J. K. P. BINGAMAN.

KNOCKDOWN BOX.

APPLICATION FILED JULY 13, 1915.

1,150,490. Patented Aug. 17, 1915.

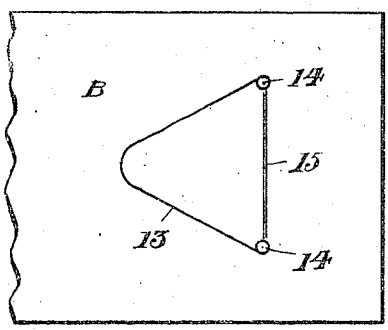


Fig 5.

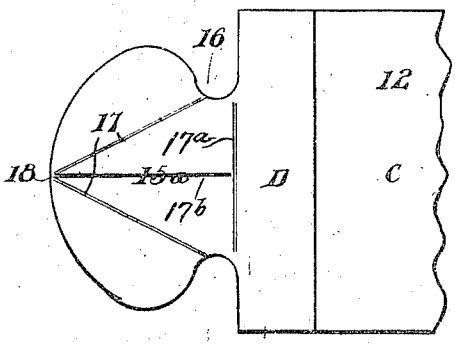


Fig. 4.

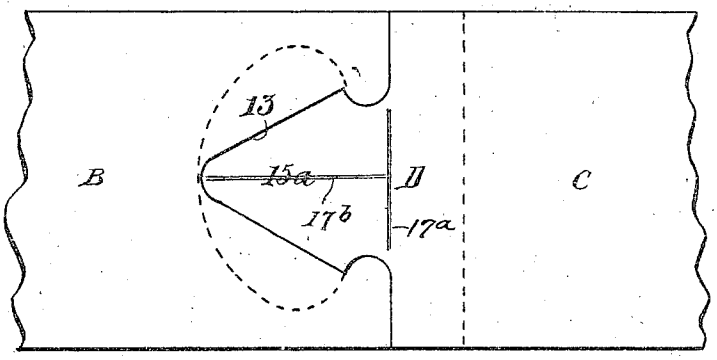
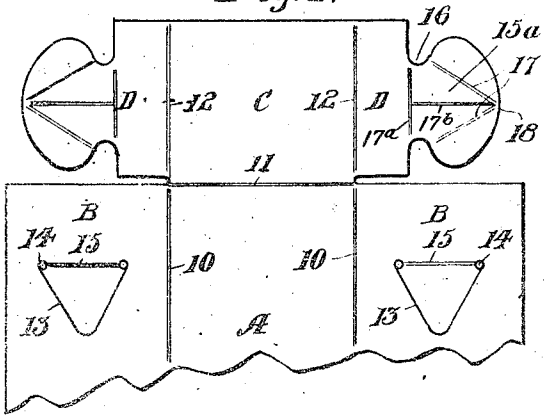


Fig. 3.

Fig. 1.



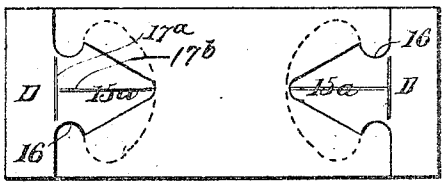


Fig. 2.

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UNITED STATES PATENT OFFICE.

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KNOCKDOWN BOX.

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To all whom it may concern:

Be it known that I, JAMES K. P. BINGAMAN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Knockdown Boxes, of which the following is a specification.

This invention relates to knockdown boxes, such as are usually made of heavy fiber board, paper board or other material, and are utilized for the purpose of shipping goods from one point to another.

More especially the invention relates to a lock for the folding flaps of a box of this description made from what is known as corrugated board, the same consisting of a pair of plain sheets of fiber board having between them a corrugated sheet of fiber board so that a thick and stiff board is formed while at the same time it possesses resiliency sufficient to enable the transportation of such articles as eggs and the like through the parcel post and yet is sufficiently stiff to prevent denting or puncturing with consequent injury of the contents.

Heretofore it has been found that the locks ordinarily employed in folding cartons could not be utilized with corrugated board for the reason that such locks required more or less bending of the board and were not fitted to permit such bending.

The principal object of the present invention is to provide an improved lock of this character which is fitted for use in connection with any type of folding fiber board carton and especially with that type, above indicated, which employs corrugated board.

Another important defect that has hitherto existed in cartons of this description is that the tongues and slits employed for locking the different portions of the carton together were liable to tear at their necks or extremities.

A second important object of the invention is to provide, in a device of this description, an arrangement of tongues and slits wherein the liability to tear at the necks and extremities of the tongues and slits will be greatly reduced.

With the above and other objects in view, the invention consists in general of certain novel details of construction and combinations of parts heretofore fully described, illustrated in the accompanying drawings, and set forth in the appended claims.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and:—Figure 1 is a view of the end of a folding carton blank provided with interlocking means for the end and side flaps constructed in accordance with one form of the present invention. Fig. 2 is an end view of such a carton showing the interlocking means in locked position. Fig. 3 is an enlarged detail of the interlocking means in its locked position. Fig. 4 is a detail view of one of the tongue-provided flaps used in connection herewith. Fig. 5 is a detail view of one of the slitted flaps cooperating with such a tongue-provided flap as is illustrated in Fig. 4.

In carrying out the objects of the invention, I have disclosed, as one embodiment, a box having a bottom A, sides B, ends C, and end flaps D. The sides are defined from the bottom by means of fold scores or creases 10 and the ends are similarly defined from the bottom by fold scores or creases 11. In like manner the end flaps D are defined from the ends C by fold scores or creases 12, thus enabling the box to be properly folded into locking position. Each of the sides B is provided adjacent each end with a substantially U-shaped slit 13, in the form shown in Figs. 1 to 5, and this U-shaped slit has at each extremity of the U a substantially circular opening 14, the base of the triangle thus cut from the side being defined by a fold score or crease 15. Each of the end flaps D is provided with a tongue of blunted and rounded arrow-head shape as indicated at 15^a, the tongue having a reduced neck 16 and being provided with the fold scores or creases 17 extending from the sides of the neck to the apex 18 of such tongue, and also with a fold score 17^a extending across the neck and fold score 17^a extending perpendicularly from the center of the score 17^a to the apex of the head.

It is to be noted that the sides of the neck 16 are so rounded as to prevent tearing of the tongue and that the fold scores or creases 17 correspond in angularity and dimensions with the sides of the slit 13, the breadth of the neck 16 corresponding to the base of the triangle formed by the slit 13 and fold score 15 in each instance. It is also to be noted that, in each instance, the stresses are brought against rounded parts so that possibility of tearing is eliminated. Furthermore, these side parts of the head, by reason

of the arrangement of the fold scores, snugly fit the tongue when the box is set up so that lateral movement is prevented.

In assembling the device, it is merely necessary to slightly bend the sides of the tongue along the fold lines 17 and push the same through the opening formed by depressing the triangular portion defined by the slit 13 and its fold line 15. Then by drawing back the end flap D the box will be securely locked in position and it is to be observed that this lock does not require the use of any staples or fasteners of any kind, being entirely self-contained.

It is obvious that minor changes may be made in the form of construction of the device without departing from the material principles thereof. It is not therefore desired to confine the invention to the exact form herein shown and described but it is wished to include all such as properly come within the scope claimed.

It is also obvious that the carton may be water-proof either inside or outside, as by paraffin or any other suitable material.

Having thus described the invention, what is claimed is:—

1. In a folding carton lock, a locking element having a head provided with a reduced neck and having fold scores extending from the sides of the neck to the apex of the head, in combination with a member having a receiving slot terminating in substantially circular openings coöperating with the sides of the neck, the slot defining a tongue fitting closely between the said fold scores of the head.

2. In a folding carton lock, a locking element having an arrow-head provided with a rounded neck and having fold scores extending from the sides of the neck to the apex of the head, in combination with a member having a receiving slot terminating in substantially circular openings coöperating with the sides of the neck, the slot defining a tongue fitting closely between the said fold scores of the head.

3. In a folding carton lock, a locking element having a head provided with a reduced neck and having fold scores extending from the sides of the neck to the apex of the head, a fold score extending across the neck, and a fold score extending medially of the neck and intersecting the cross fold score, in combination with a member having a receiving slot terminating in substantially circular openings coöperating with the sides of the neck, said substantially circular openings coöperating with the sides of the neck of the locking element when locked, the slot defining a tongue fitting closely between the said first fold scores of the head.

4. In a folding carton lock, a locking element having an arrow-head provided with a rounded periphery and a neck and having fold scores extending from the sides of the neck to the apex of the head, in combination with a member having a substantially U-shaped receiving slot terminating in substantially circular openings coöperating with the sides of the neck, said substantially circular openings coöperating with the sides of the neck of the locking element when locked.

In testimony whereof I affix my signature.

JAMES K. P. BINGAMAN.