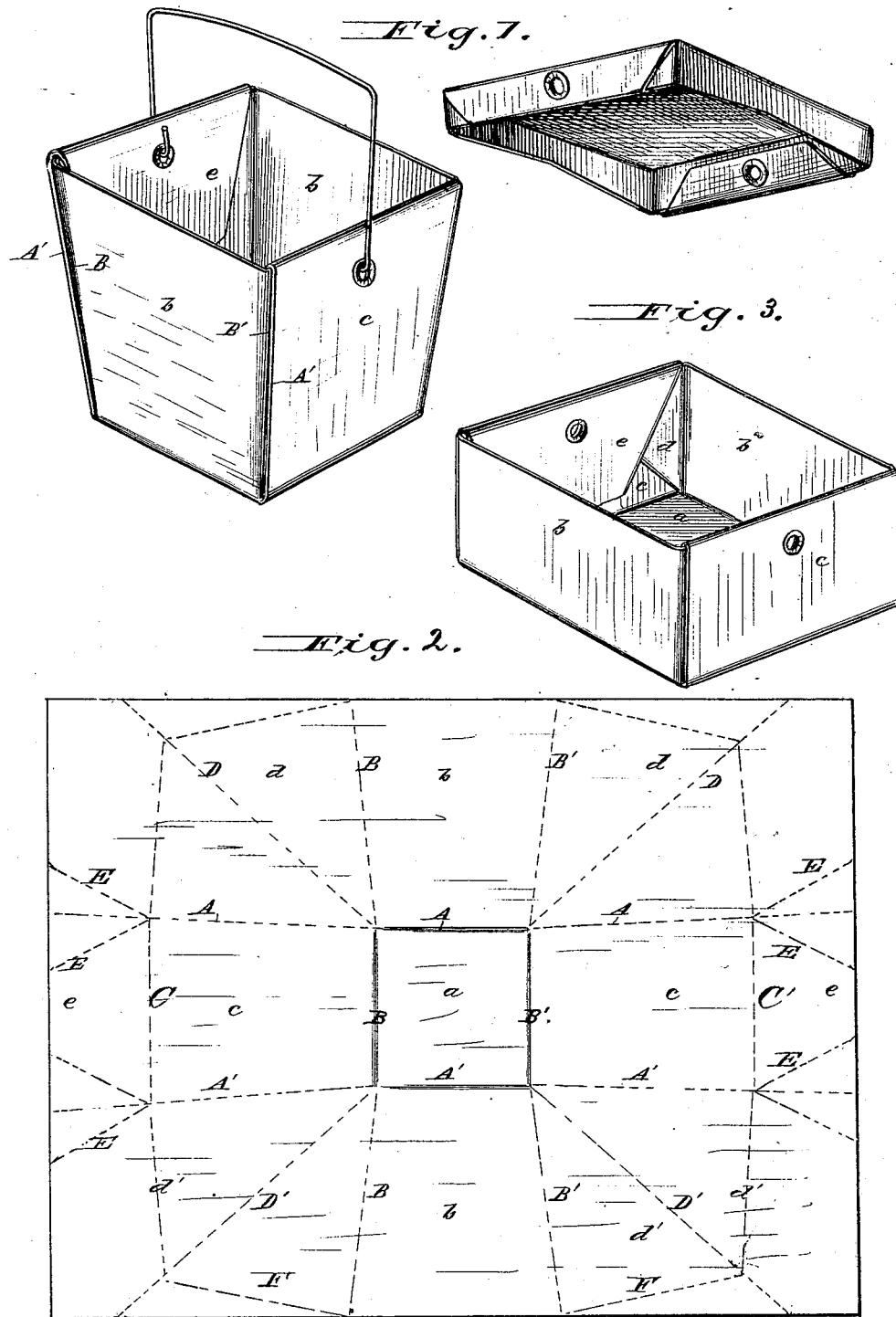


L. O. GRANGER.  
Paper-Box.

No. 217,939.

Patented July 29, 1879.



Attest:  
 H. O. Perrine  
 Charles Steele

Inventor:  
 Lorenzo O. Granger  
 by his attorney  
 Charles Steele

L. O. GRANGER.  
Paper-Box.

2 Sheets—Sheet 2.

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Fig. 5.

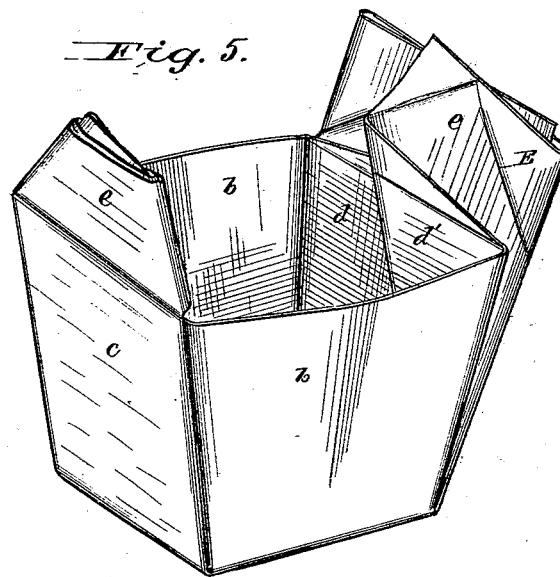
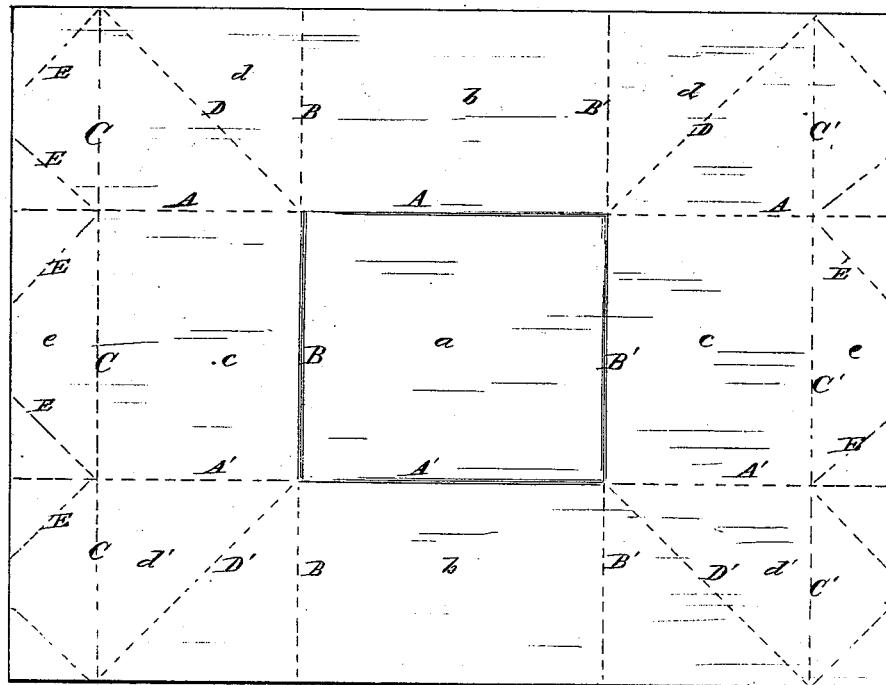


Fig. 4.



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# UNITED STATES PATENT OFFICE.

LORENZO O. GRANGER, OF NEWARK, OHIO.

## IMPROVEMENT IN PAPER BOXES.

Specification forming part of Letters Patent No. **217,939**, dated July 29, 1879; application filed February 4, 1879.

*To all whom it may concern:*

Be it known that I, LORENZO O. GRANGER, of Newark, in the county of Licking and State of Ohio, have invented certain new and useful Improvements in Paper Boxes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to paper boxes or receptacles formed from blanks by folding, intended for the use of retail grocers, butter-dealers, confectioners, &c.

It consists in shaping different forms of such receptacles from uncut blanks of paper or pasteboard in such manner that the surplus of material shall be folded in the form of plaits on the interior of two of the sides or ends of the receptacle, and that the thus plaited ends shall have flaps folded down over the plaits on the inside for the twofold purpose of connecting the sides to the ends at the top and of stiffening the ends, so as to provide for a strong attachment of a bail or handle.

In the accompanying drawings, Figure 1 is a perspective view of a flaring-shaped box or bucket, also showing the top or cover ready to be applied. Fig. 2 is a plan of the blank for forming the flaring style of box. Fig. 3 is a perspective view of a straight-sided box. Fig. 4 is a plan of the blank for forming the straight-sided box. Fig. 5 is a perspective of a partly-completed box of the flaring form.

The same letters of reference indicate like parts in all the figures.

For perspicuity of description I shall, throughout this specification, designate the parts of the box on which the lapping folds are made the ends thereof.

The dotted lines in the drawings indicate the creases in the blanks.

The blanks for either straight-sided or flaring boxes are cut in the form of rectangles. The blank shown in Fig. 4 is creased for a straight-sided box, such as shown in Fig. 3. It is creased lengthwise along the lines A A' and crosswise along the lines B B'.

That portion of the blank which forms the bottom of the box is marked *a*.

Between the creases B B' and the respective ends of the blank nearest thereto are creases C C'. These creases are parallel with the creases B B', and the distance between the creases C and B and the creases C' B' is equal to that between the crease A and the edge of the blank nearest thereto.

From the respective corners of the box-bottom *a* run diagonal creases D D' in such a direction that they will, at the edge of the blank, form junctions with the creases C C'.

Branching outwardly from the junctions of the creases C A C A' and C' A C' A', and from the junctions of the creases C D C D' and C' D' C' D', are creases E, running to the respective ends of the blank, as clearly shown in the diagram, Fig. 4.

In shaping a straight-sided box from a blank creased as described, one may proceed as follows: The blank is first tucked inward on, say, the right-hand crease D, so as to make the creases A B' meet, whereby the triangular plait *d* is laid against the inner side of the end *c* of the box. The blank is folded in like manner upon the right-hand crease D', and the triangular plait *d'* laid over the plait *d*, as seen in Fig. 5.

The other end of the blank being similarly folded on the left-hand creases D and D' shapes the blank into a partly-finished box with upwardly-projecting flaps *e* on the ends. These flaps are first folded inwardly at the outer corners on the creases E, and then folded inwardly upon the ends of the box along the creases C and C', respectively. The forming of the box being thus completed, the flaps *e* and triangular plaits *d d'* are permanently secured to their respective ends *c* of the box, preferably by means of eyelets, as shown, although they may be secured by pasting or otherwise. The eyelets are preferred because they afford a convenient means for attaching a wire bail or a tape handle to the box, should such a device be desired, and the box is made very firm at the points of fastening, where the greatest stress would come should a handle be used.

A lid or cover may be made in the same manner as the box proper.

In constructing a box flaring toward the top, a blank creased as shown in Fig. 2 is used, differing from that already described in the following respects: Neither the longitudinal creases A A' nor the transverse creases B B' are parallel throughout their entire length, but spread apart from each other from the corners of the bottom *a* toward the edges of the blank. Between the creases A A' and the respective edges of the blank nearest thereto the creases C and C' approach each other more or less, according to the configuration that is to be given to the box. These creases are therefore only parallel with the creases B B' at that portion of their length which comes between the creases A A'. Additional creases F are provided, which run from the respective ends of the creases B and B' to the ends of the blank, crossing the creases C C' at the point where said creases cross the creases D D', as shown. In the diagram of this blank, Fig. 2, I have omitted the creases E at the corners of the blank, for the reason that it depends upon the form of a flaring box whether any folds at all occur at the corners, and when folds result at the corners they vary with the varying forms of the boxes.

It is not necessary to form the creases E preliminary to the shaping of either the flaring or straight-sided form of box, for it is about as easy to fold the corners of the flap symmetrically without the assistance of these preliminary creases as with the aid thereof.

It is not required that the corners of the flaps should be folded in forming the square boxes, as the flaps can be folded inside the box without such folding of the corners, nor need the corners of the flaps be folded in the

flaring style of box, for the surplus may be bent back so as to lie against the sides of the box.

As the plaits *d d'* are folded inside the box, it is obvious that some means must be provided to hold them firmly to the ends thereof at the corners; otherwise the sides could be pulled away from said ends. This needed provision for connecting the sides and ends at the top is made by the flaps *e*, which fold down upon the corner plaits, and are firmly secured to the ends of the box, as already stated.

The blanks may be creased by rolls or any other well-known means, and, for convenience of packing, be furnished to consumers in that form; or the boxes may be furnished in a completed state.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A paper box formed from an uncut blank, substantially as before set forth, in which the plaits at the corners are folded inwardly against the inner sides of the ends, and the said ends are provided with full-width flaps for folding down upon said plaits.

2. An uncut blank for a paper box, substantially as before set forth, provided with the described preliminary creases, whereby on folding in accordance with said creases the ends of the box will have full-width projecting flaps.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

LORENZO O. GRANGER.

Witnesses:

JONATHAN REES,  
WILLIAM B. FRYE.