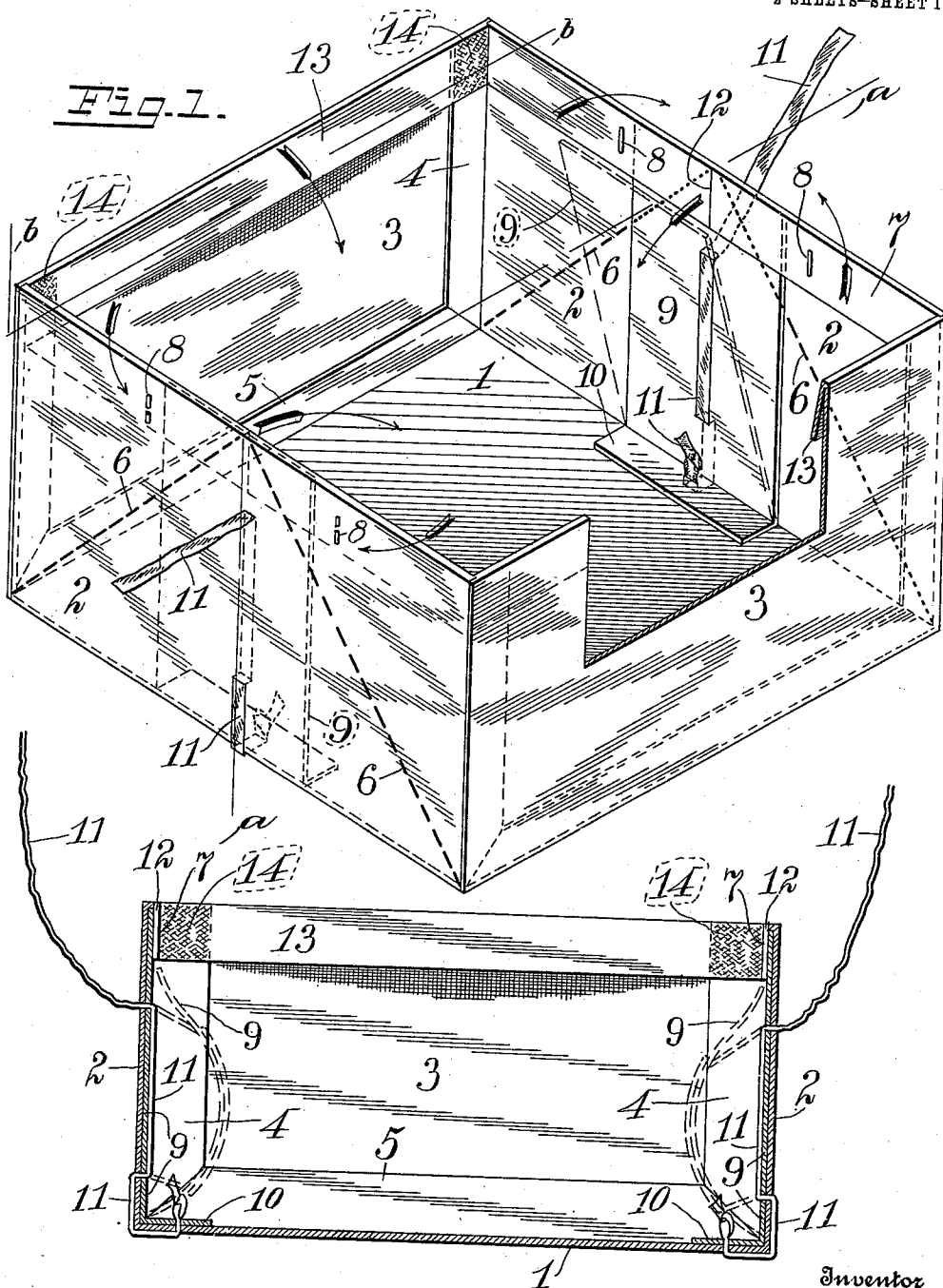


977,770.

H. L. R. WOLF.
PAPER BOX.
APPLICATION FILED JULY 19, 1910.

Patented Dec. 6, 1910.

2 SHEETS—SHEET 1.



Witnesses
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Fig. 2.

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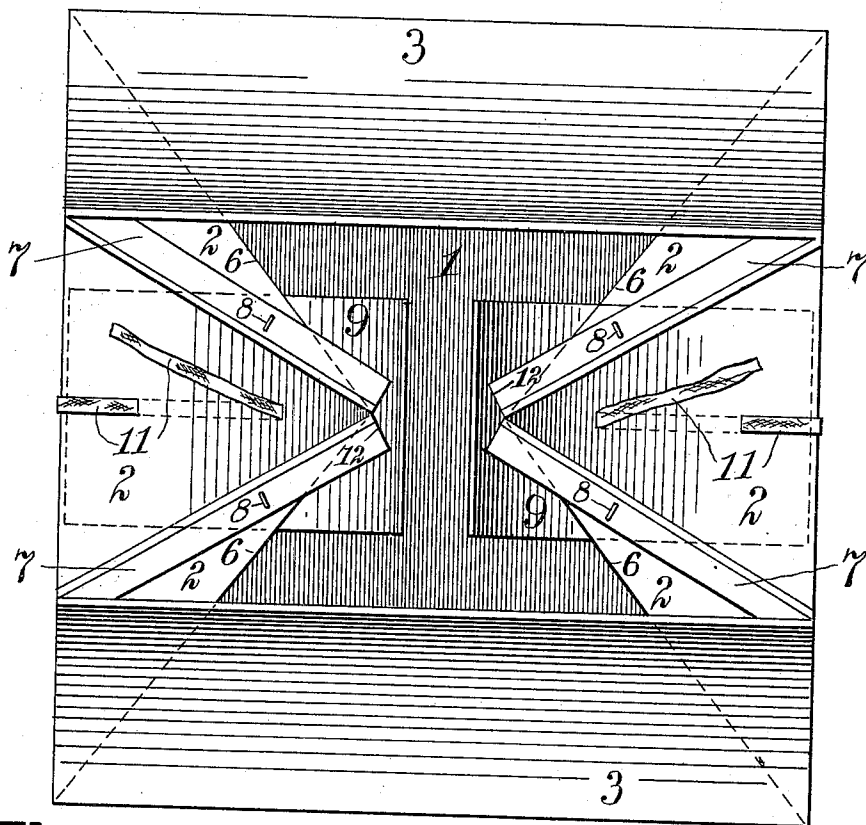


Fig. 3.

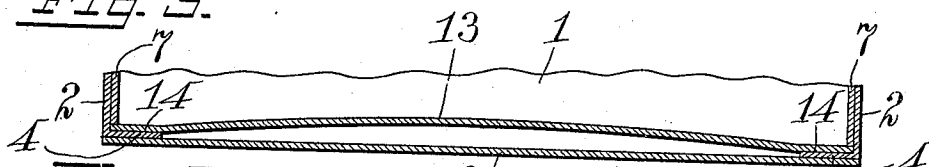


Fig. 5.

Fig. 6.

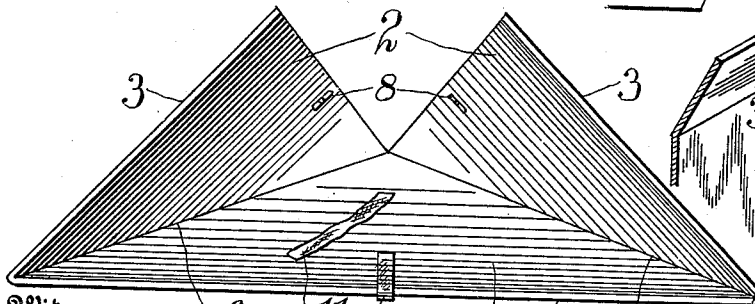
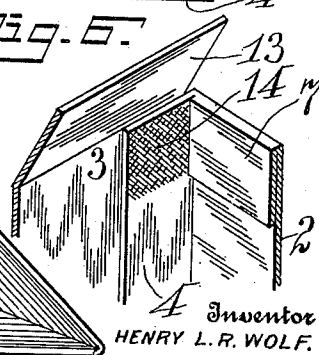


Fig. 4.



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PAPER BOX.

977,770.

Specification of Letters Patent.

Patented Dec. 6, 1910.

Application filed July 19, 1910. Serial No. 572,679.

To all whom it may concern:

Be it known that I, HENRY L. R. WOLF, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Paper Boxes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which is appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in paper boxes.

The object of the invention is to provide an improved form of reinforcement for the folding ends of the box, thereby permitting said ends to fold on diagonal score lines snugly against the bottom of the box, so that a flat package of the box is made when folded, thereby economizing in space in shipment to the consumer.

A further object is to provide a collapsible box which is easily set up by anyone.

Referring to the drawings, Figure 1 is a perspective view of the box in an opened position, and with parts cut away. Fig. 2 is a section on the line *a-a* of Fig. 1. Fig. 3 is a top plan view of the box partially closed. Fig. 4 is an end view of the box partially closed. Fig. 5 is a section on the line *b-b* of Fig. 1, showing the method of strengthening the upper edges of the box. And Fig. 6 is a perspective view showing the method of forming the upper corners of the box.

The box may be rectangular in form, or square as it is shown in the drawings, and consists of a bottom 1, ends 2 and sides 3. The ends 2 may be separate portions, but it is preferable that they be integral with the bottom 1. The sides 3 are attached to the ends and bottom by means of flaps 4 on the ends, and flaps 5 on the bottom. The ends 2 are scored diagonally as at 6, to allow the box to be collapsed. When placed in such a position the inner triangular portions of the ends 2 fold inwardly against the bottom of the box, and the outer triangular portions fold above the inner triangular portions, while the sides 3 fold above the outer triangular portions. In Figs. 3 and 4 I have shown the box partially collapsed; while in Fig. 1 the arrows indicate the relative direc-

tion of the parts when the box is being folded.

When the box is in an opened position, the folding ends 2 are held upright and rigid as follows. The upper edges of the ends 2 are provided with integral strips 7 which are folded inwardly against the upper inner sides of said ends, and are united thereto by any suitable means, such as staples 8. The staples 8, the ends 2, and the strips 7 form pockets in which the upper ends of flaps 9 are adapted to enter. The lower ends of the bracing flaps 9 are provided with extensions 10 which are united to the bottom of the box by means of tapes 11. The tapes 11 are knotted at their inner ends and pass through the extensions 10 and bottom 1, and then around the lower edges of the box and into it through the ends 2 and flaps 9. The tapes 11 then pass out of the box through the flaps 9 and sides 2. The ends of the tapes 11 are adapted to be tied over a cover (not shown), and when drawn tight, hold the flaps 9 rigidly against the ends 2. The flaps 9 may be of any width, and when in position, lie across the diagonal score lines 6. It will be seen that, when the flaps 9 are held in this position by means of the tapes 11 and the pocket before referred to, said flaps will reinforce the ends 2 and prevent said ends bending on the score lines 6. When it is desired to collapse the box, the flaps 9 are removed from the pockets by bending them to the position shown in dotted lines in Fig. 2. After being extracted from the pockets, the natural resiliency of the flaps places them in the position shown by broken lines in Fig. 1; and when the box is completely folded, said flaps lie under the inner triangular portions of the ends 2.

As the tape passes over the cover of the box, it may be used as a handle to carry the same; the weight of the box will therefore be borne by the tape, and as the tape passes through the ends 2 and flaps 9 a plurality of times, the ends 2 and flaps 9 will be drawn tightly together and the box will thus be additionally strengthened. To allow the ends of the box to fold inwardly without tearing the strips 7, the strips 7 are cut at 12, which allows the two halves of the strips 7 to separate when the ends are bent along the score lines 6.

The sides of the box are reinforced as follows. Integrally attached to the sides 3, along their inner upper edges, are strips 13

which are folded inwardly and lie along the upper inner edges of said sides. These strips 13 are only attached to the sides 3 at their ends, as at 14. The natural resiliency of the strips 13 places them in an arched position, as is shown in Fig. 5; and as the strips 13 are attached to the sides 3 along their upper edges, the strips 13 and the sides 3 will form a channel section, as is shown in Fig. 1. As the lower edges of the strips 13 are removed from the sides 3, said strips will therefore exert a maximum strengthening effect. As shown in the drawings, only the sides of the box are provided with the strengthening strips 13, but it will be understood that these strips 13 may be applied to all four edges when desired.

The upper corners of the box are constructed as follows. The flaps 4 before referred to, are an integral part of the ends 2 and extend to the upper edge of the sides 3. The flaps 4 are attached to the sides 3 by paste or glue, and to further increase the strength of the joint thus made, the strips 13 of the sides are folded over the upper ends of the flaps 4, and are glued to said flaps at 14, see Fig. 6. It will therefore be seen that both surfaces of the upper end flaps 4 will be united to the sides 3, which makes a very substantial corner joint.

Without limiting myself to the precise form and arrangement shown and described, I claim:

1. A paper box having inwardly folding side and end walls 2 and 3, the end walls 3 having diagonal score lines 6 extending from the lower corners and intersecting at the upper edges of said end walls at points midway of the lengths of said end walls, said end walls having marginal extensions 7 7 folding inwardly and providing centrally disposed pockets on the inner sides of said end

walls, said extensions 7 7 being slitted midway of their lengths as at 12, whereby they may fold with the end walls on the diagonal score lines, fasteners 8 8 securing said end wall extensions 7 7 to the end walls on the outer sides of the diagonal score lines, and bracing flaps 9 9 lying on the inner sides of the end walls and adapted to enter said central pockets to maintain the end walls and their pocket extensions in a rigid upright position, and means for maintaining said bracing flaps in engagement with said end walls, substantially as specified.

2. A paper box comprising side and end walls adapted to fold against the bottom of the box or to stand upright, the end walls being provided with score lines whereby they are adapted to be collapsed in diagonal folds against the bottom of the box, said end walls being reinforced along their upper edges by extended flaps which fold along said end walls, said flap extensions being slitted at their longitudinal centers to permit them to break at such points when the end walls are collapsed, fastening means securing said flap extensions to the end walls on each side of the slits and at suitable distances from said slits to provide pockets in the central portions of the end walls, bracing flaps attached to the bottom of the box and lying against the central portions of the end walls across the diagonal score lines, and the upper ends of which enter said pockets, and means such as tape or cord uniting said bracing flaps to the bottom of the box and to the end walls, substantially as specified.

In testimony whereof I affix my signature, in presence of two witnesses.

HENRY L. R. WOLF.

Witnesses:

MATTHEW SEIBLER,
HOWARD S. SMITH.