L. P. REXFORD.

PAPER BOX.

APPLICATION FILED JULY 20, 1914.

1,152,844.

Patented Sept. 7, 1915.

2 SHEETS—SHEET 1.

Fig. I.

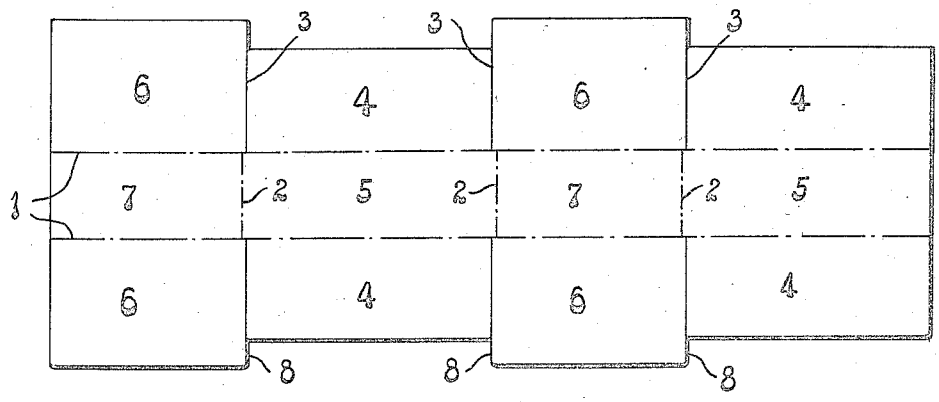


Fig. II.

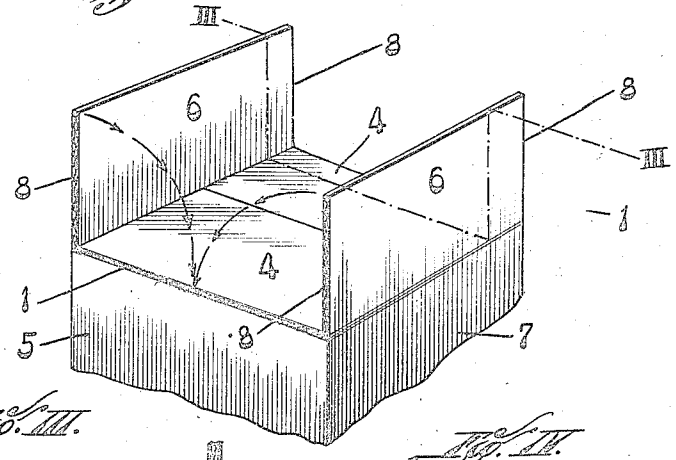


Fig. III.

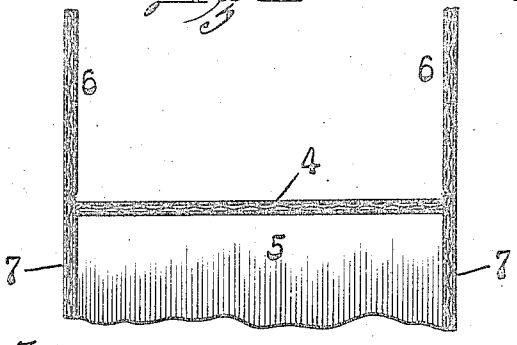
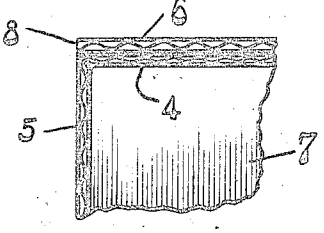


Fig. IV.



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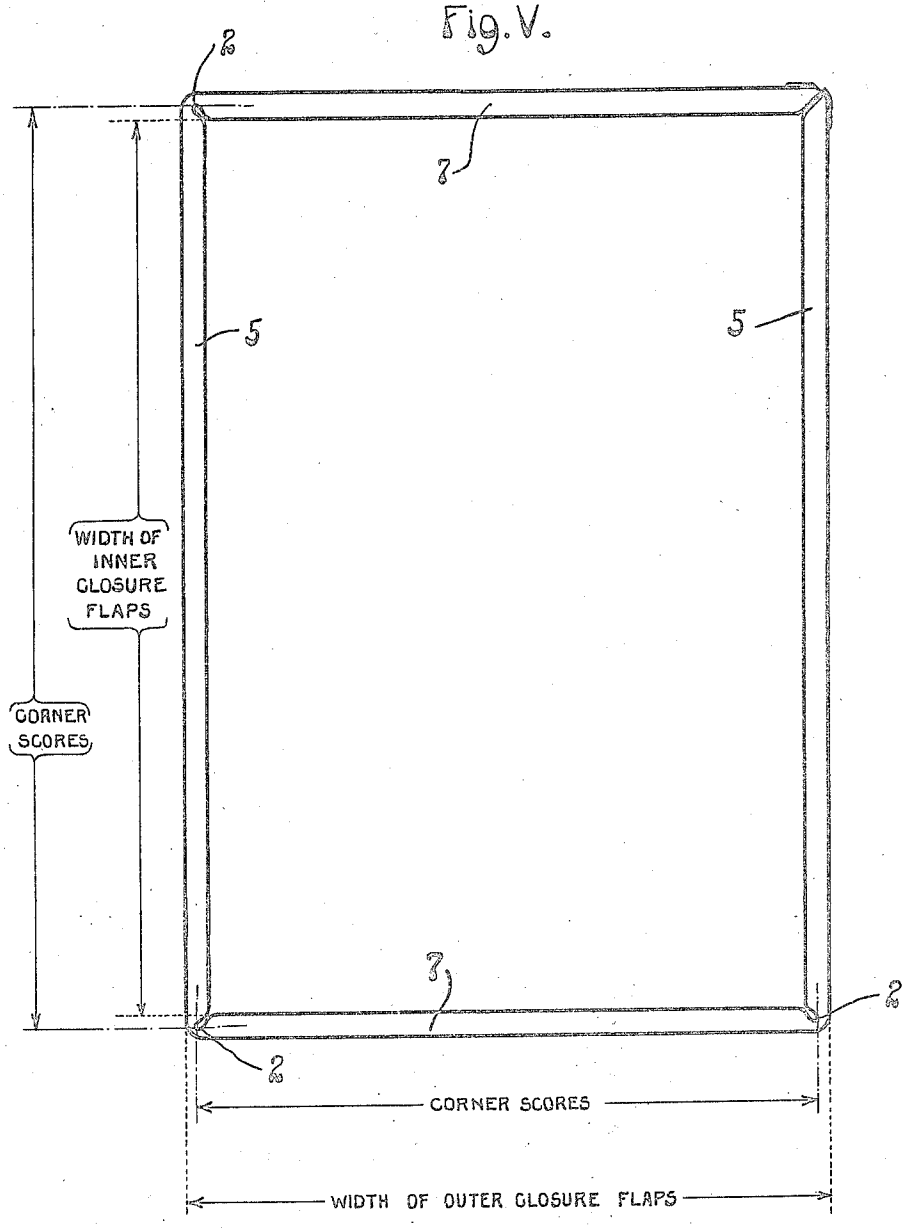
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2 SHEETS—SHEET 2.

Fig. V.



Attest
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UNITED STATES PATENT OFFICE.

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PAPER BOX.

1,152,844. Specification of Letters Patent. Patented Sept. 7, 1915.

Application filed July 20, 1914. Serial No. 851,917.

To all whom it may concern:

Be it known that I, LEY P. REXFORD, a citizen of the United States, a resident of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Paper Boxes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a paper box, preferably made of corrugated paper, the object being to produce a very strong box of this kind which is very materially reinforced at its ends.

Paper boxes are usually made by forming a blank having corner scores and closure slits aline with said corner scores, and such blanks are adapted to be folded to form a box having side walls and closures hinged to said side walls. In the manufacture of heavy paper boxes, such as corrugated paper boxes, the corner scores are forced into the corners of the box body when the paper blank is folded, and if the closure slits in the box blank are alined with the corner scores, the inner closure flaps which are to lie within the box body will be wider than the distance between the opposing box walls which engage the opposite edges of said inner flaps; while the outer closure flaps having their side edges alined with the corner scores will not lie flush with the box walls at the opposite edges of said outer closure flaps.

Briefly stated the preferred form of my invention comprises a paper box blank made of faced corrugated paper, and provided with corner scores and closure slits offset from said corner scores. When the box blank is folded on the corner scores to produce a rectangular box body the corner scores in the corrugated paper are forced into the corners of the box body so that these scores are not flush with either the inner face nor the outer face of any of the box walls, but owing to the peculiar manner in which the closure slits are offset from said corner scores, I produce inner closure flaps which engage the inner faces of the opposing box walls; and outer closure flaps having their opposite edges located substantially flush with the outer faces of opposing box walls. A corrugated paper box so constructed is very materially reinforced by the inner closure flaps snugly fitted to the inner faces of a pair of the box walls and also by the outer closure flaps flush with the remaining box walls. As will be hereinafter pointed out, my box is braced at its end corners, which are subjected to stresses and blows of different kinds when the box is in service as a shipping box.

Figure I is a top or plan view of a box blank embodying the features of my invention. Fig. II is a perspective view of the end portion of a box formed by folding the blank shown in Fig. I. Fig. III is a vertical section taken on the line III—III, Fig. I. Fig. IV is a vertical section taken through one of the corners of the box. Fig. V is a diagrammatical top or plan view.

The corrugated paper box blank shown in Fig. I is provided with scores 1 to produce hinges for the closure flaps, corner scores 2 at the junctions of the box walls, and closure slits 3 parallel with but offset from said corner scores 2. By scoring and slitting the corrugated paper box blank in this manner I produce inner closure flaps 4 narrower than the wall sections 5 (Fig. I), and outer closure flaps 6 wider than the wall sections 7.

When the corrugated paper box blank is folded on the corner scores 2 to produce a rectangular box body, as shown diagrammatically in Fig. V, the corner scores 2 are forced into the corners of the structure, so that the distance between the corner scores or transverse centers of the corner folds is not equal to the distance between the inner faces of the box walls, nor is the distance between the outer faces of the box walls equal to the distance between the corner scores or transverse centers of the corner folds. Hence if the closure slits were in alinement with the corner scores, the inner closure flaps would be too wide and the outer closure flaps would be too narrow; in other words it would be necessary to force the inner closure flaps into the box body thereby bulging the walls of said body and otherwise distorting said body, and furthermore the narrow outer closure flaps would not protect the opposite corners of the box. However, by locating the closure slits 3 out of alinement with the corner scores 2, as shown in Fig. I, I produce inner closure flaps 4 adapted to lie substantially or exactly flush with the opposing box walls 7.

Note the relative measurements indicated in Fig. V. The inner closure flaps may be thus located where they will brace the ends of the box body, serve as means for "squaring up" the box structure, prevent the ends of the box structure from being distorted, and more particularly serve as braces for the end corners of the box structure. It will also be noted that the outer closure flaps 6 are wider than the distance between the corner scores adjacent to said outer closure flaps, and opposite edges 8 of the latter may, therefore, lie substantially, or exactly, flush with the outer faces of the opposing walls 5. These wide outer flaps overlapping the walls 5 serve to protect and reinforce the corners at the top and bottom edges of said walls 5.

In view of the foregoing it will be understood that by locating the closure slits 3 out of alinement with the corner scores 2, as shown in Fig. I, the inner and outer closure flaps may be folded without distorting the box body and when such flaps are folded they serve as reinforcing elements for bracing and protecting the end portions of the box body at points where boxes of this kind are usually damaged in shipment.

The closure slits 3 at the adjacent edges of the closure flaps are preferably formed by very thin cutting blades which remove very little, if any, paper from the box blank.

I claim:

1. A paper box blank having fold scores between the side wall members and between the side wall members and the end wall members and provided with slits at one side of, and parallel with, the fold scores between the side wall members, so as to produce inner and outer closure flaps joined to the side wall members by parallel hinges, the outer closure flaps being wider than the side wall members to which they are joined and adapted to extend over the hinges of the inner flaps when the blank is folded; said inner closure flaps being adapted to be folded entirely within the body of the box, and said outer closure flaps being adapted to fold thereover to protect the hinges of the inner flaps.

2. A paper box having fold scores between the side wall members and between the side wall members and the end wall members and provided with slits at one side of, and parallel with, the fold scores between the side wall members, thereby producing inner and outer closure flaps joined to the side wall members by parallel hinges, the outer closure flaps being wider than the side wall members to which they are joined and extending over the hinges of the inner flaps; said inner closure flaps being folded entirely within the body of the box, and said outer closure flaps being folded thereover to protect the hinges of the inner flaps.

3. A paper box comprising side wall sections forming the box body, said box being provided with scores at the junctions of said wall sections and with slits formed parallel with said scores to produce inner and outer closure flaps, said closure flaps being hinged to said wall sections, and said slits being offset from said scores so that the inner flaps are substantially equal in width to the distance between the inner faces of the wall sections to which the outer flaps are hinged and the outer flaps being substantially equal in width to the distance between the outer faces of the wall sections to which the inner flaps are hinged, the said inner flaps being foldable into the box body to serve as braces therefor, and the outer flaps being foldable over the inner flaps and over the walls to which the inner flaps are hinged so as to serve as protectors for the hinges of said inner flaps.

4. A paper box blank having fold scores between its side wall members and end wall members, and provided with slits offset from and parallel with the fold scores between the side wall members, so as to produce inner and outer closure flaps joined to the side wall members by parallel hinges, the offset slits being formed without removing any appreciable amount of material from the blank so that the closure flaps of the blank abut against each other, the outer closure flaps being wider than the side wall members to which they are joined and adapted to extend over the hinges of the inner flaps when the box blank is folded, and the inner closure flaps being narrower than the side wall members to which they are joined.

LEY P. REXFORD.

In the presence of—
A. J. McCauley,
M. M. Apgar.