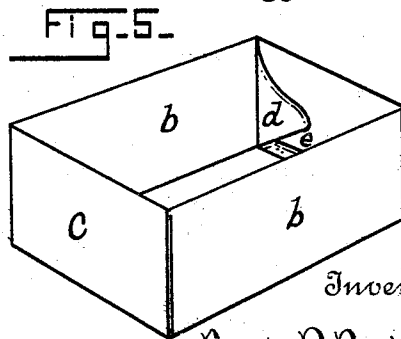
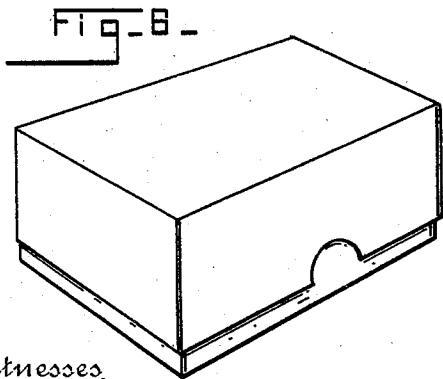
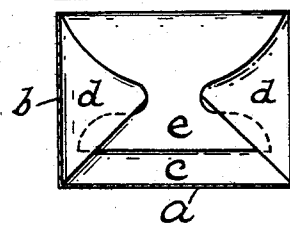
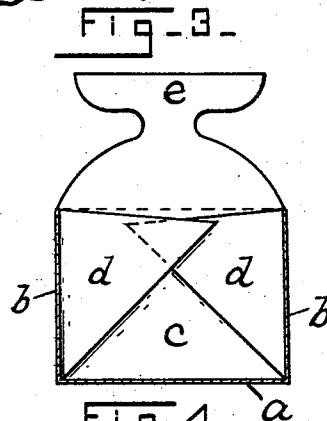
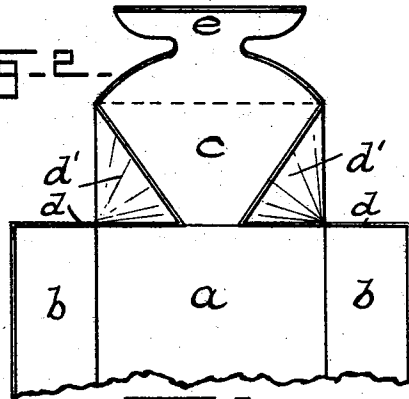
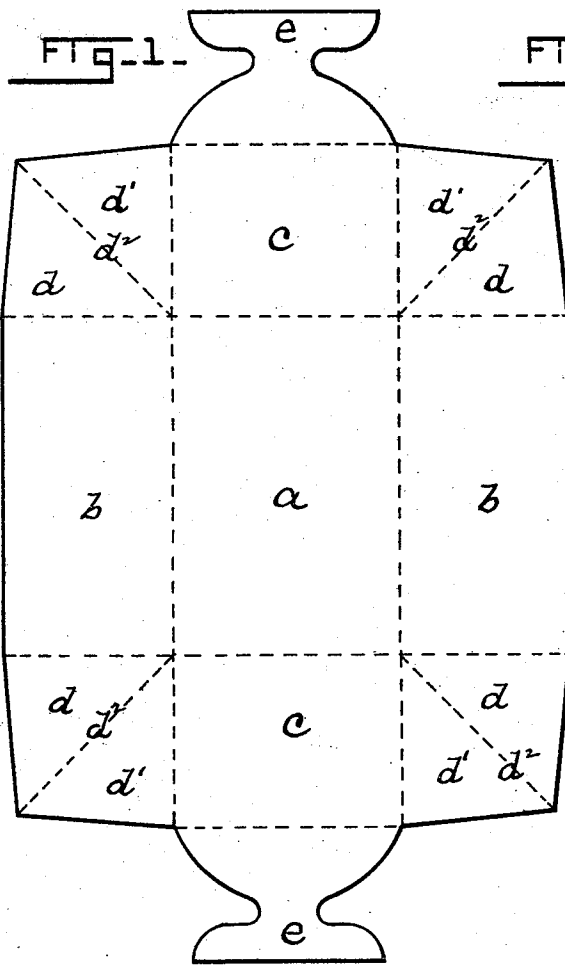


(No Model.)

F. P. BIRLEY.  
PAPER BOX.

No. 536,064.

Patented Mar. 19, 1895.



Witnesses  
*Alvord Luther.*  
*Lila D. Peale.*

Inventor,  
 Frank P. Birley,  
 By Attorney  
*Frank H. Allen*

# UNITED STATES PATENT OFFICE.

FRANK P. BIRLEY, OF TORONTO, CANADA.

## PAPER BOX.

SPECIFICATION forming part of Letters Patent No. 536,064, dated March 19, 1895.

Application filed December 3, 1894. Serial No. 530,655. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK P. BIRLEY, a subject of the Queen of Great Britain, residing in the city of Toronto, Province of Ontario, Canada, have invented certain new and useful Improvements in Paper Boxes, which improvements are fully set forth and described in the following specification, reference being had to the accompanying sheet of drawings.

This invention has particular relation to folding boxes of the class known to the trade as "containers" or "telescoping" boxes the same being used commonly for marketing hardware, confectionery and numerous other like articles.

The blanks from which such boxes are formed are usually packed, and shipped to the user, flat; that is to say in the exact form in which said blanks are delivered by the cutting and scoring dies, thus reducing freight charges to a minimum and making it possible to pack a great number of such blanks in the same space required for a few folded or "set up" boxes of the same class. It is particularly desirable in such boxes that economy of cardboard stock shall be considered, also that the box, when folded or "set up," shall combine great strength with a pleasing outward appearance and these desiderata I have had specially in mind when producing the present invention.

To aid in explaining my invention I have provided the annexed sheet of drawings, in which—

Figure 1 is a plan view of the blank from which the box may be formed by suitably folding said blank. Fig. 2 is a plan view of one end of said blank as it appears when partially folded and Fig. 3 is a cross sectional view of the same when the box proper has been fully folded but before the locking flap has been tucked under the end folds. In Fig. 4 I have illustrated said flap as properly tucked under said end folds to prevent the accidental opening or collapsing of the finished box. Fig. 5 is a perspective view of one section of a telescopic box of this class, and Fig. 6 is a similar view of a complete box.

In the blank shown at Fig. 1 the several dotted lines indicate lines of scoring, or indentation, where the said blank is to be bent during the operation of setting up or shaping

the box. Said blank consists in part of a bottom portion *a*, sides *b—b* and opposing ends *c—c*, said blank (excepting certain locking flaps hereinafter described) being substantially rectangular in outline. The lines of scoring which outline the bottom, sides and ends of the box form, at each corner of the blank, an approximately square section which is divided into two triangular portions *d—d'* by a diagonal line of scoring *d<sup>2</sup>* which latter extends from the extreme corner of the blank to the point of intersection of the scorings which outline the sides and ends of the blank. Projecting from each of the end sections *c* is what I term a locking flap, the same being cut away at each side and thus formed substantially as a T head *e*.

When it is desired to fold, or "set up," a box of my improved form the sides *b—b* are bent upward and at the same time the corner sections *d—d'* (at one end of the box) are bent inward on line *d<sup>2</sup>*, thus drawing inward the end section *c*. When about one-half folded the several sections assume the positions of Fig. 2, the sides *b—b* being brought up to an angle of say forty-five degrees, the edge of corner section *d'* being in vertical alignment with the cross scoring, and the corner sections *d* being brought almost together. The sides *b—b* and end *c* are then brought up to right angles with the bottom *a* and, as a result, the corner sections *d—d'* are folded flatly against each other with the apexes of the two-ply triangles thus formed overlapping, as seen in Fig. 3 of the drawings. To hold the folded sections in the described positions the flap *e* is now folded inward, over the said overlapping ends of the corner sections, and the oppositely extending ends of the T head of said flap are then tucked under or behind the said triangular end sections, as clearly illustrated in Figs. 4 and 5. This results in forming a toggle, or lock, which effectually prevents the sides from being pulled apart, no matter how great the strain may be, as the stiff two-ply triangular sections are securely bound in place by the flap section *e*, which latter is folded tightly over them, and said flap section is also secured against displacement by its T head which is locked under the said triangular portions, as described.

The flap section is preferably a trifle shorter than the width of the side and end pieces of the box so that when the box is completed the end of the flap will not extend quite to the bottom, thereby permitting of the ends of the fingers being inserted under it for removing the ends of the T head from under the holes in collapsing the box, or for inserting the ends of the fingers for holding the central portion of the flap out from the wall of the box so that the end of the head can be pushed under the folds when the box is being set up.

In boxes of this class it has always been more or less difficult to provide a simple form of lock that would combine strength with cheapness and ease of operation. It has been quite a common practice to cut slits in the blank, but in such devices it is usually difficult to enter the "tongues" in the slits and the latter, being formed in a single thickness of cardboard, are easily torn, or cut out by the tongue, if any appreciable strain is brought to bear upon them, whereas, in my present invention the T head, which may be of unusual size and strength, interlocks with the stiff, two-ply, triangular ends of the box and the greater the pressure brought to bear upon said interlocking parts, so much the more will

the T head be drawn into close engagement with the ends. The infolded sections  $d-d'$  also serve to stiffen the complete box and make it possible to use somewhat thinner stock than is ordinarily practicable.

Usually two boxes are formed in the manner I have described, one of which is used as the box proper and the other as the cover, as seen in Fig. 6 of the drawings.

My described box is very easily "set up," and is both strong and serviceable.

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

The herein described box formed from a single piece of material, consisting of a bottom and four walls connected together at the corners with triangular folded sections, two of the walls opposite each other, each being provided with an extension of a less length than the depth of the box and provided with a T head, the ends of which head are passed under the folded angular sections, substantially as set forth.

FRANK P. BIRLEY.

Witnesses:

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