

Oct. 22, 1935.

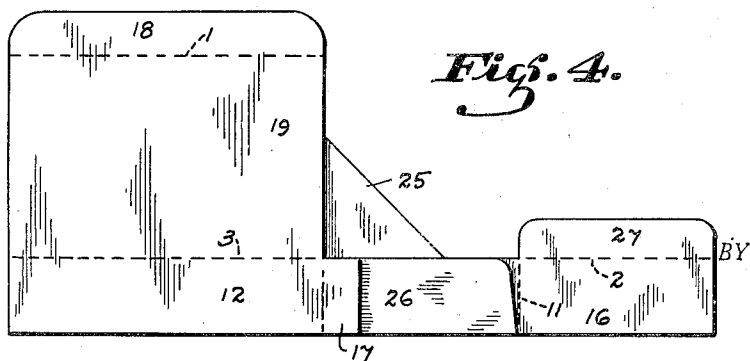
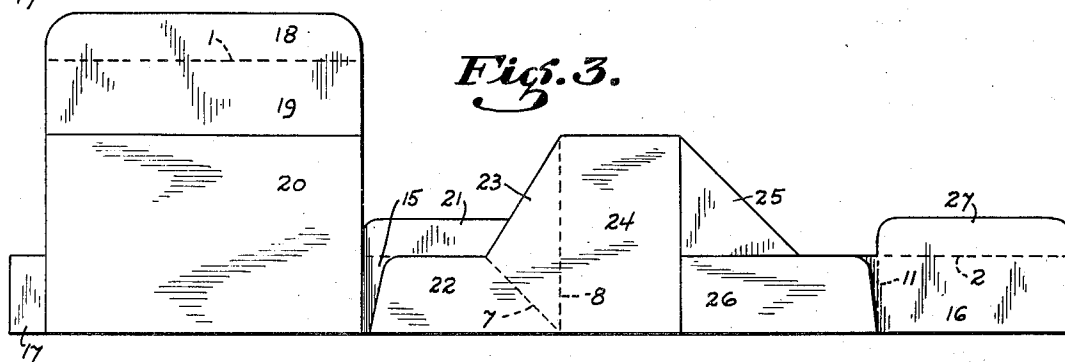
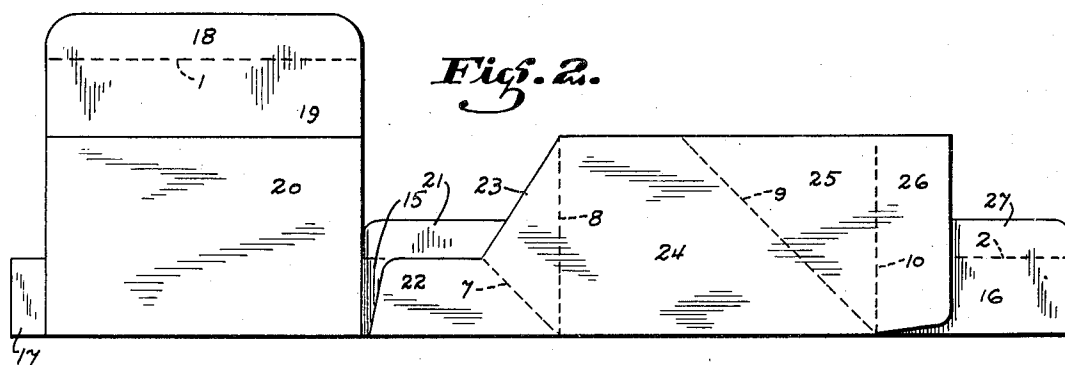
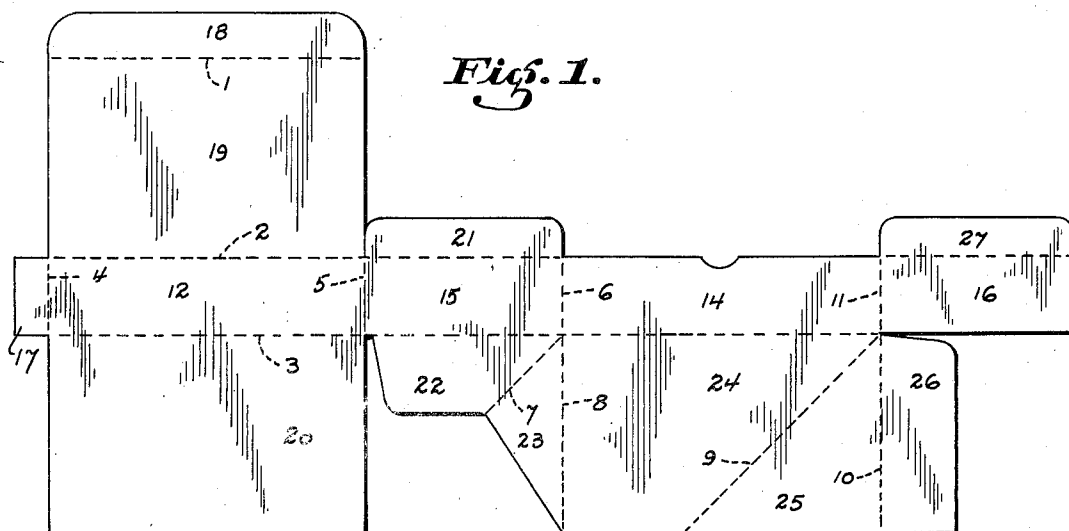
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2,018,171

FOLDING BOX

Filed Feb. 20, 1935

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

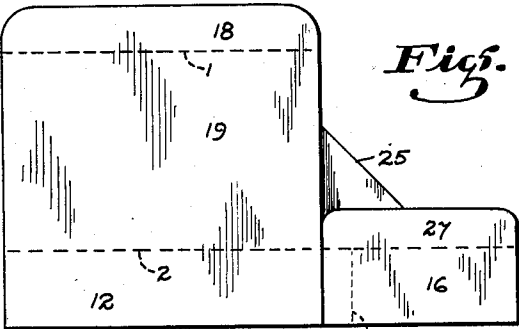


Fig. 5.

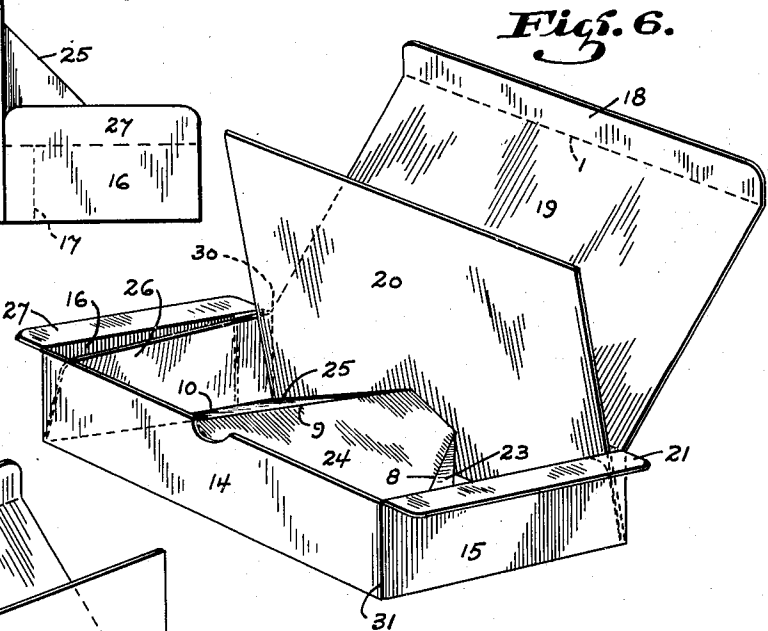


Fig. 6.

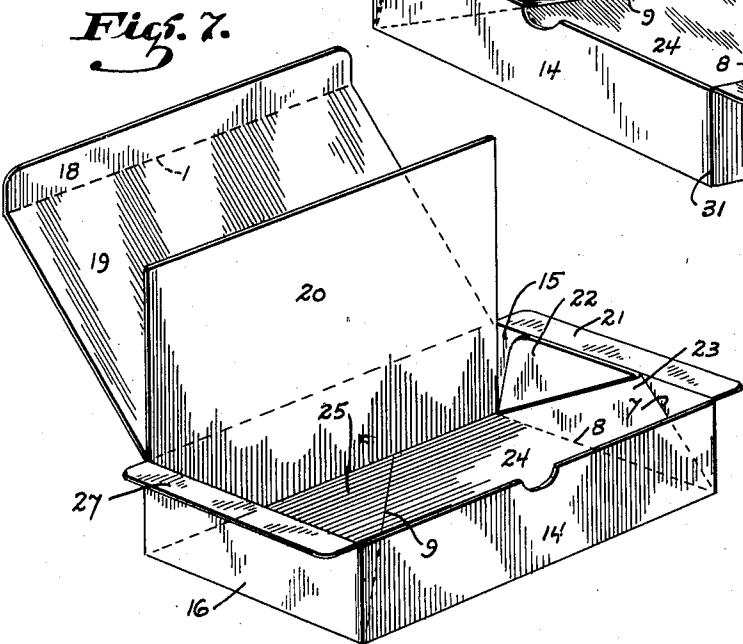


Fig. 7.

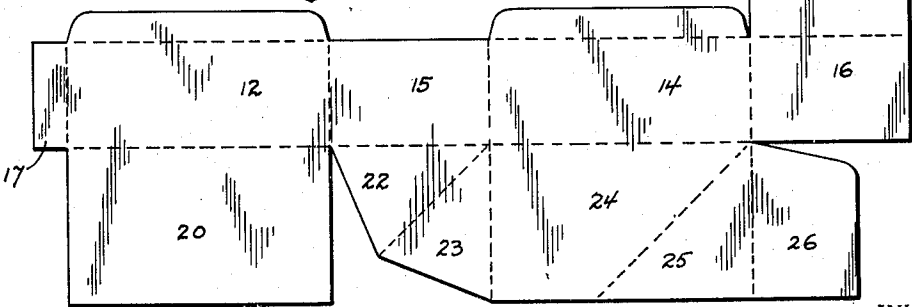


Fig. 8.

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UNITED STATES PATENT OFFICE

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FOLDING BOX

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Application February 20, 1935, Serial No. 7,369

4 Claims. (Cl. 229-41)

This invention relates to boxes such as are made from heavy paper, cardboard, fiberboard, and like materials, and especially to foldable boxes which may be manufactured in a flat or knock-down form and which may be quickly unfolded and erected when required.

The object of the present invention is generally to improve and simplify the construction and operation of boxes of the character described; to provide a box which can be folded and assembled from a single blank and the parts secured with a single tab, either glued or stapled; to provide a folding box formed from a single blank which lends itself to great variation in height, width, length and depth; to provide a blank or box of the character described which can be cut with a minimum of waste; to provide a folding box having an integral cover, said cover being applicable either to the side or end of the box as conditions may demand; and, further, to provide a folding box which, when assembled, presents double ends and a double bottom and which can be formed from a minimum amount of material.

The construction of the box is shown by way of illustration in the accompanying drawings, in which—

Fig. 1 is a plan view of the blank from which the box is formed.

Fig. 2 is a plan view showing the first folding operation of the blank.

Fig. 3 shows a second folding operation.

Fig. 4 shows the third folding operation.

Fig. 5 shows the fourth folding operation, which completes the folding and assembling of the sections.

Fig. 6 is a perspective view showing the manner in which the box is unfolded or erected from the folded blank shown in Fig. 5.

Fig. 7 is a perspective view showing the box fully unfolded, but before the inner bottom section is folded into place.

Fig. 8 is a plan view showing a modified form of blank in which the cover section is applied to the end of the box.

Referring to the drawings in detail, and particularly Fig. 1, which is a plan view of the blank forming the box, it will be noted that the blank may be made of any suitable material but is preferably cut from cardboard, fiberboard, heavy paper, or like material.

The blank is cut from stock by die operation and the shape obtained is that shown. Simultaneous with the blanking operation the paper is also creased along the lines indicated at 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11. The crease

lines 2 and 3 extend longitudinally of the blank from end to end thereof and form its side sections indicated at 12 and 14 and two exterior end sections 15 and 16. The crease line 4 forms a tab 17, which will hereinafter be referred to as the glue tab.

The crease line 1 forms a flap 18, while the section formed between the crease lines 1 and 2 forms a cover 19. Opposite the cover section 19 and below the crease line 3 is an interior bottom section 20. Above the exterior end section 15 and formed by the crease line 2 is a tab 21. Below the exterior end section 15 and formed by the crease lines 3, 7 and 8 are a pair of interior end sections 22 and 23 which are folded one upon the other along the crease line 7 when the boxes are unfolded as will hereinafter be described.

Formed below the side section 14 by the crease line 3 is an exterior bottom section which is divided into two sections 24 and 25 by the crease line 9, extending diagonally across the same. The crease line 10 forms an interior end section 26 and the crease line 2 above the exterior end section 16 forms a tab 27.

The blank when completed may be said to consist of a central strip composed of the securing tab 17, together with the side and end wall sections indicated at 12, 15, 14 and 16. The other sections forming the inner ends 22 and 26 of the box and the double bottom sections 24, 25 and 20 are formed on one side of the strip and the cover 19 may be formed on the opposite side of the central strip or as an extension of the end section 16 as shown in Fig. 9.

After the blank has been cut and formed as shown in Fig. 1, it is first folded longitudinally along the crease line 3 and will assume the position shown in Fig. 2. Thereafter, the interior end section 26 and the section 25 of the interior bottom section are folded upon the section 24 on the exterior bottom section, as shown in Fig. 3. Glue is next applied to opposite sides of the tab 17 and the sections 12, 19 and 20 are folded on the crease line 5 so as to assume the position shown in Fig. 4, and as glue has been applied to both sides of the tab 17 the tab 17 will adhere to the interior end section 26. The last and final operation is that of folding the exterior end section 16 on the crease line 11 so as to overlie the interior end section 26 and the glue tab 17 and this position is shown in Fig. 5. This completes the folding and assembling of the blank and the product is a folding box in the flat knock-down form. In this condition it

is ready for packing and shipment to the consumer.

When the box is to be used it is grasped by the corners, indicated at 30 and 31, and these corner sections are pulled away from each other causing the box to assume a rectangular shape, and as it is being pulled toward the rectangular shape the exterior bottom section will flatten out along the crease lines 9 and 10, finally assuming a flat position such as shown in Fig. 7. The interior bottom section 20 is then folded down over the exterior bottom section formed by the parts 24 and 25 and the box is ready for use.

A box folded in the manner described can be made from a minimum of material. The blank from which it was formed lends itself to great variation in height, width, length and depth when box construction of this character is considered.

The cover section 19, shown in Figs. 1, 6 and 7, is shown as attached to the side of the box. However, by referring to Fig. 8, it will be noted that the cover section is attached to the end of the box. This is another advantage as it increases the utility of the box by permitting the cover to be attached either to the side or to the end of the box. Also, by attaching the cover section to the end of the box saving in material is obtained during the blanking operation.

Comparatively little waste is encountered in the blanking operation as the blank is so shaped that nesting of the blanks becomes possible, the waste being at a minimum when the cover is attached to the end of the box.

The box, when assembled, is exceedingly rigid in construction as double ends are formed by the sections 16 and 26 and a substantial triple-thick end is formed by the sections 15, 22 and 23, and a double bottom is formed by the member 20 overlying the sections 24 and 25. The box, when unfolded and erected, is thus stiff and rigid and it lends itself for the reception of articles of varying nature. For instance, it may be used for a candy box, sandwich box, spools, and also for heavier articles such as toys, small metal parts, and the like.

The assembling operation from the blank form shown in Fig. 1 can be readily accomplished by machine operations, as each folding operation is exceedingly simple and as glue is applied to both surfaces of the tab 17 the assembling and securing of the several sections with relation to each other is accomplished by the glue tab during the folding operation to which the blank is subjected.

Great quantities of these boxes may be carried in stock as they are received in a flat or knock-down form, thus materially reducing storage space and also cost of shipping. The flat or knock-down form of the box is of no disadvantage as the actual time of unfolding or erecting it when needed does not consume more than a second, if that much.

While the tab 17 has been described as secured by gluing, it is obvious that staples or other similar fastening means may be employed, and while other features have been more or less specifically

described, I wish it understood that various changes may be resorted to within the scope of the appended claims. Similarly, that the materials and finish of the several parts employed may be such as the manufacturer may decide, or varying conditions or uses may demand.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. A folding box blank comprising a central strip creased transversely to form a pair of side and a pair of end wall sections, a pair of bottom sections foldably connected one to each side wall section and at one side of the central strip, a cover member foldably connected to the central strip, and a pair of inner end wall sections foldably connected to one of the bottom sections, one at each end thereof, one of said inner end sections being also foldably connected to one of the first-named end wall sections.

2. A folding box blank comprising a central strip creased transversely to form a pair of side and a pair of end wall sections, a pair of bottom sections foldably connected one to each side wall section and at one side of the central strip, a cover member foldably connected to the central strip, and a pair of inner end wall sections foldably connected to one of the bottom sections, one at each end thereof, one of said inner end sections being also foldably connected to one of the first-named end wall sections, said inner end section having a crease line disposed centrally and crosswise thereof on an angle of substantially 45°.

3. A folding box blank comprising a central strip creased transversely to form a pair of side and a pair of end wall sections, a pair of bottom sections foldably connected one to each side wall section and at one side of the central strip, a cover member foldably connected to the central strip, a pair of inner end wall sections foldably connected to one of the bottom sections, one at each end thereof, one of said inner end sections being also foldably connected to one of the first-named end wall sections, said inner end section having a crease line disposed centrally and crosswise thereof on an angle of substantially 45°, and the bottom section to which the inner end walls are attached having a creased line extending from one corner thereof on an angle of substantially 45°.

4. A folding box blank comprising a central strip creased transversely to form a pair of side and a pair of end wall sections, an outer bottom section forming an extension of one side wall section, an inner bottom section forming an extension of the other side wall section, a cover section forming an extension of said last-named side wall section but disposed on the opposite side of the central strip, there being crease lines between the several sections to permit folding of the sections with relation to each other, and a pair of inner end wall sections connected to the outer bottom section, one at each end thereof, one of said inner end sections being also connected to one of the first-named end wall sections.

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