March 9, 1926. 1,575,901

R. D. DELAMERE ET AL

FOLDING MECHANISM FOR CARTON FLAPS

Filed Dec. 1, 1924

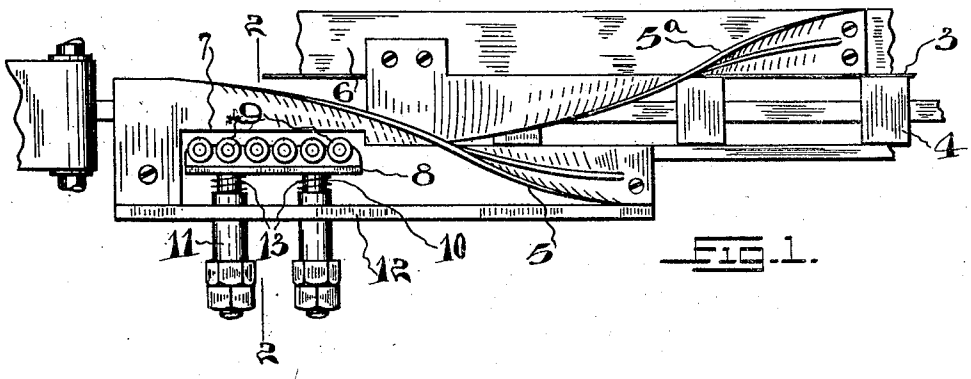


Fig. 1.

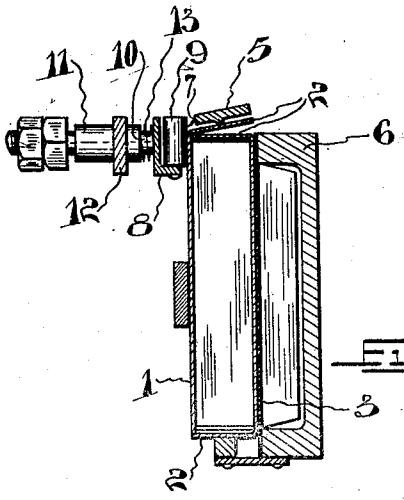


Fig. 2.

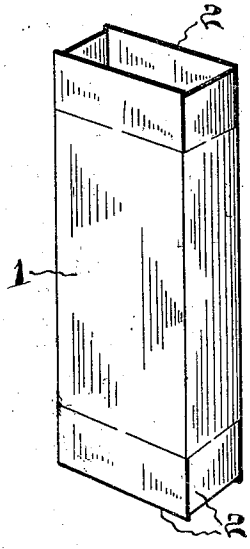


Fig. 4.

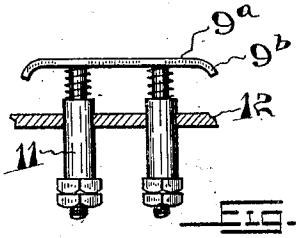


Fig. 3.

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UNITED STATES PATENT OFFICE.

RUDOLF D. DELAMERE AND VICTOR G. WILLIAMS, OF TORONTO, ONTARIO, CANADA.

FOLDING MECHANISM FOR CARTON FLAPS.

Application filed December 1, 1924. Serial No. 753,148.

To all whom it may concern:

Be it known that we, RUDOLF D. DELAMERE and VICTOR G. WILLIAMS, both of the city of Toronto, in the county of York, Province of Ontario, Canada, subjects of the King of Great Britain, have invented certain new and useful Improvements in Folding Mechanism for Carton Flaps, of which the following is a specification.

This invention relates to folding mechanism particularly of the type used on machines for filling cartons and automatically sealing their flaps and our object is to devise means for forming an air tight joint between the flaps and the adjacent edges of the box.

We attain our objects by means of the constructions hereinafter described and illustrated in the accompanying drawings in which—

Fig. 1 is a plan view of our device showing it in position on the flap folding mechanism;

Fig. 2 a cross section on the line 2—2 in Fig. 1;

Fig. 3 a plan view of a modified form of our device; and

Fig. 4 a perspective view of the carton.

Each carton comprises the connected sides 1 each having an end flap 2 extending therefrom at each end. The cartons are placed on a carrier, including an endless belt 3 having spaced projections or blocks 4 suitably secured thereto and adapted to carry the carton past curved folders 5 and 5^a secured to the frame 6 of the machine. These folders are located at the underside as well as the top side of the frame to engage the upper and lower sets of lateral flaps (only one set of folders is shown in the drawing). Before the lateral flaps reach the folders the rearward and forward flaps are turned in and the lateral flaps have gum or paste applied thereto so that the first lateral flap turned in by the folder 5^a will be stuck to the rearward and forward flaps. The second lateral flap, when turned in by the folder 5, will be stuck to the first lateral flap. This is known in the art and shown in our copending application Serial No. 520,128, filed December 5th, 1921. While the above described arrangement of turning in the carton flaps is satisfactory, when the contents of the carton are carried in a bag therein, it would not prevent leakage between the flaps if the contents were loosely carried in the carton.

To seal the flaps whereby fine granular substances may be carried in a carton without the additional use of a bag, we provide the following means. The folders 5 are each provided with a notch 7 to receive a frame 8 having a plurality of anti-friction rollers 9 carried thereon. These rollers are adapted to engage the side of each carton adjacent the flaps as the carton passes the folder 5 and after the first lateral flap has been turned in by the folder 5^a. Each frame 8 is carried on rods 10 slidably mounted in tubular bearings 11 secured to a bar 12 which is carried at the rear of the folder 5. Springs 13 disposed on the rods 10 engage the bearings 11 and the frame 8 to resiliently hold the rollers in engagement with the carton. As the side of the carton opposite the rollers engages the belt 3 which lies against the frame 6 of the machine, pressure is applied to two opposite sides of the carton while the second lateral flap is being folded in whereby no spaces are left at the corners when the second flap is sealed. Any suitable means such as that shown in our prior application, may be used to hold the flaps in position while the gum or paste is setting.

A modified form of the device is shown in Fig. 3 in which the bar 9^a, provided with the curved ends 9^b, is substituted for the frame 8 and rollers 9. The curvature of the ends 9^b or of the roller is adapted to first engage the carton to cause the bar or frame to yield sufficiently to permit the carton to pass and at the same time apply pressure thereto.

By the use of the device just described the carton flap joints are made so tight that when pressure is applied to two opposite points of the carton the sides will bulge out due to the displaced air in the carton being unable to escape.

From the above description it is obvious that the resilient pressure may be applied to the opposite sides of the carton after the flaps have been folded and gummed but before the gum has set.

What we claim is:—

1. In a machine for folding cartons which comprise four connected sides, each provided with an end flap, the forward and rear flaps each being substantially one half the length of the open end of the carton and the lateral flaps each being substantially the width of

the said open end, the combination of a driven carrier for the carton; means adapted to fold and secure the flaps to close the end of the carton while it is in motion, the lateral flaps being folded one over the other, a frame; a plurality of anti-friction rollers carried by the frame and adapted to engage one side of the carton at the turned edge of the flap connected thereto; resilient means tending to hold the rollers in engagement with the carton; and means for engaging the other side of the carton at the turned edge of the flap connected thereto whereby the pressure of the rollers increases the overlapping of the lateral flaps and forces the sides of the carton toward one another and into close contact with the edges of the forward and rear flaps until sealing of the lateral flaps takes place.

2. In a machine for folding cartons which comprises four connected sides, each provided with an end flap, the forward and rear flaps each being substantially one half the length of the open end of the carton and the lateral flaps each being substantially the width of the said open end, the combination of a driven carrier for the carton; means adapted to fold and secure the flaps to close the end of the carton while it is in motion, the lateral flaps being folded one over the other; a frame; a plurality of anti-friction rollers carried by the frame and adapted to engage one side of the carton at the turned edge of the flap connected thereto; resilient means tending to hold the rollers in engagement with the carton, the carrier including a belt adapted to engage the entire inner side of the carton when folded; and a guide frame for supporting the belt behind the turned edge of the carton flap whereby the pressure of the rollers increases the overlapping of the lateral flaps and forces the sides of the carton toward one another and into close contact with the edges of the forward and rear flaps until sealing of the lateral flaps takes place.

Signed at Toronto, Canada, this 15th day of Sept. 1924.

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VICTOR G. WILLIAMS.