

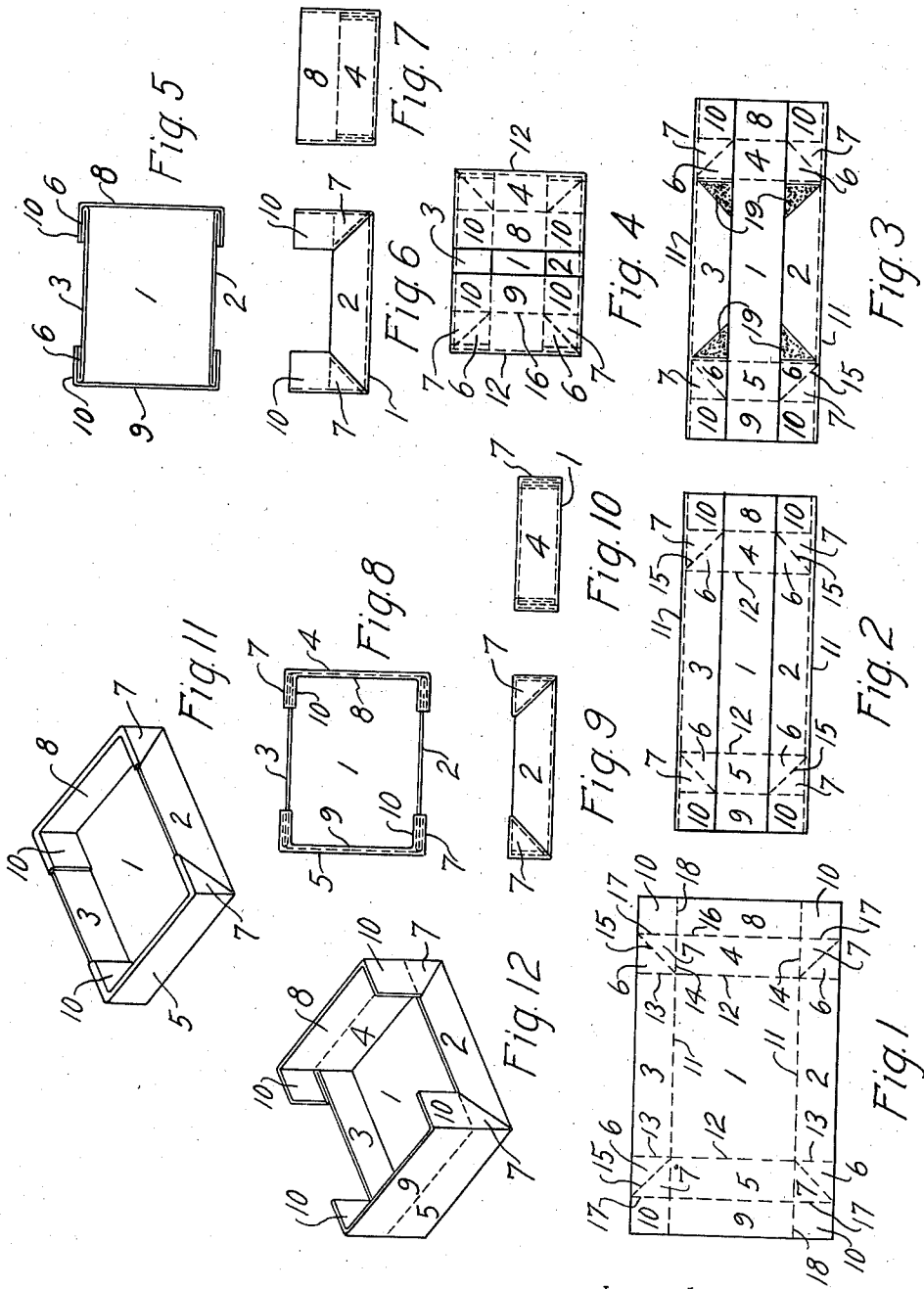
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METHOD OF MAKING FOLDING BOXES

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METHOD OF MAKING FOLDING BOXES

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5 Claims. (Cl. 93—49)

The invention relates to improvements in folding boxes and has for an important object thereof the provision of a folding box the walls of which may be locked positively in upright position by doubling distended portions of the walls.

Another and important object of this invention is to provide a method by which boxes of the type described may be manufactured economically and at a high rate of speed.

The method herein described is particularly adaptable to the production of boxes, such as is herein disclosed, in flat-folded condition by automatic machinery.

With said objects in view, and others herein-after explained, my invention consists in the folding box and method of making the same, substantially as hereinafter described and claimed.

Of the accompanying drawing:

Figure 1 is a plan view of the blank from which the box may be formed.

Figure 2 is a plan view of the blank showing the condition thereof after the side margins have been folded against center areas of the blank.

Figure 3 is a plan view of the blank showing areas to which adhesive may be applied in the method of producing the box in flat-folded condition.

Figure 4 is a plan view of the blank showing the condition thereof after the end portions have been folded against the folded side margins.

Figure 5 is a plan view of the box after the walls thereof have been raised to upright position.

Figure 6 is a front elevation of the box shown in Figure 5.

Figure 7 is an end elevation of the box shown in Figure 6.

Figure 8 is a plan view of the box after the distended portions of the box walls have been folded against the inside surfaces of the box walls.

Figure 9 is a front elevation of the box shown in Figure 8.

Figure 10 is an end elevation of the box shown in Figure 9.

Figure 11 is a perspective view of the completed box tilted so as to show a portion of the interior thereof.

Figure 12 is a perspective view of the box showing the condition thereof before the distended portions of the box walls have been folded into position.

Referring to Figure 1 there is illustrated a scored box blank made of suitable material, such as paper box-board, scored lines being repre-

sented by dash lines 11 to 18 inclusive. The said scored lines effect a division of the blank to form a bottom section 1 for the box, side wall sections 2 and 3, a pair of end walls 4 and 5, bellows fold sections 6 and 7, end wall extension sections 8 and 9, and side wall locking sections 10.

In the method of producing the box from the scored blank shown in Figure 1, opposite side margins (Fig. 2) are folded on scored lines 11, 14 and 18 against center areas of the blank as is shown by Figure 2. Adhesive is applied to predetermined areas 19 (Fig. 3) of the folded side margins. The ends of the folded blank are then folded on scored lines 12 and 13 against the upward facing surfaces of the folded side walls 2 and 3, to complete the box in flat-folded condition as is shown in Figure 4. It is obvious that when the folding just described is effected, the sections 6 of the blank will become adhesively secured to the corresponding ends of the side walls at areas 19 (Fig. 3).

When it is desired to set up the box for use the side walls 2 and 3 are simply raised to an upright position. In so raising the side walls, sections 7 will automatically fold on scored lines 18 to positions against the corresponding sections 6 which are secured to outside surfaces of the corresponding side walls. In raising the box walls to upright position, as above described, a bellows fold element will be formed at each end of the side walls, as is illustrated by Figures 5, 6, 7, and 12. To lock the walls of the box in upright position, end wall extension sections 8 and 9 together with the side wall locking sections 10, are folded inward, with the result that end wall extensions 8 and 9 will be doubled against the inside surface of the corresponding end wall, and side wall locking sections 10 will take positions against inside end surfaces of the side walls 2 and 3.

It is apparent from Figures 8, 9, 10, and 11, that the walls of the box will be locked in upright position by folding the end wall extension sections and side wall locking sections to positions against inside surfaces of the box walls.

The scored lines 11, 14 and 18, (Fig. 1) are shown as being in straight lines, as are scored lines 12 and 13. These scored lines are illustrated in this way for simplicity, but in practice it may be desirable, when the box blank is made of fairly thick material, to have some of these lines out of line with each other, or at a slight angle with each other, in order to compensate for the thickness of the material from which the box blank is made and to permit folding the walls and wall extensions to flat condition and so that

the box may be set-up without binding or cramping.

I have shown in the method of producing the box herein described, that side wall securing sections 6 should be adhesively secured to side walls 2 and 3. In some instances where the walls of the box are very high it will be found that the box is effective for many purposes without adhesively securing said side wall securing sections 6 to the adjacent side walls 2 and 3.

It may be found advisable in cases where a fairly thick box-blank material is used to cut through the blank on the lines shown as scored lines 13 shown in Figure 1.

Having described my invention, what I claim is:—

1. The method of making a box of the character described, comprising; scoring and cutting a paper-board blank to form a bottom, a pair of side walls, a pair of end walls, embryo bellows fold sections adjacent to the ends of the side walls and ends of the end walls, end wall extension sections, and side wall locking sections; folding opposite side margins of the blank over upon center areas of the blank; applying adhesive to predetermined areas of the folded side margins; folding opposite ends of the blank upon mid-
 25 portions of the folded side margins, raising the side walls and the end walls to upright positions, and folding the end wall extension sections and the wall locking sections against corresponding inside surfaces of the box walls.
2. The method of making a locked corner box from a blank having scored lines extending longitudinally and scored lines extending transversely thereof to form a bottom, a pair of side walls, a pair of end walls, end wall extensions
 35 extending from the end walls, side wall locking sections adjacent to the end wall extensions and four embryo bellows fold sections adjacent to the ends of the side walls and ends of the end walls, said embryo bellows fold sections each having a scored line extending from the adjacent corner of the bottom section substantially diagonally
 40 across each embryo bellows fold section; comprising, folding opposite side margins of the blank over upon center areas of the blank, applying adhesive to predetermined areas of the folded side margins, folding opposite ends of the blank upon mid-
 45 portions of the folded side margins, raising the side walls and the end walls to upright positions, and folding the end wall extensions and the side wall locking sections against corresponding inside surfaces of the box walls.

3. The method of making a locked corner box from a blank having scored lines extending longitudinally and scored lines extending transversely thereof to form a bottom, a pair of side walls, a pair of end walls, end wall extensions extending from the end walls, side wall locking sections adjacent to the end wall extensions and four embryo bellows fold sections adjacent to the ends of the side walls and ends of the end walls, said embryo bellows fold sections each having a scored line extending from the adjacent corner of the bottom section substantially diagonally across each embryo bellows fold section; comprising, folding opposite side margins of the blank over upon center areas of the blank, folding opposite ends of the blank upon mid-
 10 portions of the folded side margins, raising the side walls and end walls to upright positions, and doubling the end wall extensions and the side wall locking sections against corresponding inside surfaces of the box walls.

4. The method of making a locked corner box, comprising; scoring and cutting a paper-board blank to form a bottom, a pair of side walls, a pair of end walls, embryo bellows fold sections adjacent to the ends of the side walls and ends of the end walls, end wall extension sections, and side wall locking sections; folding opposite side margins of the blank over upon center areas of the blank, folding opposite ends of the blank upon mid-
 20 portions of the folded side margins, raising the side walls and the end walls to upright positions, and doubling the end wall extensions and the side wall locking sections against corresponding inside surfaces of the box walls.

5. The method of making a box of the character described, comprising; scoring and cutting a paper-board blank to form a bottom, a pair of side walls, a pair of end walls, embryo bellows fold elements adjacent to the ends of the side walls and ends of the end walls, end wall extension sections, and side wall locking sections; folding opposite side margins of the blank over upon center areas of the blank, folding opposite ends of the blank upon mid-
 35 portions of the folded side margins, securing a section of each of the embryo bellows elements to adjacent portions of the corresponding side walls, raising the side walls and the end walls to upright positions, and doubling the end wall extensions and the side wall locking sections against corresponding inside surfaces of the box.

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