

April 5, 1938.

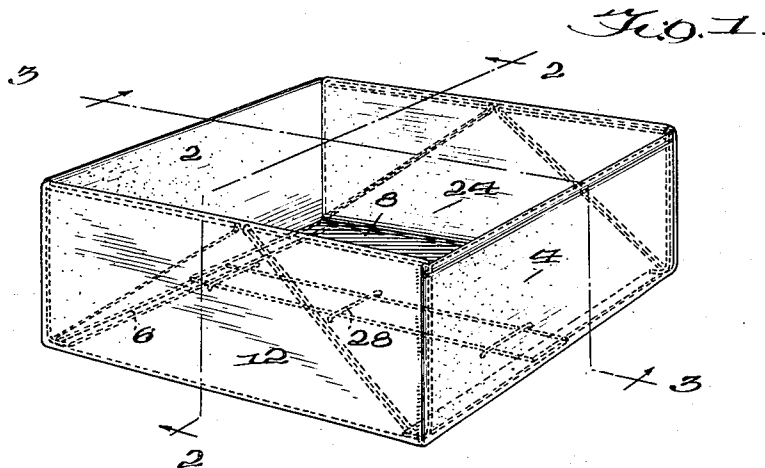
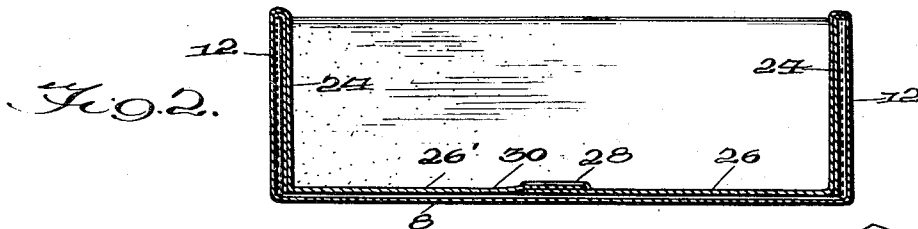
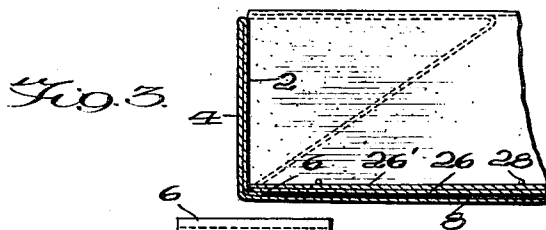
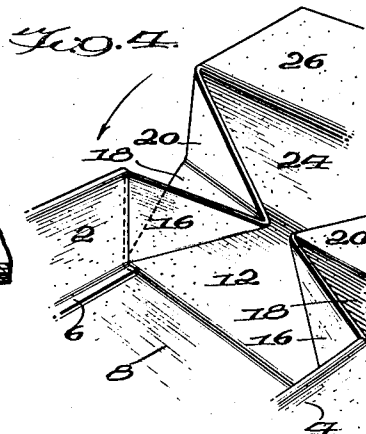
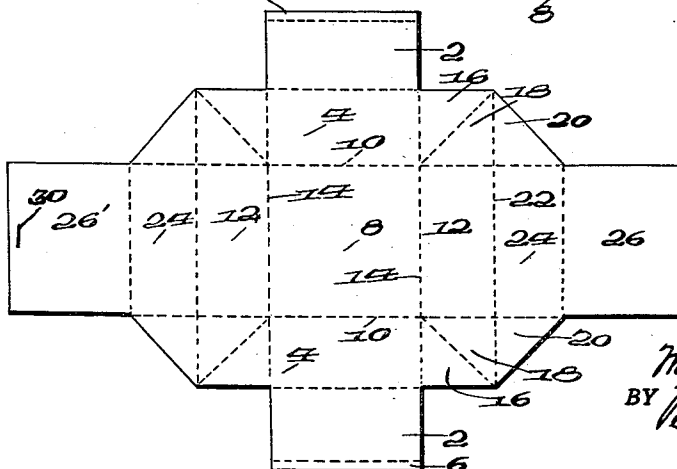
M. M. KEENER

2,113,349

COLLAPSIBLE BOX

Filed Aug. 9, 1933

2 Sheets-Sheet 1



INVENTOR
Martin M. Keener
BY Vernon E. Hodges
his ATTORNEY

April 5, 1938.

M. M. KEENER

2,113,349

COLLAPSIBLE BOX

Filed Aug. 9, 1933

2 Sheets-Sheet 2

Fig. 6.

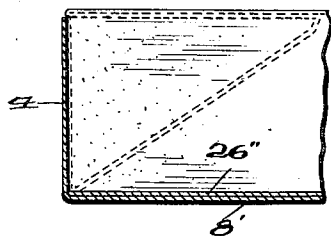


Fig. 7.

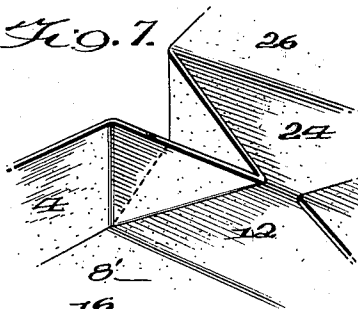
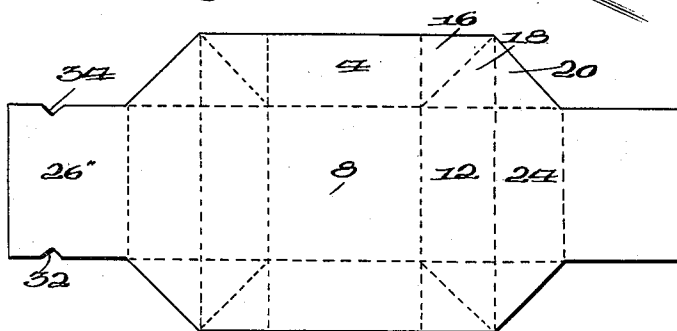


Fig. 8.



INVENTOR
Martin M. Keener
BY Vernon E. Hodges
his ATTORNEY

UNITED STATES PATENT OFFICE

2,113,349

COLLAPSIBLE BOX

Martin M. Keener, Lancaster, Pa.

Application August 9, 1933, Serial No. 684,423

3 Claims. (Cl. 229—34)

My invention pertains to collapsible cardboard boxes. An object of my invention is to provide cardboard blanks which are cut and scored so that they may be readily folded to form boxes.

Another object of my invention is to provide a collapsible box which will be substantially constructed when in its folded position.

Another object of my invention is to provide a collapsible box which will require very little space for shipping or packing when the box is in its collapsed position.

Another object of my invention is to provide means so that the box may be readily collapsed from its set-up position when desired.

Another object of my invention is to provide means, whereby the box may be held in its set-up position without the use of rivets, pins, or catches.

In the accompanying drawings,

Fig. 1 is a perspective view of my preferred form of box;

Fig. 2 is a cross-section on the line 2—2, of Fig. 1;

Fig. 3 is a fragmentary cross-section on the line 3—3, of Fig. 1;

Fig. 4 is a perspective view of one end of my preferred form of box;

Fig. 5 is a plan view of the blank for the box in its unfolded position;

Fig. 6 is a fragmentary section similar to Fig. 3 of a modified form of my folding box;

Fig. 7 is a perspective view of one end of this modified form of box; and

Fig. 8 is a plan view of the blank of this form of the box.

To form the box shown in Fig. 1, the side flaps 2 of the blank shown in Fig. 5, are folded toward the center of the blank, so that they will lie along the sections 4 of the blank. The narrow strip 6 on the ends of the sections 2 will then extend their full width within the section 8 which will, when the box is completely in its set-up position, be the bottom thereof.

The section 4 and the several triangular sections on each side thereof, are next folded along the line 10, so that all of these sections will be standing in a plane perpendicular to the plane of the bottom section 8. The end portions 12 are next folded along the lines 14, so that the end portions 12, will then be in a plane perpendicular to the plane of the bottom section 8.

In making this fold, it will be necessary for the corner sections 16, 18 and 20, to fold inwardly as shown in the perspective view of Fig. 4.

Having folded the box thus far, the portion beyond the line 22, which line extends between

the triangular sections 18 and 20, will be folded in a downward direction, as indicated by the arrow in Fig. 4, so that the section 24 will lie alongside the section 12. The portion 26 which will become a part of the inner bottom of the box, and will lie flat along the section 8, is then folded in the direction shown in Fig. 4. The section 26' at the other end of the blank would be folded down in the same manner and will be secured to the section 26, by suitable means, such as the staples 28, or by gluing these two sections together, at a point in the middle of the bottom, as shown in Figs. 1 and 2.

It is to be understood that when this box is in its collapsed position, it is preferably scored and folded with the end portions 26 and 26' secured together as described above, so that the box may be readily changed to its set-up position by merely changing the positions of the several sections until the box assumes the position shown in Fig. 1. This will necessarily be easy by virtue of the fact that the scored lines have previously been folded and will very readily assume their proper positions.

When the boxes are in their collapsed condition, ready for shipment, or in storage before use, they will not be merely blank forms that are properly cut and scored, but will be already folded and flattened out so that they will require only a small space. For example; in the first form the side sections 2 will be folded to lie along the section 4. The sections 2 and 4 are then folded on the line 10, so that both of these sections, as well as the two triangular corner sections 16 and 18 will be in a plane parallel to and in close proximity to the plane of the bottom section 8 while the end section 12 is in a plane with the bottom section 8. The inner end section 24 will have been folded upon the section 12 along the line 22, so that it will lie against the section 12. The triangular corner section 20 will then be against the section 18. The sections 26 and 26' will have been secured together as described above and will lie in a plane above the plane of the bottom section 8 and the end section 12, and above the plane in which the inwardly folded side sections 4 lie.

While the box is in this collapsed and folded position it will be flat and require very little space for storage but will be ready for immediate use after merely raising the side sections 4 and the end sections 12 to positions in planes perpendicular to the plane of the bottom section 8, and forcing the sections 26 and 26' down within the box to lie in a plane parallel to and in

close proximity to the plane of the bottom 8. The box will then be in the position shown in Fig. 1.

The other form of box described below is to be folded in a similar manner.

On one edge of the section 26', I provide a slot 30, which will be toward the center of the bottom of the box when it is in its folded or upright position, so that the inner bottom 26 and 26' can readily be pulled upwardly and away from the bottom 8, in order to collapse the folded box.

This form of box when in its upright position as shown in Figs. 1, 2 and 3, has double ends, sides, and bottom. The sections 2 and 4 forming the double sides; sections 12 and 24, the double ends; and the sections 8 and 26 and 26', the double bottom.

The modified form shown in Figs. 6, 7 and 8 is very similar to the above-described form, but has only double wall, ends, and bottom, since the sections 2 and the strips 6, shown in Figs. 1, 3, 4 and 5, are cut away from the blank from which this form is made. The folding operations are identical with the exception of the fact that there is one less operation, namely, the folding of the inner side sections 2 and the strips 6, which are not utilized in this form.

In this form I have disclosed notches 32 and 34 in the inner bottom portion 26'', so that the bottom portion 26'' may readily be pulled away from the bottom portion 8 when it is desired to collapse the box from its set-up position.

In my several forms of boxes, I have provided a collapsible box which, when collapsed will take very little space and will be ready to be easily assembled for use at a moment's notice.

Both of the forms are expected to be used as a telescoping box, both the bottom section and the top section of that box being constructed the same way with a slight difference in dimensions, so that one may fit over the other.

It is to be understood that any portions of one form of my box may be used in combination with another form in place of the corresponding part which is replaced.

It will be obvious that many minor changes may be made from time to time in the construction of these boxes without departing from the spirit of the invention and the scope of the appended claims.

I claim:

1. A foldable blank box including a bottom, side wall portions, flaps foldable over and upon said side wall portions, end sections, additional end portions foldable over and upon said end sections, inner bottom sections secured to and foldable at right-angles from said additional end portions, and means securing the ends of said inner bottom sections together.

2. In a foldable blank box, a bottom, side sections, double walled end sections, one portion being foldable over and upon the other, an inner bottom section secured to the inner wall section of each end section, said inner bottom sections secured together at approximately the center of the bottom, and an opening in at least one section of said inner bottom, said opening adapted to facilitate the displacement of said inner bottom to collapse the box.

3. In a foldable blank box, a bottom, side sections, double walled end sections, one wall thereof being foldable over and upon the other wall, an inner bottom section secured to the inner wall of each of said double walled end sections, means securing the said inner bottom sections together, and an opening in at least one section of said inner bottom, said opening adapted to facilitate the displacement of said inner bottom to collapse the box.

MARTIN M. KEENER.