(No Model.)

D. S. CLARK.

ANGULAR PAPER BOX.

No. 355,862. Patented Jan. 11, 1887.

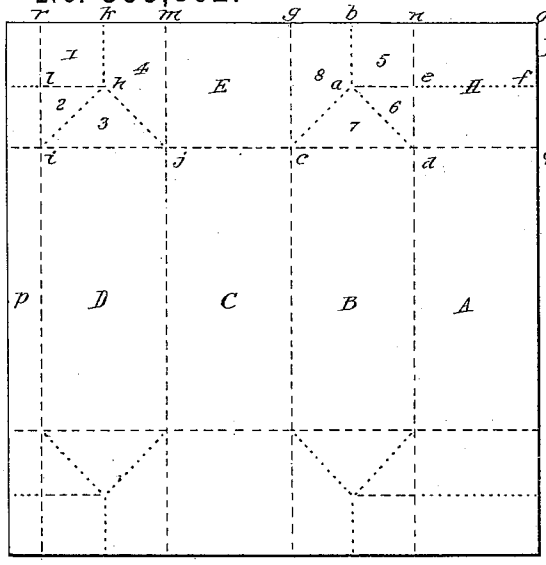


Fig. 1.

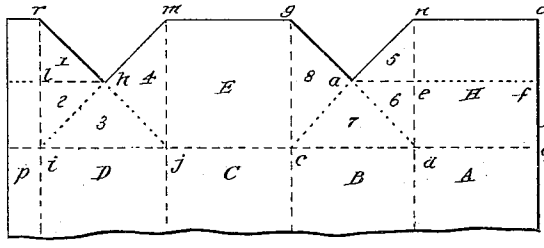


Fig. 2.

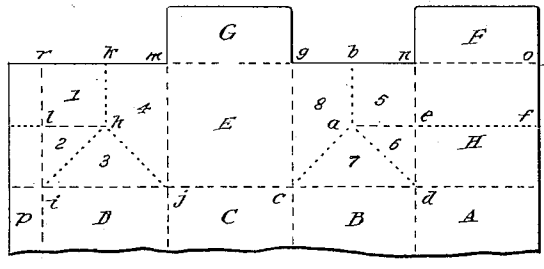


Fig. 3.

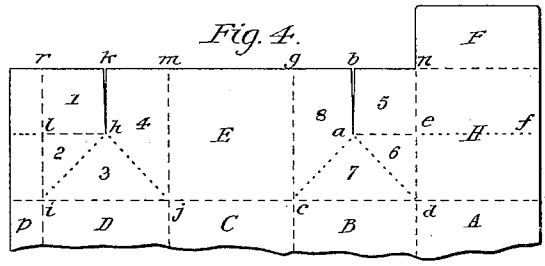


Fig. 4.

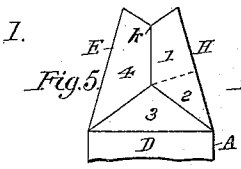


Fig. 5.

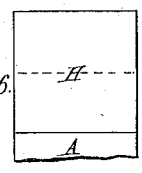


Fig. 6.

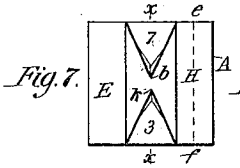


Fig. 7.

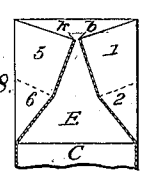


Fig. 8.

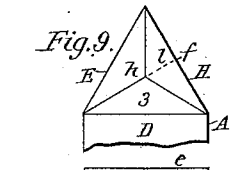


Fig. 9.

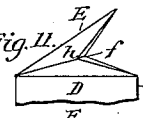


Fig. 11.

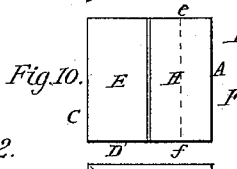


Fig. 10.

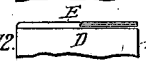


Fig. 12.



Fig. 13.

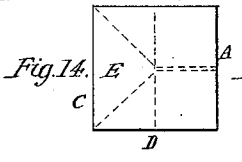


Fig. 14.

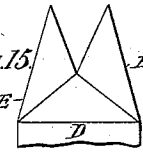


Fig. 15.

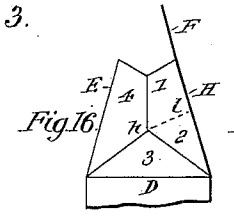


Fig. 16.

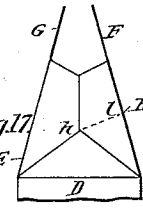


Fig. 17.

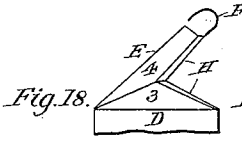


Fig. 18.

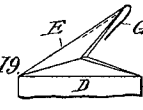


Fig. 19.



Fig. 20.

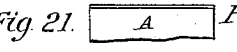


Fig. 21.

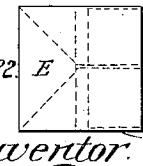


Fig. 22.

Witnesses,

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A. Huntemann

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Dwight S. Clark

by J. W. Osborn

Attorney.

N. PETERS. Photo-Lithographer. Washington, D. C.

UNITED STATES PATENT OFFICE.

DWIGHT S. CLARK, OF CAMBRIDGEPORT, ASSIGNOR TO WILLIAM H. FORBES, OF BOSTON, MASSACHUSETTS.

ANGULAR PAPER BOX.

SPECIFICATION forming part of Letters Patent No. 355,862, dated January 11, 1887.

Application filed September 10, 1886. Serial No. 213,226. (No model.)

To all whom it may concern:

Be it known that I, DWIGHT S. CLARK, a citizen of the United States, residing at Cambridgeport, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Angular Paper Boxes; and I do hereby 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 it appertains to make and use the same.

My invention relates to that class of folded paper or card-board boxes which are used for packing finely divided or ground substances—such as starch, oatmeal, washing-powders, &c.—and its object is to provide receptacles which may be readily and securely closed.

In the accompanying drawings, Figure 1 shows the blank from which my box is made. Figs. 2, 3, and 4 are modified blanks shown in part. Fig. 5 is a side elevation of one end of the partly-closed box, looking toward the side D. Fig. 6 is a front elevation of the same, looking toward the side A. Fig. 7 is a plan view of the partly-closed end, seen from above. Fig. 8 is a vertical section on the line *x x* of Fig. 7. Figs. 9 and 10 are views similar to Figs. 5 and 7, with the closing of the end more advanced. Fig. 11 is a side elevation showing the closing still nearer completion. Figs. 12, 13, and 14 are views of the finally closed box, looking toward the sides D and A, and from above. Figs. 15, 16, and 17 are elevations corresponding to that shown in Fig. 5, in which is seen the effect due to modified forms of blank. Figs. 18, 19, 20, and 21 are elevations of steps in the closing of boxes made with modified blanks. Fig. 22 is a plan of the end of one of the foregoing. In all these figures the edge of the paper or card-board, when it is directed toward the observer, is shown by a single black line, this rule being followed whether the paper is doubled upon itself or not.

The blank delineated in Fig. 1 is rectangular, no part of the same being cut away or slit through, but it is scored or indented on the dotted lines shown in the drawings to facilitate folding. The surface of the blank seen is that which subsequently becomes the inner surface of the finished box, and on all the dotted lines the sides and ends will be finally bent inward, except on such as are indicated by round dots, which will be found to project convexly to the inner surface. This statement applies also to the modified blanks shown in Figs. 2, 3, and 4.

In Fig. 1 the large letters A, B, C, and D indicate the rectangular spaces or fields which when folded form the sides of the box, while the small narrow space *p* is a pasting-strip, common to all paper boxes of this class, the outer surface of which is united by means of paste or glue to the inner surface of A and its large terminal flaps H, so as to form a tube open at both ends and having a square cross-section. As the strip *p* thus becomes part of A and the flaps H, and is a device well known, it will not be referred to hereinafter as an essential part of my invention except in connection with the blank.

The making of the square open tube in the manner described being the first step in the construction of the box, the next is to close one of the ends (both of which are identical) in the manner to be now described.

Fig. 5 shows in elevation the first stage in this operation, which consists in inclining the two large rectangular flaps E and H toward each other, and at the same time approaching the upper middle part of the side flaps (consisting respectively of the fields 1 2 3 4 and 5 6 7 8) at *k* and *b*. These inflected side flaps and the position they take will be understood by an examination of Figs. 7 and 8, the former showing the appearance of the end as seen from above and the latter being a section on line *x x*. It will be noted that at this time said side flaps are flexed so as to project inward, to accomplish which each flap, besides being bent on the three lines from *r* to *i*, to *j*, and to *m*, and from *g* to *c*, to *d*, and to *n*, respectively, is also flexed on the short lines *h k*, *h i*, and *h j* for one of them and *a b*, *a c*, and *a d* for the other.

When the edges of the large square flaps E and H have met, the appearance is that presented in Figs. 9 and 10, the front and back flaps of the end being flat, and the sides of the same resembling inverted triangular pyramids with their apices pointing inward. The next

change is produced by pressing in the dotted line *f e* on the blanks and in Figs. 7 and 10, and at *f* in Figs. 9 and 11, whereby the large flap H is doubled upon itself and E inclined more and more, as in Fig. 11, till finally it lies flat, as in Fig. 12, and the box is closed. In doing this the short lines *h l* and *a e* are necessarily flexed concavely toward the inside. In Fig. 13 a front view of the closed box is shown, which is held closed by the application of paste or glue between the edges of the paper shown in that figure. In Fig. 14 a view of the closed box is given as seen from above, in which the fine dotted lines indicate the position of the folded side flaps and of the large flap H, folded upon itself.

In Fig. 4 a modification of my blank is shown, which consists in slitting the paper through on the short lines *a* to *b* and *h* to *k*, in addition to scoring or indenting the other dotted lines, as already explained. The object of this is solely to make easier the flexure inward of the side flaps in the manner described, when thick stock is required for the box. The slit permits of a certain amount of movement of the parts upon each other during the act of flexing the other dotted lines in the side flaps compounded of the fields 1 2 3 4 and 5 6 7 8, respectively; but at the termination of each described stage in the closing of the end the position of the parts is precisely what it is when the short lines *a* to *b* and *h* to *k* are left intact. Freedom of motion of the parts is still further promoted by the modification shown in Fig. 2. In this case two triangular pieces, expressed by the letters *r h m* and *g a n*, respectively, are cut out and removed. This alteration of the blank is used only when the card-board is very thick and the inflexed parts difficult to move quickly to their positions. The change which this causes during the first act in folding the end is shown in Fig. 15, which corresponds to Fig. 5, made with the original blank, subsequent figures remaining as they are, and requiring, therefore, no special illustration.

In Fig. 4 an addition to the original blank is shown, and its effect is exemplified in Figs. 16 and 18. This consists in retaining the lip-flap F on the large flap H and indenting the line *n o* when the blank is stamped out of the sheet. The several operations in closing the end of the box in this case are the same as those already described, save that before the flap H is flexed in the middle on the line *e f*, or simultaneously therewith, the lip-flap F is curved over and entered under the square flap E, and between it and the fields 4 and 8, thereby closing and covering the exposed edges *r m* and *g n* in their folded condition, after which the flap E is laid down as before.

In Fig. 3 a further similar addition to the blank appears, which consists in letting a second lip-flap remain on each closing end of the blank, in the manner shown, together with indenting the line *m g*, so that the blank has one lip-flap, as before, marked F, and one marked G. In Fig. 17 (corresponding to Fig. 5) these two lip-flaps are seen projecting from the end of the partially-closed box, just as in Fig. 16 one of them appears. With the addition of G, the closing of the end remains unchanged in principle, the only difference being that after the introduction of F, as has just been described, the second flap, G, is folded over all and is placed between the two halves of the large flap H, folded upon itself on the line *e f*, the flap E being then laid down flat, as before, at right angles to the length of the box. This procedure is shown in Fig. 19, where the flap F is seen in place, expressed by dotted lines, and the second flap, G, very nearly in its place.

Fig. 21 shows the front elevation of a box made from a blank, with these additions after it has been completely closed, and is comparable with a similar elevation of the box with one lip-flap and without any, as shown in Figs. 20 and 13, respectively. In finally closing and fastening a paper box made with the blank delineated in Fig. 3, all that is necessary to securely hold its contents is to apply the paste or glue to both sides of the lip-flap G before pressing E down to its final position.

It is plain that the two lip-flaps, or one of them only, may be used with or without the modifications shown in Figs. 2 and 4, without affecting the intrinsic character of my invention; and although in the drawings, which are part of this specification, the box I have invented has been represented as having a square cross-section, it is clear that a box with any rectangular cross-section may be made and closed without deviating from the construction herein detailed and the way in which the closing of the end is effected. In this connection it should be said, however, that when there is a difference between the width and depth of a box the large flaps E and F should be attached to the larger sides and their length should be equal to the width of the smaller.

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

1. A blank for an angular paper box scored or indented so as to form the sides A, B, C, and D, the pasting-strip *p*, the large flaps H and E, the former divided on the indented line *e f*, and the two flaps included by the letters *r i j m* and *g c d n*, respectively, subdivided by indented lines into the fields 1 2 3 4 and 5 6 7 8, respectively, substantially as and for the purpose described.

2. An angular paper box consisting of the sides A, B, C, and D, united to form a four-sided prism, and closed by ends constructed of the fields 1 2 3 4 and 5 6 7 8, together with the large flap H, folded upon itself, and the large flap E, covering the whole end, substantially as and for purpose described.

3. An angular paper box consisting of the sides A, B, C, and D, united to form a four-sided prism, and closed by ends at right angles to the length of the box, consisting of, first, the fields 3 and 7, then upon them the

fields 2 and 6, then the large flap H, folded in the middle back upon itself, then the fields 1 and 5, and upon them the fields 4 and 8, and lastly the large flap E above all the others, substantially as and for the purpose described.

4. An angular paper box having in its closed end a quadrangular flap, H, of the size of said end, extending from one of the sides of the box and folded in the middle back upon itself, substantially as and for the purpose described.

5. In the closed end of an angular paper box, the combination of the lip flap or flaps F and G with the flap E, the folded fields 1 2 3 4 and 5 6 7 8, and the flap H, folded in the middle back upon itself, substantially as and for the purpose described.

In testimony whereof I have hereunto signed my name in the presence of two witnesses.

D. S. CLARK.

Witnesses:
W. H. BROWN,
P. S. BROWN.