Jan. 10, 1939. C. L. CLAFF 2,143,763

METHOD OF MAKING PAPER BOXES

Original Filed Nov. 26, 1935 2 Sheets-Sheet 1

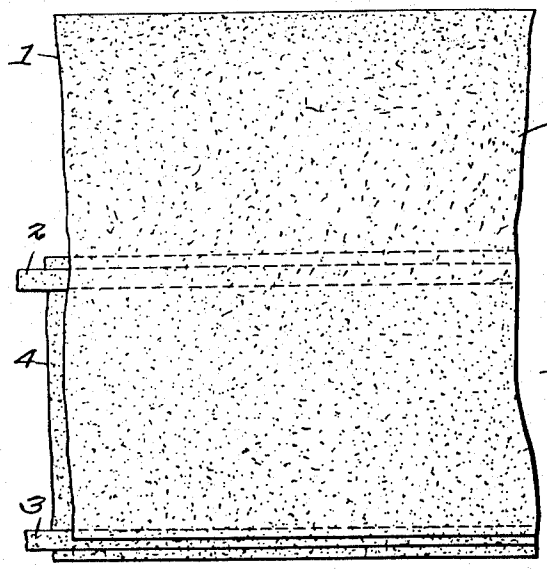


Fig. 1.

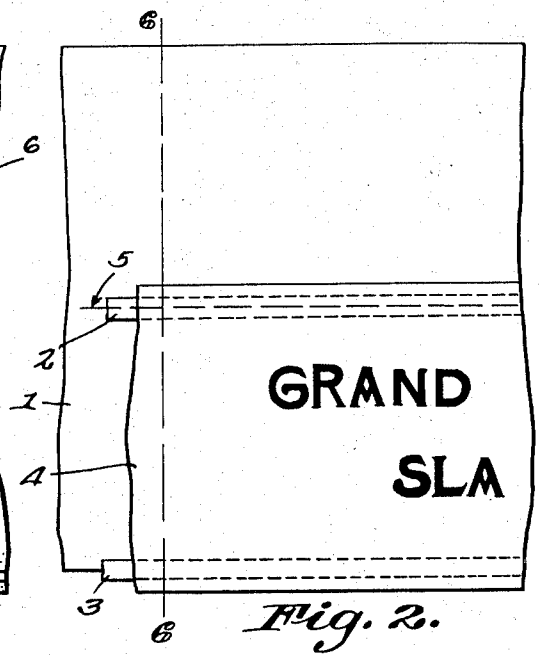


Fig. 2.

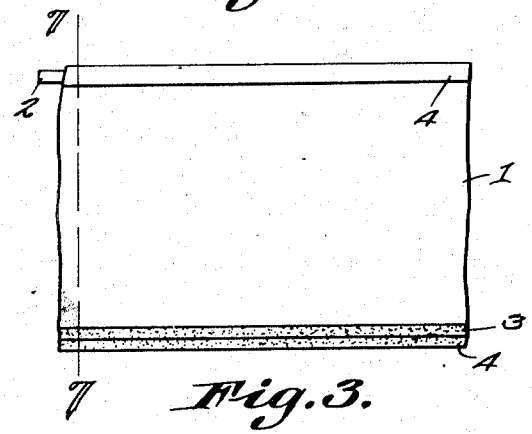


Fig. 3.

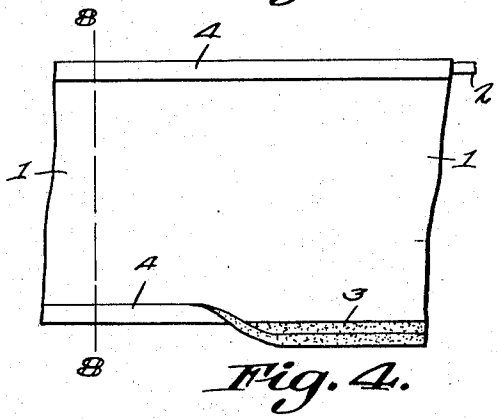


Fig. 4.

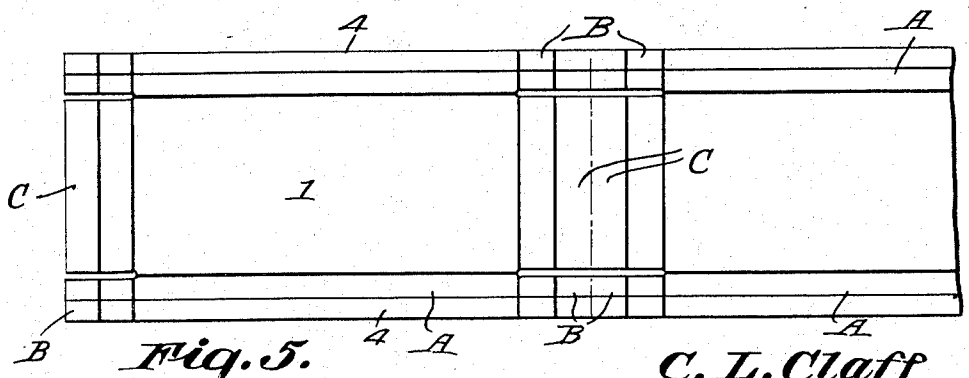


Fig. 5.

C. L. Claff
INVENTOR.

BY C. A. Snow & Co.

ATTORNEYS.

Jan. 10, 1939. C. L. CLAFF 2,143,763

METHOD OF MAKING PAPER BOXES

Original Filed Nov. 26, 1935 2 Sheets-Sheet 2

Fig. 6.

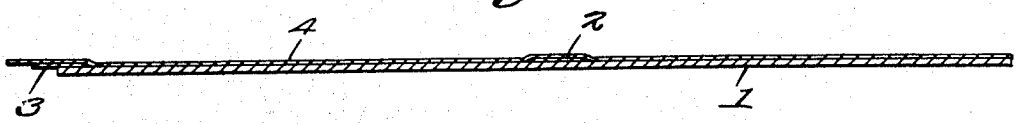


Fig. 7.

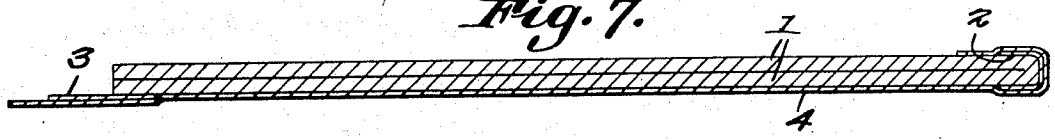
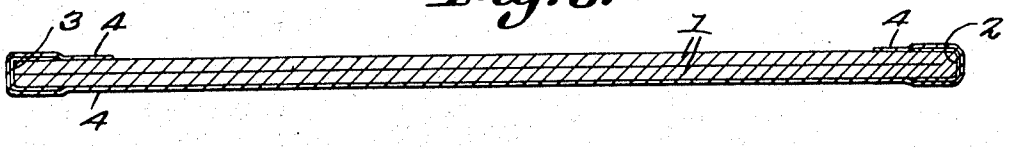


Fig. 8.



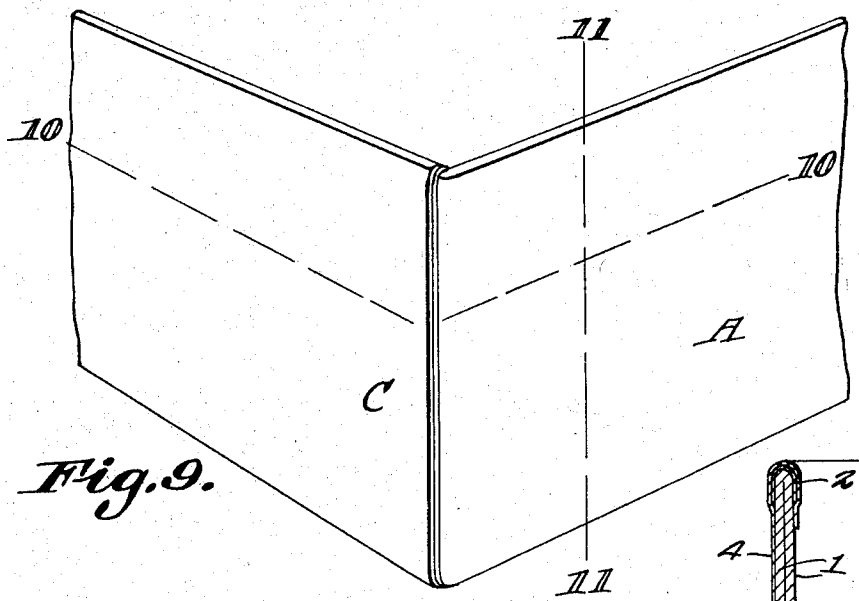


Fig. 9.

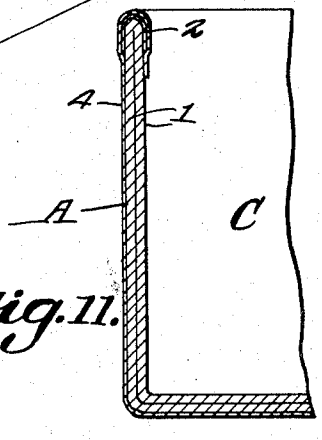


Fig. 11.

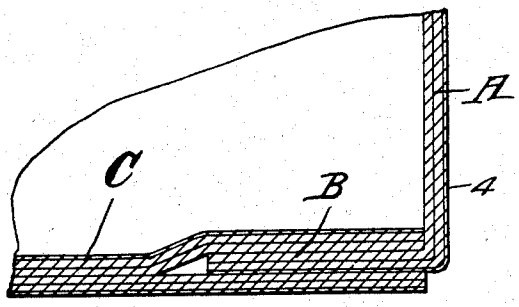


Fig. 10.

C. L. Claff

INVENTOR.

BY C. A. Snow & Co.

ATTORNEYS.

Patented Jan. 10, 1939 2,143,763

UNITED STATES PATENT OFFICE

2,142,763

METHOD OF MAKING PAPER BOXES

Clarence Lloyd Claff, Randolph, Mass.

Original application November 26, 1935, Serial No. 51,723. Divided and this application July 21, 1937, Serial No. 154,884

4 Claims. (Cl. 93—36.6)

This invention relates to a new and improved method of making paper boxes. It is a division of an application filed by me on November 26, 1935, Serial Number 51,723.

In most cases shoe boxes and the like are made from heavy box board which usually is coated on one side with a web of thin finishing paper or the like. The use of this thick, heavy box board has been objectionable because of the difficulty in forming neat appearing folds at the box ends and because objectionable raw edges have been exposed unless some added operations have been utilized in an effort to conceal them. The use of the thick box board has also been undesirable because it has been practically impossible to print satisfactorily on the finishing web after it has been affixed to the web of box board, this being due to slight variations in the thickness and contour of the heavy stock.

To meet the objections herein stated I have devised an improved box made by a method whereby two thicknesses or layers of thin box board placed in superposed relation can be used in lieu of a single thickness of heavy stock. These thin layers with an interposed adhesive, produce a lighter structure which, because of its laminations, is nevertheless stronger, and also allows the finishing paper to be printed with satisfactory results after it has been affixed to one of the layers. The use of a laminated blank formed of relatively thin layers is also desirable because it permits special end fold constructions whereby the exposure of raw side edges is substantially eliminated and the folds can be more compactly made.

Structure utilizing affixed layers of thin stock having the advantages herein recited have been disclosed in my co-pending applications filed on December 1, 1934, Ser. No. 755,601 and May 11, 1935, Ser. No. 21,022.

In both of the inventions covered by said applications the box blanks have been cut from a web made of two separate thicknesses of thin box board joined by an adhesive and co-extensive in width. To one of these has been affixed a layer of finishing paper and the three webs, after being joined during a continuous feeding operation, have been finished at the side edges by folding the side edges of the finishing paper over the raw side edges of the two thicknesses of box board.

The present invention has been designed as an improvement upon the box formed of laminations of stock and upon the method of making the same and has for an object the employment of a single web of thin box board stock, the same being of double width and foldable lengthwise to provide the two thicknesses to be affixed together.

A further object is to apply the finishing paper to the unfolded web so as to cover only a portion thereof, it being possible to print satisfactorily on this paper after it has been applied to the thin box board.

A further object is to so locate the finishing paper on the web of box board that when said web has been folded, the paper will extend over the fold to provide a finish at one edge of the folded web while the other side edge of the applied paper will be left free to be folded over and join and seal the two longitudinal edges of the box board stock, thereby to provide a finish for the other edge of the folded web.

Another object is to reduce the number of webs required in the production of a laminated box so as to correspondingly simplify the mechanism required to make the box.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in certain novel details of construction and combinations of parts and in certain steps of the method hereinafter described and pointed out in the claims, it being understood that changes can be made in the construction and arrangement of the parts and in the steps of the method without departing from the spirit of the invention as claimed.

In the accompanying drawing the preferred form of the invention and the steps of the method have been illustrated.

In said drawing

Figure 1 is a view of a portion of a web of box board showing the side to which an adhesive has been applied, a web of finishing paper and strips of reinforcing or "Kraft" tape being applied to the opposite side.

Figure 2 is a view of the opposite side of the assembled webs of box board and finishing paper with interposed tapes.

Figure 3 shows the webs following the folding operation but prior to the edge finishing operation.

Figure 4 is a similar view illustrating the step of finishing the laminated web by sealing and joining the raw edges with the finishing paper.

Figure 5 shows the finished laminated web after being cut and creased to form blanks.

Figure 6 is an enlarged section on line 6—6, Figure 2.

Figure 7 is an enlarged section on line 7—7, Figure 3.

Figure 8 is an enlarged section on line 8—8, Figure 4.

Figure 9 is a perspective view of one corner portion of a box formed from a laminated blank.

Figure 10 is a section on line 10—10, Figure 9.

Figure 11 is a section on line 11—11, Figure 9.

In making the improved box there is provided a web 1 of thin box board stock, this web being twice the width of the box blank to be formed. A reinforcing strip of "Kraft" tape 2 or the like is applied to one face of the web along the longitudinal center thereof and another similar tape 3 is applied to said face along one side edge so as to project laterally a short distance beyond said edge. Another web 4, formed of thin finishing paper or the like is affixed to said face of web 1 and is of such width as to cover the two tapes 2 and 3 and extend a short distance laterally beyond both of them. Obviously the finishing paper 4 can be printed after being applied to web 1 and as shown in Figure 2.

Following the step of assembling the webs and tapes the same are folded along the center line 5 of web 1, this line extending substantially along the center of tape 2. Prior to the folding operation the web 1 can be coated with an adhesive 6, waterproof or otherwise, so that when the folding operation is completed the superposed layers of the web 1 will adhere with their raw side edges registering with each other as shown in Figure 3. Thereafter the free edge of the paper web 4 and the exposed portion of tape 3 are folded over the raw side edges of web 1 as shown in Figure 4, thus joining and concealing said edges. Consequently the completed composite web thus produced will be laminated and will have both side edges finished by the inturned or folded side edges of the finishing material and also reinforced by the concealed tapes 2 and 3.

Following the formation of the laminated web the same is cut and creased, as shown for example in Figure 5, so as to produce blanks suitable for forming boxes of the type to be produced. The box, as shown, can be made of laminated sides A having end wings B which are inturned so as to be straddled by an end fold C. In every case, however, the top edges of the side A will be finished by the folded side edges of the covering or finishing material 4 as shown in Figure 11.

What is claimed is:

1. The method of making a laminated paper box which includes the step of applying to one surface of a length of stock a layer of finishing material which extends laterally past the center line of the stock and beyond one edge thereof thereby to provide a free side portion of finishing material, thereafter folding the stock and the covering material to form a laminated web having one side edge covered by the folded finishing material and its other side edge formed by the raw edges of the stock and the free portion of the finishing material, then folding the free portion of the finishing material over and affixing it to the raw side edges of the stock to cover and join the same, thereafter cutting and creasing the web to form a box blank, and finally shaping the blank into a box the top edges of opposed walls of which are finished by the folded side edge portions of the finishing material.

2. The method of making a laminated paper box from a folded length of stock which includes the step of affixing finishing material to one surface of the length of stock, one portion of the finishing material being extended laterally across the line of fold of the stock and another portion of the finishing material being extended beyond one edge of the stock thereby to provide a free side portion of the finishing material, thereafter folding the stock and finishing material along said line of fold to form a laminated length of stock one side edge of which is covered by the folded portion of the finishing material, then folding the free portion of the finishing material onto the raw edges of the stock and affixing it to the stock to form another finished side edge of the length of stock, thereafter cutting and creasing the web to form a box blank, and finally shaping the blank into a box the top edges of opposed walls of which are finished by the folded portions of the finishing material.

3. The method of making a laminated paper box from a folded length of stock which includes the step of affixing to one surface of the length of stock a strip of reenforcing tape which extends laterally across the line of fold of the stock and another strip of finishing tape which extends beyond one edge of the stock with one side portion of the tape free, thereafter applying to said surface of the length of stock and to the tapes, a layer of finishing material which extends laterally across the line of fold of the stock and beyond one edge of the stock, thereby to provide a free side portion of the finishing material, thereafter folding the stock, one of the tapes, and the finishing material along said line of fold to form a laminated stock one side edge of which is reenforced and covered by the folded portion of one of the tapes and of the finishing material, then folding the free portions of the other tape and of the finishing material onto and affixing it to the stock to form another finished side edge of the length of stock, thereafter cutting and creasing the web to form a box blank, and finally shaping the blank into a box the top edges of opposed walls of which are finished by the folded side edge portions of the finishing material.

4. The method of making a laminated paper box from a folded length of stock which includes the steps of affixing to one surface of the length of stock a reenforcing tape which extends laterally across the line of fold of the stock and of affixing to said surface another length of reenforcing tape which extends beyond one edge of the stock, thereby to provide a free side portion of the tape, thereafter folding the stock and one of the tapes along said line of fold to form a laminated length of stock one side edge of which is reenforced by the folded tape, then folding the free portion of the other tape onto and affixing it to the stock to join and reenforce the raw edges of the stock, and thereafter cutting and creasing the web to form a box blank and finally shaping the blank into a box the top edges of opposed walls of which are reenforced by the folded tapes.

CLARENCE LLOYD CLAFF.