C. C. IVES & E. C. IVES, JR.

LOCK FOR KNOCKDOWN PAPER BOXES.

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1,189,452.

Patented July 4, 1916.

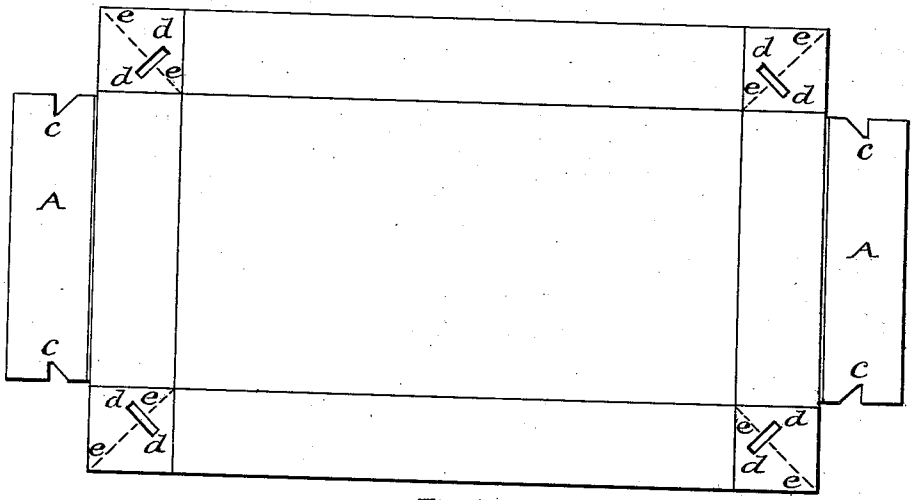


Fig. 1

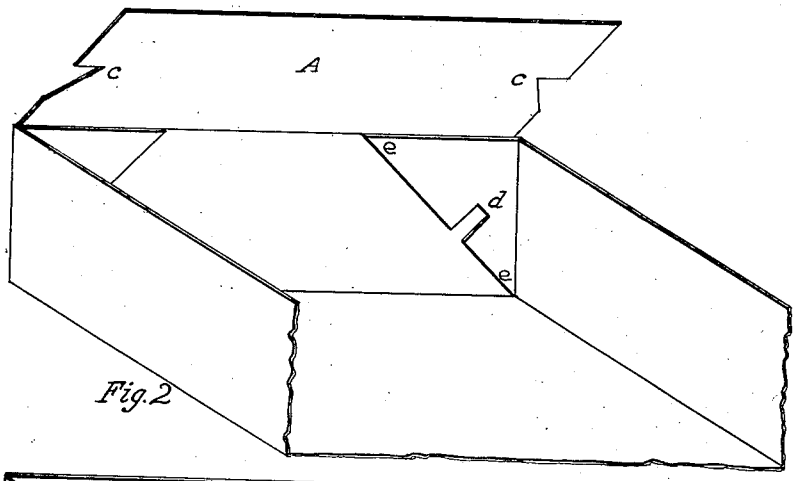


Fig. 2

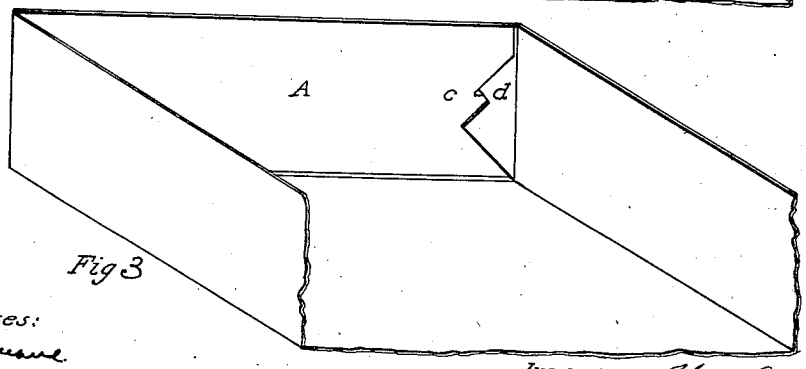


Fig 3

Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES CURTIS IVES, OF MINNEAPOLIS, AND EBEN CEPHAS IVES, JR., OF ST. PAUL, MINNESOTA, ASSIGNORS OF ONE-THIRD TO EBEN CEPHAS IVES, SR., OF ST. PAUL, MINNESOTA.

LOCK FOR KNOCKDOWN PAPER BOXES.

1,189,452. Specification of Letters Patent. Patented July 4, 1916.

Application filed January 24, 1916. Serial No. 73,984.

To all whom it may concern:

Be it known that we, CHARLES C. IVES, residing at 5120 Thirty-first avenue, South, Minneapolis, county of Hennepin, and EBEN C. IVES, Jr., residing at 395 Hall avenue, St. Paul, Ramsey county, both in the State of Minnesota, the above-named being citizens of the United States of America, have invented a new and useful Lock for Knockdown Paper Boxes, of which the following is a specification.

Our invention relates to an improved locking device for knock-down paper boxes which are made of a single sheet of paper, cardboard, strawboard or other similar material capable of being bent and manipulated, and the object of our improvement is to secure greater strength and rigidity and a closer and firmer engagement of the interlocking parts. We attain this object by the means and in the manner illustrated in the accompanying drawing, in which—

Figure 1 shows the die-cut blank for a rectangular paper box, with lines showing scoring and perforating necessary for properly bending and folding; Fig. 2 shows the box as partly set up; and Fig. 3 shows the box as completely set up and ready for use.

Similar letters refer to similar parts throughout the views.

The flat blank, as shown in Fig. 1, has corner sections, perforated diagonally as shown by the broken line, *e e*, to permit of being folded in, on and against the end proper of the box, and an end piece A, continuous with the end proper, such end piece to be folded over and in, on such end proper and the corner sections. And *d d* are cut-outs or slots at right angles or approximately right angles to the perforated diagonal line *e e* in the corner sections; and *c c* are notched cut-ins in the end piece A.

Fig. 2 shows the box partly set up, with the corner sections folded in, on and against the end proper of the box, thus forming a lip or projection at *d*, for receiving in engagement the notched ends *c c* of the end piece A, the corner section being folded in on the perforated line *e e*.

Fig. 3 shows the box completely set up, with the lips or projections formed by doubling in the corner sections engaged and interlocked with the notched end piece at *c d*.

This, it will be seen, forms a very close and rigid engagement, becoming more fixed and firm when subjected to any strain or pull; and when in use there is no possibility of disengagement, except by the actual manual withdrawal of the engaging projections *c c* of the end piece.

Obviously it is not necessary that the cut-outs in the corner sections at *d d* be in the exact form, position or angle shown in the diagram, if the angle of such cut-outs with the perforated line be sufficient to present a substantial lip, and the angle at which each end of the slot meets the perforated line of fold that bisects it be the same, the lip formed when the corner is folded in being more or less acute as the angle varies. So, also, the notched indentation of the end-piece at *c* may be varied in outline, providing it offers sufficient projection for engagement. We have shown in our diagram what we believe to be a preferable arrangement. Therefore we do not wish to be confined to the exact form shown in the diagram.

We are aware that in the manufacture of knock-down paper boxes the folding in of corner sections by means of and on a scored or perforated line is old, as is a cut-out at the side of such line, in various positions to receive a tongue or corner; but the loose clutch thus effected has been unsatisfactory where a firm corner is required, inadequate for the purpose, and has not met with commercial success. But the novel feature of our invention consists in utilizing, as a means to procure a firmer engagement than heretofore in use, a slot in a diagonally scored or perforated corner section, such slot being at a sufficient angle to such folding line and bisected by it, and the lip thus formed when such corner section is folded in against the end proper of the box, such lip receiving in firm engagement a folded-over end piece notched for that purpose.

Therefore we claim:

1. A lock for a paper box consisting of a corner section perforated by a diagonal line, a slot at an angle with such line and bisected thereby, and a notched end-piece, substantially as set forth.

2. In a paper box a lock composed of a diagonally perforated corner section, a slot at an angle to such line of perforation and bisected thereby, and an end-piece notched at the sides, substantially as described.

CHARLES CURTIS IVES.
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