similar view showing the upper portions of the walls of said box folded inwardly during the operation of applying the said covering sheet thereto.

FIG. 16 is a similar view showing the side walls returned to their normal position and the corner of the box notched to remove the portion of the covering sheet therefrom.

FIG. 17 is a similar view illustrating said walls in their inwardly angled position.

FIG. 18 is a sectional side view of the end portion of the box in the position illustrated in FIG. 14.

FIG. 19 is a similar view of the box as shown in FIG. 15.

FIG. 20 is a similar view of the box as shown in FIG. 16.

FIG. 21 is a similar view of the box as shown in FIG. 17.

As illustrated in the drawings, our invention provides an improved box 5 which is preferably constructed from a flat blank of pasteboard, or other suitable material, and which is set up to provide a bottom 6 with side walls 7—7 and end walls 8—8 that are inclined outwardly, as shown in FIG. 16, so as to render said boxes nestable within identical boxes and thereby save space. In accordance with our present invention, the said side and end walls are cut to form V notches 9 at each corner of the box and are also made bendable on longitudinal lines 10—10 and 11—11 so that the upper portions of said walls may be inclined inwardly as shown in FIG. 7. Said side walls are preferably scored to provide the lines 10 and 11, but, if desired, may be creased or even left plain and a suitable bendable material used.

The cover 12 for said box is constructed from a blank which is folded to provide a top portion 13 and side and end walls 14—14 and 15—15, respectively; said side walls being inclined outwardly, as shown in FIG. 5, so as to render the covers nestable within identical covers.

As illustrated in FIG. 3, the corners of the blank for said cover are cut to form notches 16, preferably having square portions 17 and opposed angular portions 18 formed by extensions 19 and 20 projecting oppositely from said square portions and adapted to abut for forming a detent in each corner of the cover.

As shown in FIG. 4, each corner portion of the box is cut to form a notch 21 having a V-shaped inner portion 22 and a wider V-shaped outer portion 23. Between said V-shaped portions, there is provided a pair of opposed notches 24—24 which are adjacent to the bending lines 10—10 and 11—11 to provide a projection at each corner of the box, when folded, as clearly illustrated in FIG. 8.

The side and end walls of said box are secured together at its corners by suitable means such as stays 25 and the corners of the cover are also secured by similar stays 26.

In the use of our improved box and cover above described, the box is first taken from in its nested position in other identical boxes and the upper portions of the side walls are bent inwardly on the lines of bending 10—10 and 11—11 so that the box will assume the shape shown in FIG. 7. The cover is then taken from its nested position in identical covers and placed over the box and then forced down so that the projections at each corner of the box, formed by the projecting corner portions 27—27, will snap over the detents in the cover, formed by the abutting extensions 19 and 20, and thereby lock the cover to the box. In forcing the cover over the box, the sides of the cover will be pulled apart sufficiently to cause the extensions 19 and 20 to curve, as illustrated in FIG. 9, so that they will snap under the pro-

jections 27—27 and thereby engage with said projections to lock the cover to the box.

In the form illustrated in FIG. 10, the stay 28 is preferably extended to the tops of the side walls and, when the upper portions of the side walls are bent inwardly, the said stay will readily bend inwardly into a fold 29 which projects inwardly through the outer V-shaped corner portion between the side walls. In the form illustrated in FIG. 11, the said stay is bent into a fold 30 which is disposed against the outside of the upper portion of one of the side walls.

In the form illustrated in FIG. 13, a short stay 31 may be used so that the notches 24—24 will be exposed to allow the corner portions 27—27 to more readily engage with the detents formed by the abutting extensions 19 and 20 of the cover.

As illustrated in FIGS. 14 to 21, our improved box may be produced in the form having a covering of sheet material, such as paper or the like, over its outer surface so as to present a finished appearance or for ornamental purposes. In order to facilitate the manufacture of such boxes having said covering, our invention also contemplates an improved method for producing the box in this form, which method is illustrated in FIGS. 14 to 21 of the drawings and includes the following steps of manufacture.

The covering sheet 32 is first applied over the outer surface of the side walls of said box and adhered thereto by means of a suitable paste or glue which is yieldable before it dries or otherwise becomes set. Promptly after the said covering is applied, and before said paste or glue sets, the upper portions of the side walls are bent inwardly, as shown in FIG. 15. This will pull the covering sheet upon the surface of the side walls so that, when their upper portions are returned to their outwardly angled position, as shown in FIG. 16, said covering sheet will loosen and form flexible bulges 33 along the folding lines 10 and 11 of said side walls. The cover material, which extends across the notches at the corners of the box, is then removed by a suitable corner cutting operation to uncover the notches 9, as also shown in FIG. 16, to facilitate the bending of the upper portions of the side walls of the box inwardly, to the position shown in FIG. 17, for receiving the cover 12. When so folded inwardly, a portion of the bulges 33 will remain loose and prevent the covering sheet 32 from pulling outwardly on said upper portions of the side walls.

If desired, the corner portions of the covering material extending over the notches 9 may remain on the box, in which case they can be folded in the same manner as the stays 28 are folded, as illustrated in FIGS. 10 and 11, when the upper portions of the walls are folded inwardly. Also, if desired, the said portions of the covering material may be removed before the upper portions of the side walls are folded inwardly, as shown in FIG. 15, to form the bulges 33.

It will be understood that any portion of the covering sheet 32 which remains within the locking notches 24 of the box will not impair the function of said notches since the said covering sheet is easily bent inwardly either before or as the cover is applied to the box. However, the covering material at said notches 24 may also be removed if desired.

Due to the shape of our improved box, the notches 24 in the box 5 may be omitted and the projecting points at the corners of the box which are provided by the bends on the lines 11, will engage the lock portions 19 of the cover and securely lock the cover to the box. This is particularly due to the rounding of the corner portions 19 of said cover, as illustrated in FIG. 9, which allows said corner portions to snap under said projecting points at the plane of the lines 11; the said plane being above the lower free edges of the cover walls 7 and 8.

The said projecting points project only after the upper portions of the box walls are bent inwardly and, therefore, they will not interfere with the nesting of the box while the upper wall portions are in their normal position.

The side walls 14—14 and 15—15 of the cover are made to extend below said plane of the lines 11, as shown in FIG. 8, so that the box is greatly reinforced and will not collapse, or pancake, when squeezed. The downwardly overhanging portions of said side walls also provide gripping portions which facilitates the separation of the cover from the box.

Further, these overhanging portions also facilitate the placing of the cover on the box since they enable the side walls of the cover to spread further and reach outside of the upper portions of the box and serve to bend said upper portions inwardly under the cover as the cover is lowered over the box and, therefore, it is necessary only to bend the upper portions slightly before placing the cover and this is extremely important since it reduces fumbling and speeds the closing of the box.

We claim:

1. A box of the setup type having a bottom, side walls extending therefrom and having lower portions angled outwardly relatively to said bottom and upper portions normally angled outwardly and bendable inwardly on lines of bending between said lower and upper portions, the said lines of bending providing outwardly projecting points at the corners of said box when said upper portions are bent inwardly, a cover having outwardly angled side walls extending downwardly over the said inwardly angled upper portions to a plane below the plane of said lines of bending, and means at the corners of said cover engageable with said projecting points of the box for securing the cover to the box.

2. A nestable box constructed from a blank of sheet material, each corner of said blank being cut to form a corner notch having a V-shaped inner portion and a wider V-shaped outer portion and opposed V-shaped notches in the opposite sides of said corner notch and between said V-shaped portions; said blank being bendable to close said inner V-shaped notches and provide side walls angled outwardly relatively to said bottom portion and the upper portions of said side walls being bendable inwardly on substantially the plane of the outer sides of said V-shaped opposed notches and thereby closing said wider outer V-shaped portion of the corner notch; said outer sides of the opposed notches forming projections on said upper portions of the side walls engageable with detents inside the corners of a cover fitting over said upper portions of the side walls when inwardly angled for retaining said cover on the box.

3. A box cover of the set-up type having a top portion and side walls extending therefrom and angled outwardly, the adjoining side walls of said cover having opposed notches therein forming a recess between said side walls at the corners of the cover and a detent portion extending across the bottom of said recess, said detent portion curving around the corner of the cover when the cover is pressed onto a box whereby said detent portion will underlie a projection on the corner of said box and secure the cover to the box.

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