Jan. 21, 1936. E. H. LUPTON 2,028,677

LOCKING MEANS FOR PAPER BOARD BOXES

Filed April 2, 1935

FIG. 1.

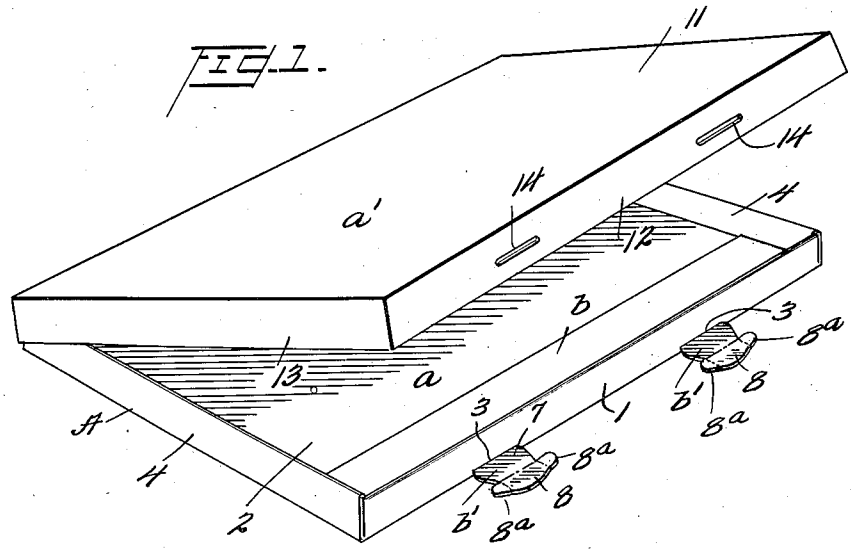


FIG. 2.

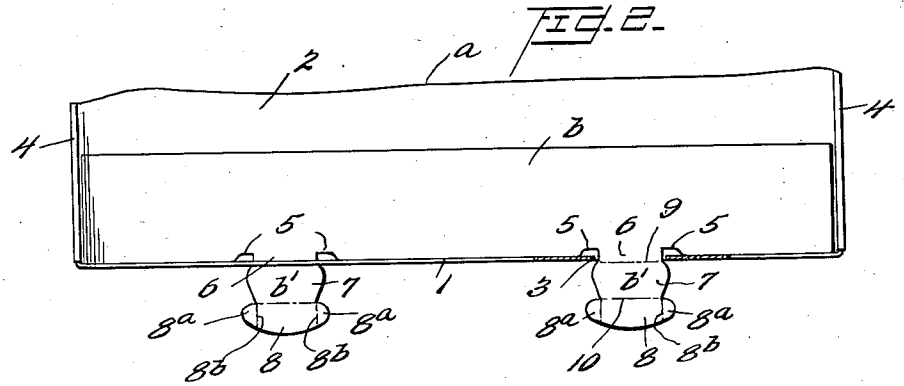


FIG. 3.

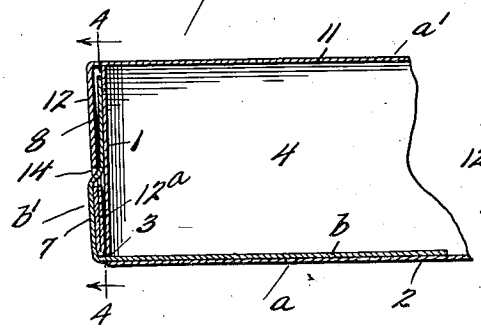
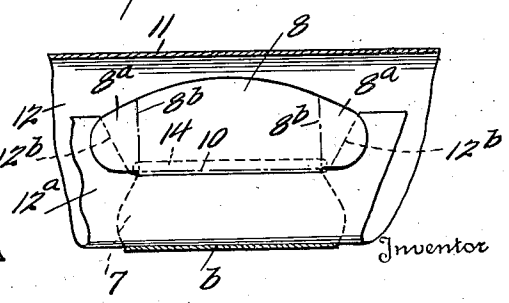


FIG. 4.



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LOCKING MEANS FOR PAPER BOARD BOXES

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5 Claims. (Cl. 229—45)

This invention relates to locking means for paper board boxes such as are used in stores for packaging suits and dry goods of various kinds. The invention is particularly applicable to boxes comprising upper and lower sections hingedly connected together, the upper section having walls which extend around the walls of the lower section when the box is closed. In accordance with my invention, the lower section of such a box is provided with one or more longitudinal slots in its side wall opposite the hinge and the upper section is provided with similar slots in the corresponding wall of the latter section, the slots in the lower section being close to the bottom of the wall and the slots in the upper section being spaced from the bottom of its wall. A locking device is provided consisting of a strip of paper board which is inserted in the lower section and which has tongues which project through the slots in said section and are adapted to fit into and interlock with the slots in the wall of the upper section. The details of construction of this locking device will be clear from the following specification.

In the accompanying drawing,

Fig. 1 is a perspective view of a paper board box provided with a locking device made in accordance with my invention;

Fig. 2 is a top plan view of the lower part of the box, partly broken away and partly in section, showing the locking device therein;

Fig. 3 is a vertical section through a portion of the box, the box parts being in closed position and locked, the section being taken centrally through one of the locking tongues, and,

Fig. 4 is a section on the line 4—4 of Fig. 3.

Referring to the drawing, A indicates a folding paper box such as is used in stores for packaging suits and other articles of apparel, etc. This box is preferably made in accordance with my Patent #1,827,593, dated October 13, 1931, and comprises the bottom section *a* and the top section *a'* hinged together at one side. In the side wall 1 of the bottom section, where it joins the bottom 2, narrow longitudinal slots 3 are formed, these slots being between the center and the ends of said wall.

The locking device of my invention comprises a strip of paper board *b* of suitable width, adapted to rest loosely on the bottom 2 with its ends abutting against the end walls 4, and having spaced laterally extending tongues *b'* adapted to extend through the slots 3. When the device is in the position shown in Fig. 2, one edge of the strip lies against the side wall 1 of the box, except at the ends of the slots where the strip is cut away at each side of each tongue, as shown at 5. Each tongue, where it joins the strip between the cut out portions 5, has a short part 6 which is of slightly less width than the slot, and beyond this part the edges of the tongue curve convexly in opposite directions, forming a wider part 7 which, at its central portion, is of the full or slightly greater width than the length of the slot, so that after the tongues have been pushed through the slots, these parts will offer sufficient resistance to their return to hold the locking strip in the position shown in Fig. 2. The outer end portion 8 of each tongue has laterally extending flaps 8^a, forming a head wider than the length of slots in the box, these flaps being foldable inwardly along crease lines 8^b so that the heads may be passed through the slots when the flaps are folded. Each flap also has a transverse crease line 9 between the portions 6 and 7 and a transverse crease line 10 between the portion 7 and head 8.

The top section of the box comprises the panel 11 which extends over the bottom section and the side wall 12 and end walls 13 which fit closely around the corresponding walls of the lower section when the box is closed. Slots 14, similar to the slots 3, are formed in the wall 12 of the top section in vertical alinement with the slots 3 in the bottom section and these slots 14 are spaced from the lower edge of the wall 12, as shown. In the particular box shown, the side wall 12 has a flap 12^a folded against its inner side, and where this construction is employed, the flap, which extends above the slots 14, is cut away adjacent the slots, as shown at 12^b in Fig. 4, to permit the tongues to pass through the slots in locking the box.

The box is locked by bending the tongues upward along the crease lines 9 and by folding the wings or flaps 8^a of the heads inwardly and then passing them through the slots 14, where the heads are deflected upwardly against the wall 1. The flaps or wings 8^a on the heads expand as they are pushed through the slots and released and these heads prevent withdrawal of the tongues. When locked, the box cannot be opened except by breaking or cutting the tongues transversely. The box is usually opened by cutting the tongues along the crease lines 9 according to instructions printed on the tongues, the printed matter not being shown in the drawing.

The locking strip can be readily inserted in the bottom part of the folding box before the box

is set up or afterward, and when in place the widened parts of the tongues prevent the locking strips from being displaced. As the locking strip abuts at its ends against the end walls of the box, the strip cannot move endwise and hence the tongues will always be held in alinement with the slots and cannot twist or tear the box at the ends of the slots. The purpose of making the recesses 5 in the strip adjacent the tongues is to avoid pressure of the strip against the wall 1 immediately at the ends of the slots which might cause tearing of the wall. The strip, it will be seen, engages said wall throughout its length, except at and adjacent to the tongues. Thus the pressure of the strip against the wall, while the box is being locked and afterward, is distributed throughout the length of the strip, except at and adjacent the slots. For small boxes a strip with a single tongue at its center may be employed; but for the larger boxes which it is desirable to lock at opposite sides of their longitudinal centers, the strip will be provided with two tongues, as shown in the drawing. If desirable, the locking strip can be made wide and locking tongues can be provided at its ends for locking the end walls 4 and 13, but ordinarily such additional locking will not be required. The strip, held in its position by three walls of the box, and the tongues, may be of any desired width and serves as a re-enforcement for the bottom of the box.

What I claim is:

1. A paper board box comprising upper and lower sections hingedly connected at one side, the lower section having an upwardly extending wall provided with a longitudinally extending slot adjacent the bottom thereof and said upper section having a corresponding downwardly extending wall provided with a similar slot spaced from its lower edge, and a locking device comprising a paper board strip in the lower section adapted to bear edgewise against said upwardly extending wall and having a tongue projecting through the slot therein, said strip being cut away at opposite sides of the tongue so as not to engage the latter wall at the ends of the slot, and said tongue having a foldable head adapted to be extended through the slot in said downwardly extending wall of the upper section when the box is closed.

2. A paper board box comprising upper and lower sections hingedly connected at one side, the lower section having an upwardly extending wall provided with a longitudinally extending slot adjacent the bottom thereof and said upper section having a corresponding downwardly extending wall provided with a similar slot spaced from its lower edge, and a locking device comprising a paper board strip in the lower section resting loosely on the bottom thereof and adapted to bear edgewise against said upwardly extending wall and having a tongue projecting through the slot therein, said tongue having a central portion convexly curved on its opposite edges and of such maximum width as to frictionally engage the ends of the slot when passed therethrough and serving to prevent accidental withdrawal of the tongue, and having a foldable head at its end adapted to be extended through the slot in said downwardly extending wall of the upper section when the box is closed.

3. A rectangular paper board box comprising upper and lower sections, the lower section having upwardly extending walls, one of said walls having a longitudinal slot at the bottom thereof, and the upper section having a downwardly extending wall provided with a similar slot spaced from its lower edge, and a locking device comprising a paper board strip resting on the bottom of the lower section and of substantially the same length as the slotted wall thereof and having a tongue extending through the slot in the latter wall, said tongue having a head adapted to be inserted through the slot in the downwardly extending wall of the upper section and to interlock therewith.

4. A rectangular paper board box comprising upper and lower sections, the lower section having upwardly extending walls, one of said walls having longitudinal slots at the bottom thereof at opposite sides of its longitudinal center, and the upper section having a downwardly extending wall provided with similar slots spaced from its lower edge and at opposite sides of its longitudinal center, and a locking device comprising a paper board strip resting on the bottom of the lower section and of substantially the same length as its slotted wall and having tongues extending through the slots in the latter wall, said tongues having heads adapted to be inserted through the slots in the downwardly extending wall of the upper section and to interlock therewith.

5. A locking device for the purpose described comprising a paper board strip having a straight side edge and a tongue extending laterally from said edge, said strip having parts cut out at opposite sides of the tongue where the latter joins the strip, the tongue being wider in its central portion than at its juncture with the strip and having a foldable head.

ELMER H. LUPTON.