

Jan. 2, 1940.

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2,185,544

SELF-LOCKING CARTON

Original Filed Aug. 26, 1933 4 Sheets-Sheet 1

Fig. 1.

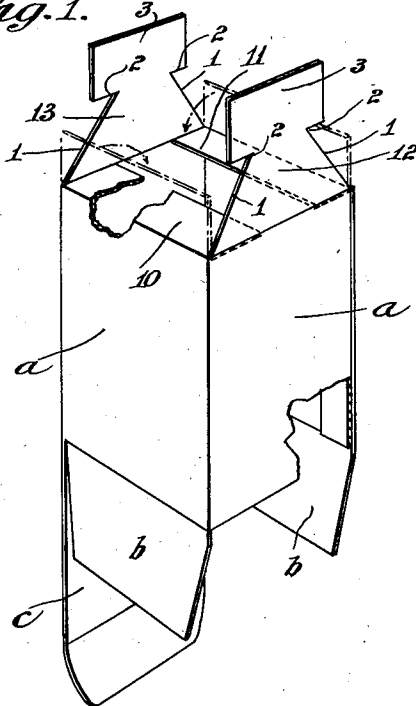


Fig. 2.

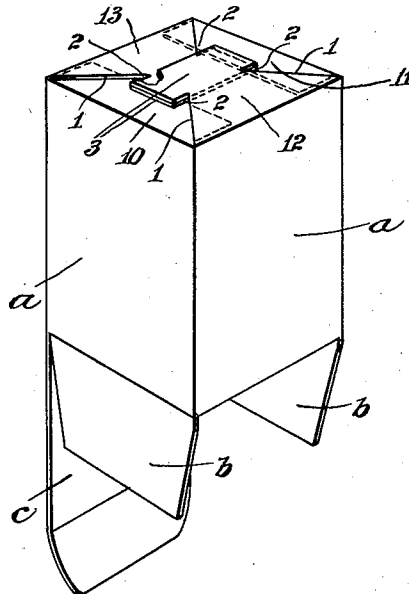


Fig. 3.

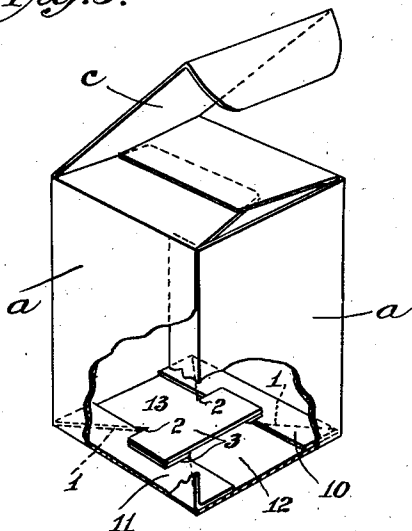
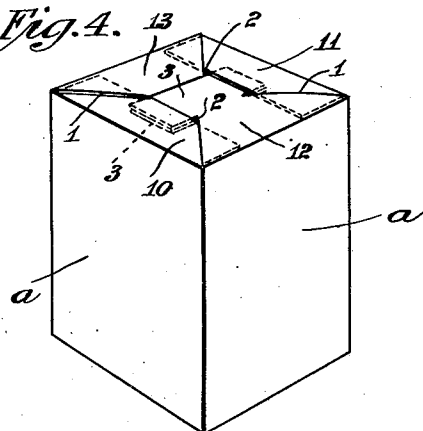


Fig. 4.



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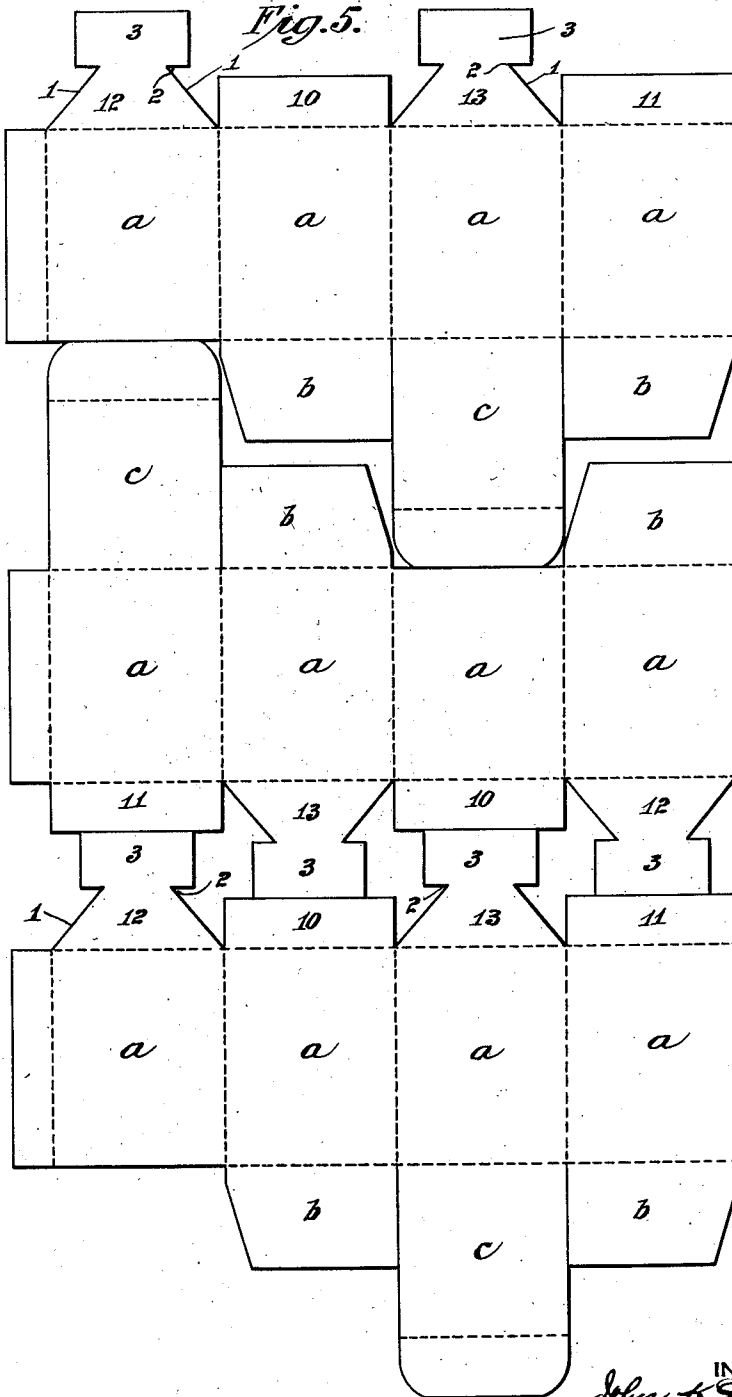
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SELF-LOCKING CARTON

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4 Sheets-Sheet 2



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SELF-LOCKING CARTON

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4 Sheets-Sheet 3

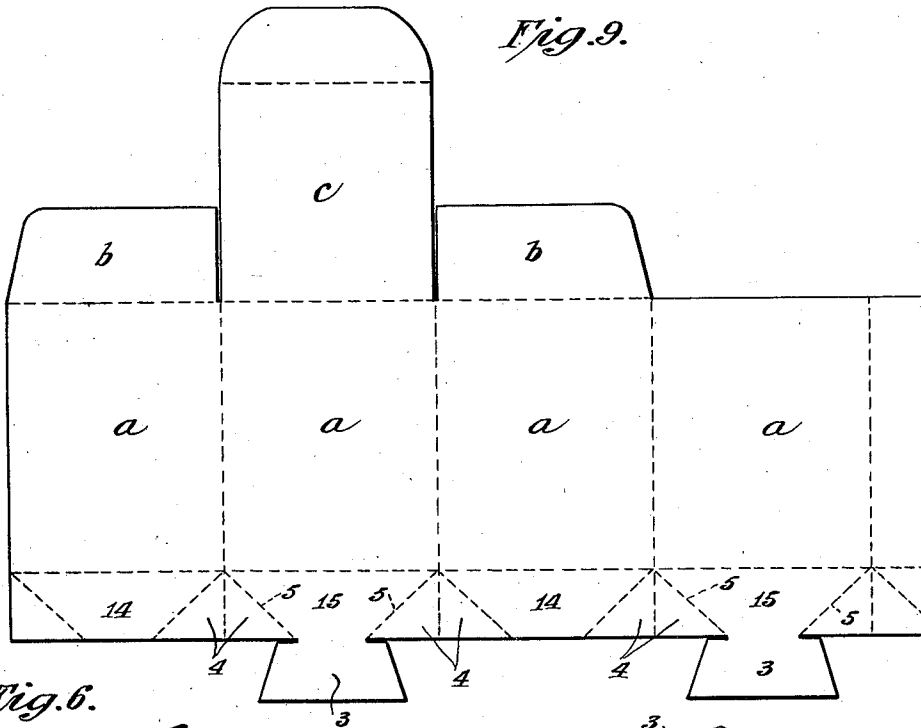


Fig. 6.

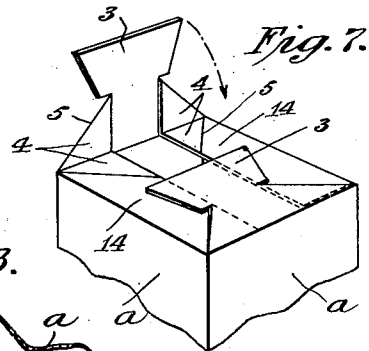
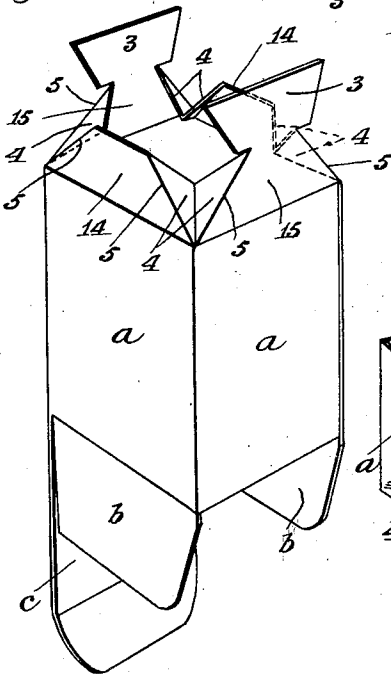
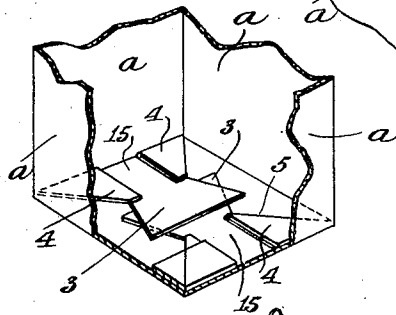


Fig. 8.



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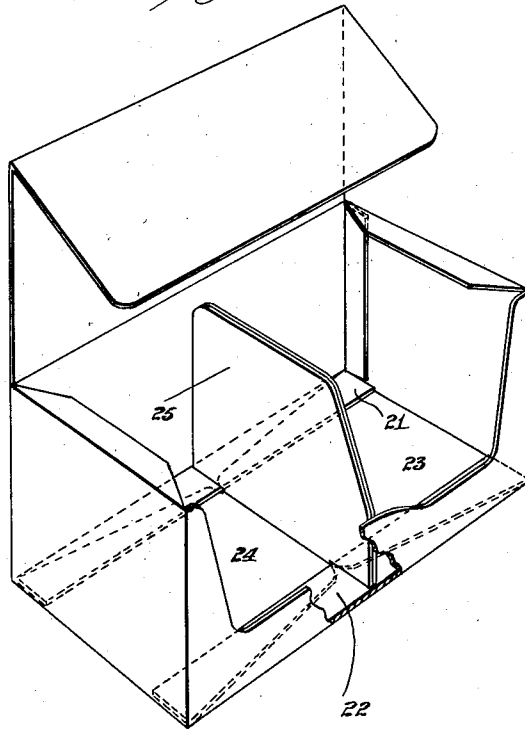
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Fig. 10.



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UNITED STATES PATENT OFFICE

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SELF-LOCKING CARTON

John K. Darragh, Chicago, Ill., assignor to
Florence A. DarraghApplication August 26, 1933, Serial No. 686,878
Renewed March 19, 1938

3 Claims. (Cl. 229—39)

This invention relates to that class of folding cartons or boxes made of paper board, known as self-locking cartons, in which flaps on one or more sides are arranged to interlock with other flaps when pushed into closing position, the general object of the invention being to provide an improved locking construction of the closing flaps which provides a secure closure, is readily adaptable to different forms of cartons, neat in appearance, and effects a material saving in paper-board as compared with cartons having the usual standard or non-locking closures.

For a full understanding of the invention, a detail description of constructions embodying all the features of the invention in preferred form will now be given in connection with the accompanying drawings forming a part of this specification and the features forming the invention then specifically pointed out in the claims.

In the drawings—

Figure 1 is a perspective view of a rectangular carton with the locking device end shown in the position of partial closure, one of the side flaps being shown broken away for illustration;

Figure 2 is a view similar to Figure 1 showing the locking flaps in position just prior to closing and partly broken away for illustration;

Figure 3 is a perspective view, partly broken away to show the locking device from the inside of the carton with the locking flaps closed;

Figure 4 is a view similar to Figure 2, showing the completed carton;

Figure 5 is a lay-out plan of three carton blanks, showing the economy of material in cutting the carton blanks;

Figure 6 is a view similar to Figure 1, showing a modified construction;

Figure 7 shows the carton of Figure 6 with the flaps partially closed;

Figure 8 is a view similar to Figure 3, showing the closed carton of Figure 6 from the inside;

Figure 9 is a lay-out plan of the blank of Figures 6 to 8; and

Figure 10 is a perspective view of a carton having the locking flaps extended inward to form a partition, the front of the box being partly broken away for illustration.

Referring to the drawings, the carton shown in Figures 1 to 5 is of the common rectangular form having the four side walls *a* secured together in any suitable manner and the end that is used for filling closed in the ordinary manner by side flaps *b* and cover flaps *c*, all of which may be of any other well-known or suitable construction.

The other end of the carton embodying my

locking device has two opposite side flaps 10, 11, with straight and unnotched edges, each extending part way across the carton end, and each preferably of the full length and about one third the width of the carton end, and two opposite closing and locking flaps 12, 13, on the other walls of the carton end. These closing flaps 12, 13, as shown in Figures 1 to 5, have their opposite side edges cut in toward each other, as shown at 1, to form notches 2 with the enlarged locking heads 3 beyond the notches on the ends of the locking flaps 12, 13. The inner or base edges of the head 3 are cut on lines at right-angles to the inner edges of the flaps 9, 10, and the side edges are inclined from the head toward the base, thereby forming acute-angled locking notches and providing the required holding strength.

In closing the carton, flaps 10, 11, are first turned down from the position shown in dotted lines in Figure 1 to that shown in full lines in Figure 1, and then the two flaps 12, 13 are turned down and the locking heads 3 pressed past the flaps 10, 11, with the heads 3 superposed as shown in Figure 2, so that these heads 3 overlies each other below the flaps 10 and 11, and the filling of the carton or other pressure from the inside of the carton on the flaps forces the overlying heads 3 together and locks the carton with the parts in the position shown in Figures 3 and 4. Instead of overlapping the locking heads may abut inside the box, but preferably they will overlap wholly or partially.

This carton, with its locking device, preferably is made from a single blank and the blanks cut from a single strip of material, as shown in Figure 5, the locking flaps and the closing flaps for the ends of two cartons abutting so that the locking flaps and the closing flaps for another carton alternate in the cut strip. It will be seen that much material lengthwise of the strip is saved by this construction of locking device and blank-cutting arrangement.

In Figures 6 to 8 a construction is shown in which the side flaps 14 and locking flaps 15, with their locking heads 3, instead of being separated by cuts for closing, are united by triangular folding flaps 4 at the corners of the carton, which flaps 4 fold together at each corner in closing the carton. The construction otherwise is the same as shown in Figures 1 to 4, except that the heads 3 are keystone shaped or inclined outward towards their ends, the folding lines 5 between the folding flaps 4 and the locking flaps 15 being cut deeply into the flaps

15. The preferred form of blank for making this carton is shown in Figure 9.

Figure 10 shows a carton in which the locking is the same as in Figures 1 to 4, having the opposite side flaps 21, 22 and the closing flaps 23, 24, which are extended at their ends which lie inside the carton to form a partition 25 in the box. This partition may be formed, of course, by an extension 25 on only one of the locking flaps 23, 24, but as shown the extension is of double thickness and formed by extensions on both flaps.

What is claimed is:

1. A carton of paper-board or similar flexible material having an end self-locking closure comprising two unnotched flaps folding from opposite sides of the carton and two notched flaps folding inward from the other two sides with their free ends inside the unnotched flaps and engaging said unnotched flaps to lock the flaps together, the unlocking flaps having flaps inside the carton forming a partition, said notched flaps being notched on opposite sides to form a locking head having its rear sides substantially at right-angles to the inner edges of the unnotched flaps and said notched flaps having inclined side edges extending from the head toward the flap base, whereby the un-notched flaps seat and lock in the angles between the head and inclined side edges of the notched flaps.
2. A carton of paper-board or similar flexible material having an end self-locking closure comprising two unnotched flaps folding from oppo-

site sides of the carton and two notched flaps having locking heads with rear edges and also having inclined side edges extending from said rear edges toward the flap base and forming acute-angled locking notches with the rear edges of said locking heads, said notched flaps folding inward from the other two sides with their head ends inside the unnotched flaps and engaging said unnotched flaps and locking the flaps together, said locking heads being in overlapping relation with each other, all of said flaps being connected by folding corner flaps.

3. A multiple blank for a plurality of paper board cartons, comprising alternate individual carton blanks therein having body panels, top closing side flaps and a top closing cover flap at one end, and at the opposite end having a bottom closing flap opposite each of the top closing side flaps and bottom locking flaps having locking heads, one of said bottom locking flaps being opposite the top cover flap, said locking flaps being longer than said closing flaps by at least the length of a closing flap, measured from the base of the flap to the free end thereof, the intermediate individual carton blanks therein having the same sets of flaps provided thereon except that their bottom locking flaps are opposite the top closing side flaps whereby successive blanks may be cut from a strip of material with the blanks reversed without waste of material lengthwise of the strip.

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