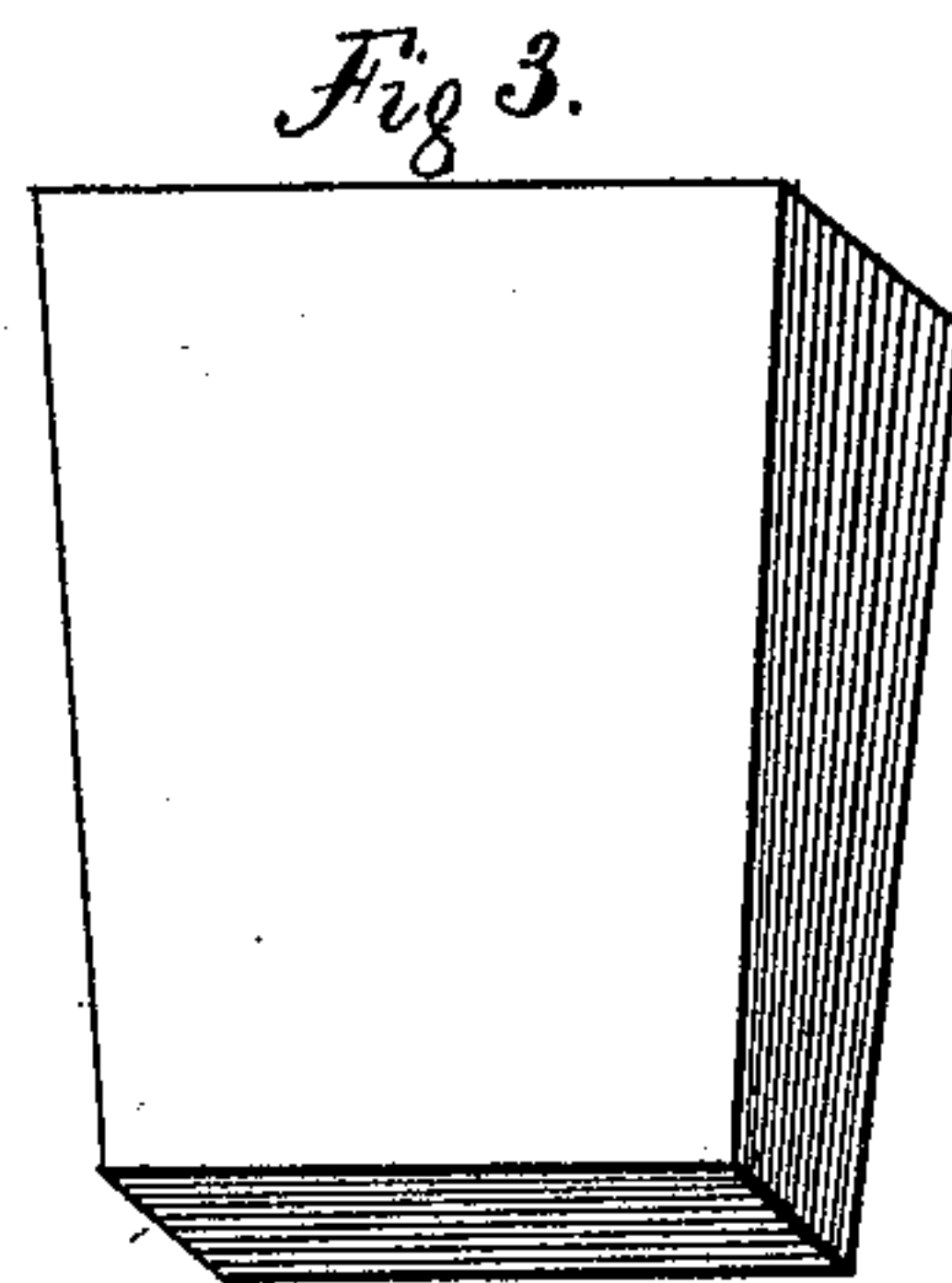
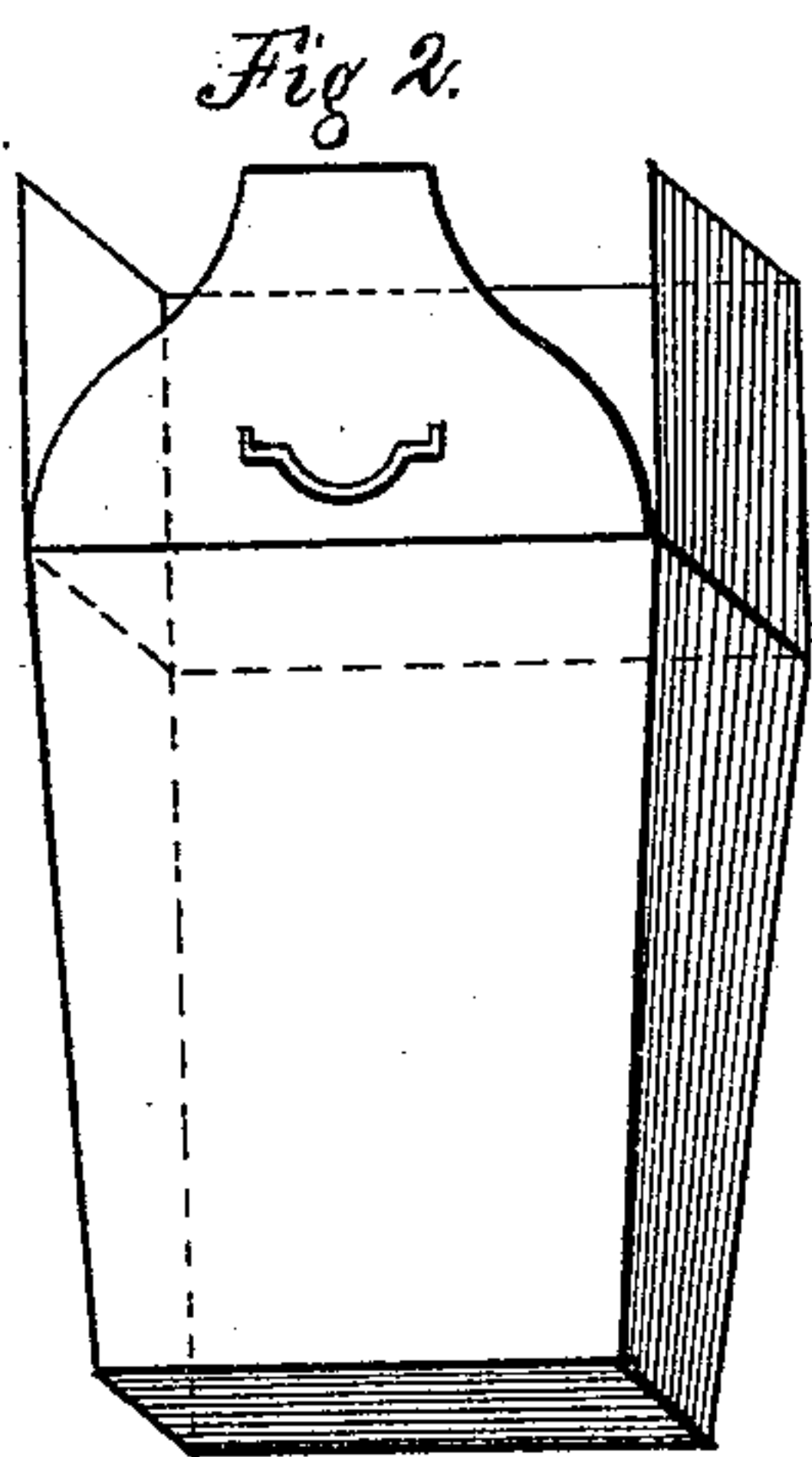
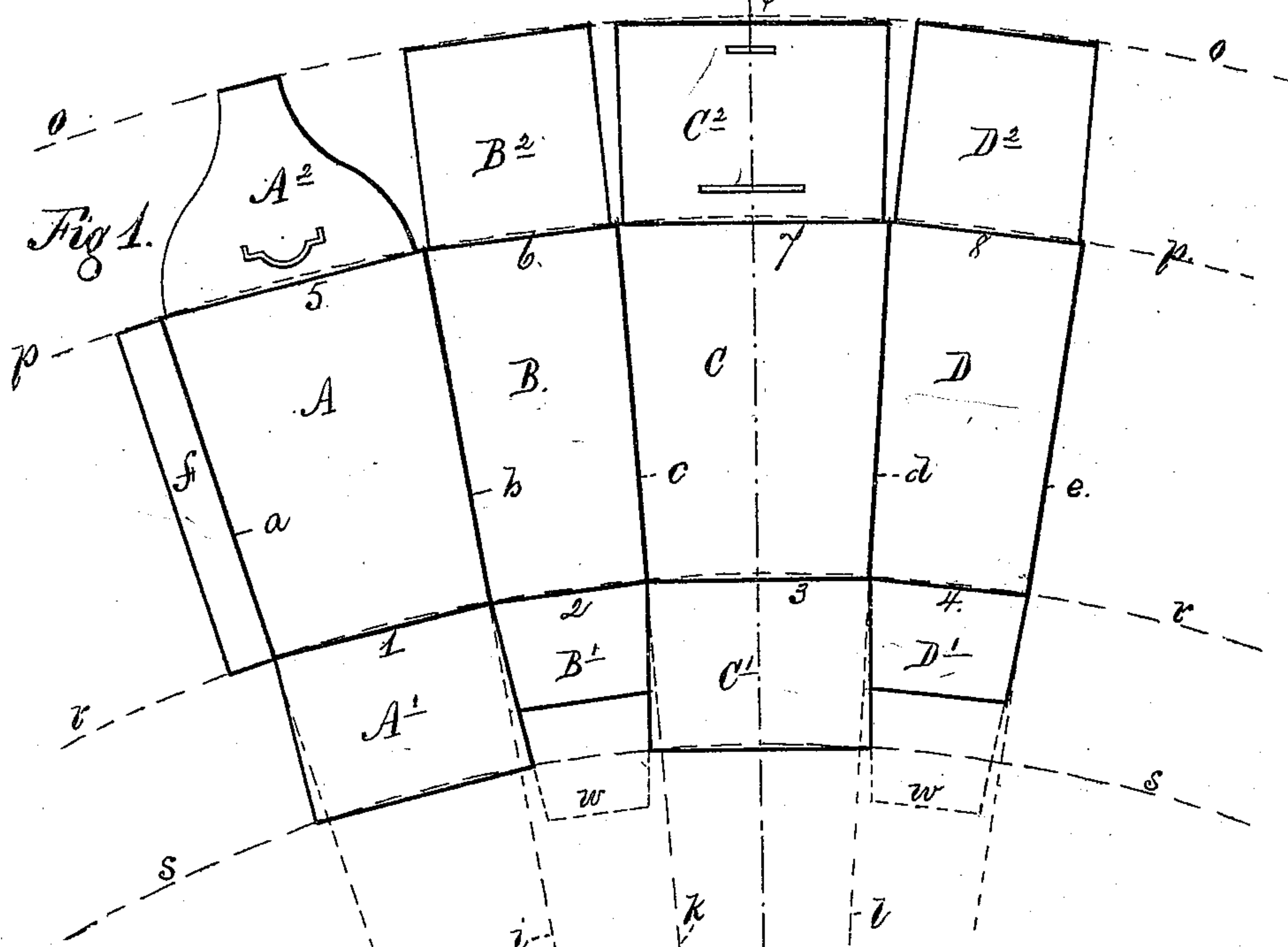


H. S. MUNSON.  
PAPER-BOX.

No. 175,732.

Patented April 4, 1876.



Witnesses;  
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att'y.

# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN PAPER BOXES.

Specification forming part of Letters Patent No. **175,732**, dated April 4, 1876; application filed March 8, 1876.

*To all whom it may concern:*

Be it known that I, HARVEY S. MUNSON, of the city of New Haven, county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Paper Boxes, of which the following is a specification:

The object of this invention is the production of an improved form of paper boxes of the class known and designated as ice-cream and oyster boxes; and it consists in a peculiar formation of such a box from one piece or blank of paper, so cut, shaped, and creased that when folded it presents a completed box in the shape of an inverted truncated pyramid, the bottom of which is formed of flaps, one or more of which has parallel sides and right-angular corners, whereby the said bottom, whether two, three, or more plies in thickness, is completely closed by the said flap or flaps, so that all the joints or seams are tightly closed, forming a bottom which is practically water-tight, the details of the construction of which will be hereinafter fully pointed out and described.

In the drawings, which form an essential part of this specification, Figure 1 is a plan view of the blank from which the box is formed; and Figs. 2 and 3 are perspective views, showing the form of the box when completed.

Similar letters of reference in the various figures of the drawings will locate corresponding parts.

In carrying out my invention I make use of the ordinary super-calendered Manila paper usually adopted for similar purposes. From such paper I form, by means of dies, knives, or other suitable process, a blank of the form as shown in Fig. 1. This blank is divided into four parts, A, B, C, and D, which form, when folded, the four sides and body of the box. They are divided by creased lines for folding on lines radiating from a single fixed point, W, as shown in the drawing. The central perpendicular line *x x*, through the center of the division C or A of the blank, as indicated by the broken lines, is first drawn, thus giving the line upon which to locate the radial point W, from which the creased lines *a*, *b*, *d*, and *e*, dividing the blank into four parts, are formed on angular lines radiating from the fixed point W, the divisions A and

C forming the front and rear of the box, and divisions B and D forming the sides thereof when folded. A narrow flap, *f*, is attached to division A, separated therefrom by the creased line *a*, for the purpose of fastening it to the division D on line *e* when the box is folded into shape. The dotted lines *o o*, *p p*, *r r*, and *s s* indicate sections of a circle, of which the fixed point W is the center, the line *o o* indicating the line on which to cut the top of the blank, and the line *s s* that of the bottom. The line *p p* indicates the apex, and line *r r* the base of the box when folded. From the points on creased lines *a*, *b*, *c*, *d*, and *e*, where the curved lines *r r* intersect them, are drawn the straight lines 1, 2, 3, and 4, which are creased for folding, and divide the divisions of the blank forming the sides from the parts forming the bottom of the box. In a similar manner straight lines 5, 6, 7, and 8 are creased on the curved line *p p*, dividing the parts of the blank forming the top from those forming the sides. The flaps A<sup>1</sup>, B<sup>1</sup>, C<sup>1</sup>, and D<sup>1</sup>, forming the bottom of the box, are also cut on angular lines radiating from the fixed point W. The division-cuts on dotted lines *i k l* being as fine as the formation of the cutting-blade will permit. These flaps have parallel sides and right-angular corners, so cut and formed that any one, or all of them, in turn, will fully close the parallelogram in the base, as formed by the sides of the box when folded. This will effectually close the bottom, making tight joints or seams on all four sides. It is important that these flaps be cut with mathematical precision, with relation to the radiating lines *i*, *k*, and *l*, and sections of the circles *r* and *s*, else the bottom of the box will not be closed, as designed and described.

When a threefold bottom is desired, the flaps B<sup>1</sup> and D<sup>1</sup> are cut shorter than flaps A<sup>1</sup> and C<sup>1</sup>, and, when folded, meet at the center, forming the equivalent of the wide flaps A<sup>1</sup> and C<sup>1</sup>. When a fourfold bottom is desired, the flaps B<sup>1</sup> and D<sup>1</sup> are extended, as shown by the dotted lines *w w*, each flap then forming a single fold.

It will be seen that any one of the flaps A<sup>1</sup> B<sup>1</sup> C<sup>1</sup> D<sup>1</sup> may be cut to fill the bottom of the box, and the others folded upon it; flaps B<sup>1</sup> and D<sup>1</sup> may be lengthened and cut to fill the



entire bottom, and flaps  $A^1$  and  $C^1$  shortened so as to meet at the center, but the formation as before described is preferred.

It will be understood that the flaps forming the bottom of the box vary in length according to the size of the box—that is to say, flaps  $B^1$  and  $D^1$  in a box, the bottom of which is to be threefold, will in length be just one-half of the width of the divisions forming the front and rear of the box, meeting in the center when folded. In the case of a fourfold bottom they would in length equal the full width of the front and rear, and thus cover the entire bottom, while flaps  $A^1$  and  $D^1$  will, in all cases, in length equal the width of divisions A and D at their base, which form the sides of the box when folded.

The flaps  $A^2$ ,  $B^2$ ,  $C^2$ , and  $D^2$  are cut into the form as shown, and when folded down form the top or cover of the box.

The operation of forming the box from the blank, as described, is as follows: Division D is folded on crease  $d$ , division C on crease  $c$ , division B on crease  $b$ , and division A on crease  $a$ , the remaining flap  $f$  then being glued, pasted, or otherwise attached to the interior of the division D, on the exterior line  $e$ , which results in the production of a tube, in pyramidal form, open at both ends. The bottom is then formed by infolding the flap  $A^1$  on creased line 1, flaps  $B^1$  and  $D^1$  are then infolded on lines 2 and 4, the third and final fold being that of flap  $C^1$  on line 3, each flap being glued to that preceding it. This completes the bottom of the box, which is thus made threefold in thickness of material. As previously stated, if a bottom fourfold in thickness is desired, it is obtained by extending the flaps  $B^1$  and  $D^1$  to such a length as

will equal the width of the box on its bottom, the infolding of the various flaps being accomplished in the same order as before described.

It will be seen that the shape of the flaps, of which the bottom is formed, is such that they completely cover the parallelogram space between the four sides of the box at their base at each infolding. The top or cover folds of the box may be formed after the plan of any one of the well-known forms of "tuck" and "lock" boxes, which, being no essential part of my invention, calls for no specific description herewith.

While it is the intention to complete the formation of the box as shown in Figs. 2 and 3, nesting them for the purposes of transportation, still, if so desired, they can, after being folded and glued or fastened on line  $e$  by flap  $f$ , be "knocked down" flat on any two of the creased lines  $a$ ,  $b$ ,  $c$ , or  $d$ , and shipped to the consumer in that shape, the bottom to be folded and glued by the user in the manner as described.

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

A paper box, consisting of a single piece or blank of paper, folded and lapped into the shape of an inverted truncated pyramid, the bottom of which is formed from a flap or flaps, having parallel sides and right-angular corners, whereby the bottom end is perfectly closed with tight seams or joints, substantially as herein shown and set forth.

HARVEY S. MUNSON.

In presence of—

A. L. MUNSON,  
L. E. OSBORN.