No. 831,760. PATENTED SEPT. 25, 1906.

T. H. ANDERSON.

CARTON OR PACKAGE.

APPLICATION FILED JULY 25, 1904.

2 SHEETS—SHEET 1.

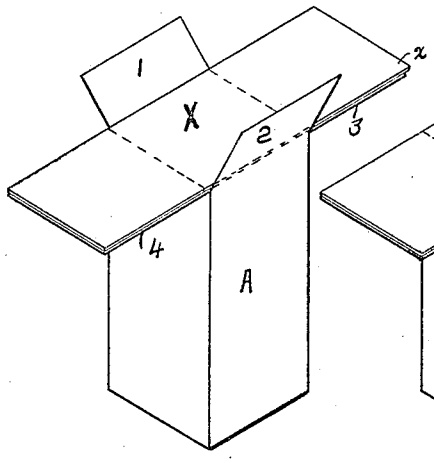

Fig. 1.

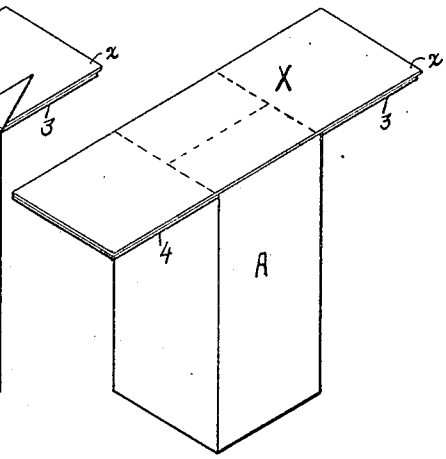

Fig. 2.

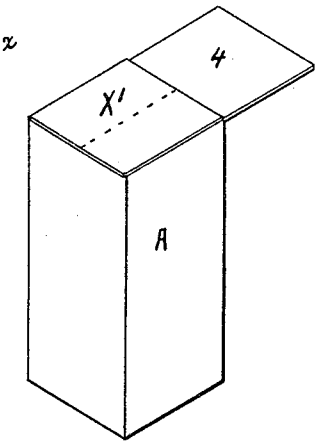

Fig. 3.

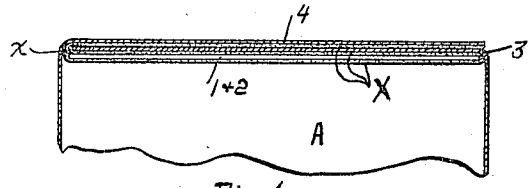

Fig. 4.

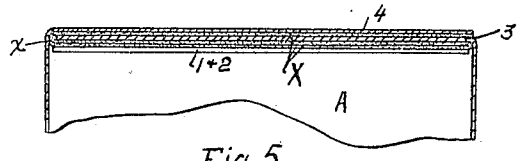

Fig. 5.

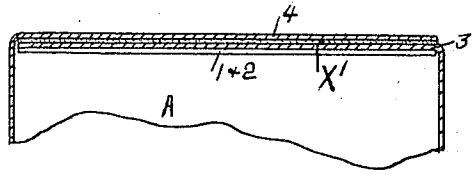

Fig. 6.

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Witnesses

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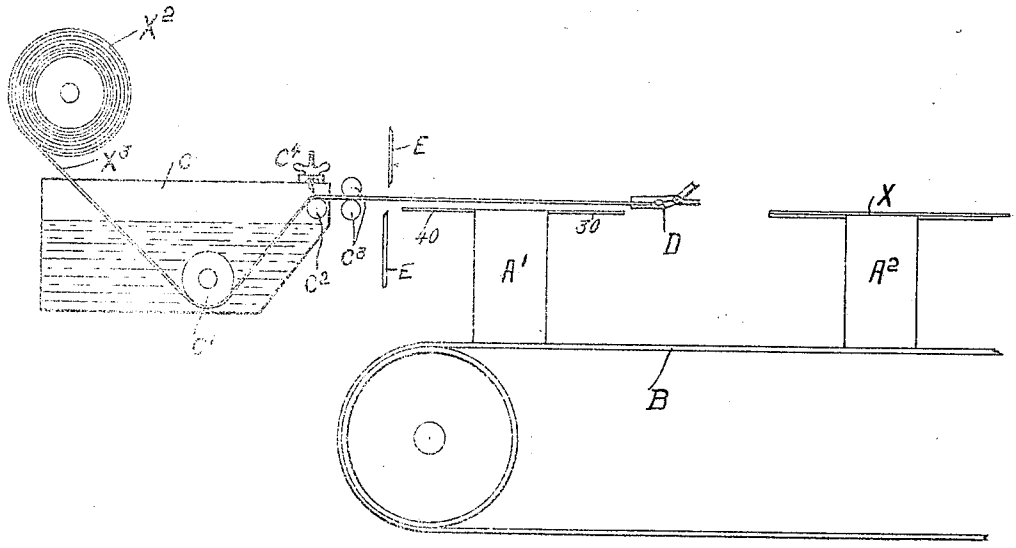

Fig. 7.

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UNITED STATES PATENT OFFICE.

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CARTON OR PACKAGE.

No. 831,760. Specification of Letters Patent. Patented Sept. 25, 1906.

Application filed July 25, 1904. Serial No. 217,903.

To all whom it may concern:

Be it known that I, THOMAS HART ANDERSON, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Cartons or Packages; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to commercial packages, and more particularly to a method of closing and sealing such packages and to an improved closure for the same.

Cartons or paper boxes are at present largely used for packaging materials of a powdery or granular nature, the carton being formed of a blank folded and glued with the exception of one side through which the charge of material is deposited. The final closure is not a part of the carton manufacturing process, but must be accomplished after the carton is filled with goods. For many purposes it is desirable that all the joints in the carton be practically air-tight, for otherwise the contents if of a powdery or granular nature would sift through any imperfect joints or the moisture in the air would reach the contents and damage them. In cartons adapted for packaging food commodities it is especially desirable to have perfect joints and closures in order that the prepared foods may be kept out of contact with the external air and in order also to prevent the minute insects which always endanger food products from gaining entrance into the carton after it is filled and sealed and stored away. In the production of the cartons no great difficulty is experienced in obtaining the requisite tightness of the joints, for the reason that the carton may be subjected internally as well as externally to enormous pressures, thereby squeezing the overlapping portions of the carton closely together and causing a perfect adhesion where adhesive substances are the agents employed in holding the walls of the carton together. A more difficult problem is presented in providing even a fairly tight closure of the top of a carton through which the contents are deposited. It is customary to provide each of the side walls with a flap, to distribute glue over one or more of these flaps, and to then fold all the flaps inwardly and apply more or less pressure thereon in order to fasten them in position after the carton has been filled, but it is impossible in practice to secure a tight closure in this manner, for the reason that even with the greatest care it is impossible to distribute the glue in such a manner as to close all openings or to uniformly apply the same amount of pressure to these flaps as it is customary to apply to the remaining joints or closures in the carton on account of the yielding character of the contained goods.

The object of the present invention is to provide a carton-closure which shall be as secure as the joints of the carton itself, together with a method of forming such closure.

Further objects of the present invention will appear in connection with the following description.

The present invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a common form of carton with my invention applied thereto previous to folding the flaps. Figs. 2 and 3 are views similar to Fig. 1, but showing modified modes of application of my invention. Figs. 4, 5, and 6 are enlarged cross-sections showing portions of the carton illustrated in Figs. 1, 2, and 3, respectively, after the flaps are folded to complete the closure. Fig. 7 illustrates diagrammatically one method of applying the gumming-strip.

Similar reference characters will be used to designate corresponding parts throughout the specification and drawings.

The carton is indicated by A and has the usual flaps 1, 2, 3, and 4, which are adapted to be folded inwardly to close the carton, the flap 4 being the uppermost when all are folded.

In Figs. 1 and 4 there is shown a strip X, of paper, cloth, or similar material, extending across the top of the carton and the open flaps 3 and 4. This strip is either saturated with glue or other adhesive material or has both surfaces covered therewith. The gummed strip adheres to the upper faces of the flaps 3 and 4 and when the flaps 1 and 2 are folded down to the under surface of these flaps. Upon folding the flap 3 that portion of the strip which engages the flap 3 will adhere to the upper surface of the flaps 1 and 2. Upon folding the final flap 4 the portion of the strip engaging the flap 4 will adhere to the upper surface of the flap 3.

The relations of the parts when the flaps are all folded is shown in Fig. 4, and it is apparent that the flaps 1 and 2 3 and 4 are so

firmly united as to constitute a practically integral top for the carton. Those parts of the strip X which are passed around the edges of the flaps 1 and 2 and the flap 3 serve to unite such edges with the adjacent walls of the carton itself, closing thereby every opening which would exist if the strip X were removed.

In the drawings the flaps 1 and 2 and the flap 3 are shown as being narrower than is usually the case in actual practice, these flaps being so illustrated simply to show more clearly the position of the gumming-strip. It is apparent that when the widths of the flaps, as seen in the cross-sectional views, are practically the same as the width of the carton the union between the edges of the flaps 1, 2, and 3 and the sides of the carton may be made absolutely tight, since the strip X is then crowded into a very small space.

The strip X is illustrated as being slightly longer than the combined widths of the carton and the flaps 3 and 4, whereby a portion of the strip is caused to project, as at *x*, beyond the end of the flap 3. This projecting portion may be very desirable in some instances, for the reason that after the flap 3 is folded down the portion *x* overlaps the inner end of the flap 4, and when this latter flap is folded there is a double thickness of gumming-strip along the line upon which the flap 4 is folded, the doubled material rendering it almost impossible for an opening to be left in the joint between the edge of the flap 3 and the adjacent wall of the carton.

In Fig. 2 the strip X is shown as applied to the carton after the flaps 1 and 2 are folded in position. The relations of the parts when the flaps are folded is shown in Fig. 5.

For some purposes it may be unnecessary that the closure be absolutely tight or that the flaps 1 and 2 be glued to the superimposed flap 3. In such a case a small rectangular strip X′ may be applied to the top of the carton after the flaps 1 and 2 and 3 are folded down. This arrangement is illustrated in Figs. 3 and 6, and, as appears from these figures, a very secure union is thereby obtained between the flaps 3 and 4.

In Fig. 7 there is illustrated diagrammatically a method for applying a gumming-strip to the carton. In this figure A′ is a carton supported upon a belt B, which carries the carton past any suitable folding means, (not shown,) whereby the flaps are caused to be folded into position. The flaps 30 and 40 of the carton A′ are turned out horizontally from the walls of the carton. A roll of paper, textile fabric, or other material, such as coarse muslin or cheese-cloth, is suitably supported adjacent a tank of glue C, and the strip of material is passed beneath a roll C′, submerged in the glue within the tank, the strip then passing over a roll C^2, arranged near one end of the tank, and finally between a pair of feed-rolls C^3, these latter rolls serving to draw the strip through the tank. During its passage through the glue or other adhesive substance the strip becomes coated or saturated with the adhesive, and as the strip passes over the roll C^2 the surplus glue is scraped therefrom by means of an adjustable scraper C^4, so that when the strip reaches the feed-rolls C^3 it is in a proper condition to be applied to the carton. Grippers D of any suitable form grasp the strip as it emerges from between the feed-rolls C^3 and draw it across the top of the carton A′, the relations of the parts being such that the strip does not come into contact with the carton during this operation. After a proper length of strip has been fed as described a pair of shears E or other cutting means severs the same, permitting one end thereof to drop upon the upper face of the flap 40, and when the grippers release their hold upon their end of the strip that end also drops into place. The carton, with its pasting-strip, is then moved forward to the position A^2, while another carton is placed in position to receive its gumming-strip.

No folding devices are shown, for the reason that any usual or desired folding arrangement may be employed.

It will be seen that the present invention obviates the difficulty heretofore experienced in securing an even distribution of glue upon the flaps of a filled carton and overcomes the defects previously existing in carton-closures in that every possible opening is sealed. In previous modes of forming carton-closures it has been found to be impossible to seal the opening between the edge of the flap 3 and the opposite wall of the carton. The folded gumming-strip passing between the edge of the flap 3 and the said wall, and, in case it is desired, the additional portion *x* joins the flap and wall securely together. Since the adhesive material is distributed with perfect uniformity, very little pressure need be applied in order to seal the carton perfectly.

Although I have illustrated diagrammatically one method of forming the closure, yet it is not at all necessary that apparatus of any kind be employed for applying the gumming-strip, since this strip may readily be placed in position by hand.

Having described my invention, I claim as new and desire to protect by Letters Patent of the United States—

1. A carton or package provided at one end with sealing-flaps and an adhesive-carrying sealing-strip of a length greater than the end of the carton or package, applied to the faces of adjacent flaps and interfolded with and adhesively secured to said flaps, substantially as described.

2. A carton or package provided at one end with sealing-flaps and an adhesive-carrying sealing-strip extending across the end of the carton or package and of a length greater

than the end of the carton or package whereby it may be superimposed upon the inner face of one of the outstanding flaps and interfolded with and adhesively secure said flap, substantially as described.

3. A carton or package provided at one end with sealing-flaps, and an adhesive sealing-strip extending across the end of the carton or package and superimposed upon the inner faces of the outstanding sealing-flaps, projecting beyond the outer edge of one of the sealing-flaps and interfolded with said sealing-flaps, substantially as described.

4. The combination with a box or package for holding fine contents and having a mouth provided with flaps or wings which fold outwardly in opening, and fold over each other inwardly in closing the mouth, of a sheet or slip of paper or similar material adhesively applied to the inner faces of the flaps around said mouth so as to occupy a flat position when the flaps are extended outwardly into a horizontally-projecting position, in order that when said flaps are interfolded in closing the mouth the slip may likewise be interfolded with them and there may be a tight joint around the edges of the mouth to prevent leakage.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS HART ANDERSON.

Witnesses:

E. P. HEMENWAY,

AXEL E. ELLIS.