Aug. 23, 1932. E. F. CORNOCK 1,872,898

WRAPPING MACHINE

Filed Dec. 5, 1931

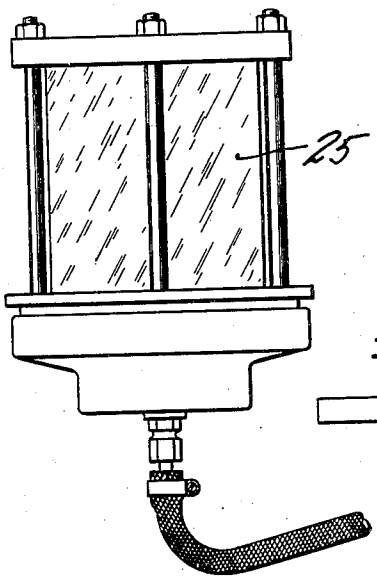


Fig. 1.

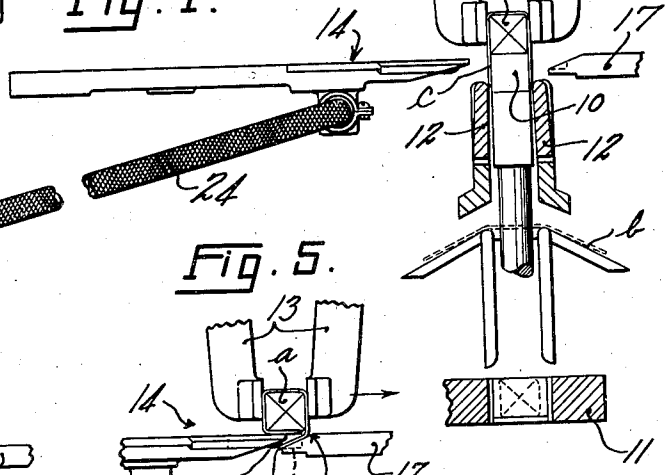


Fig. 6.

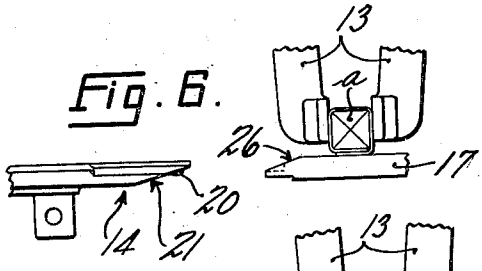


Fig. 4.

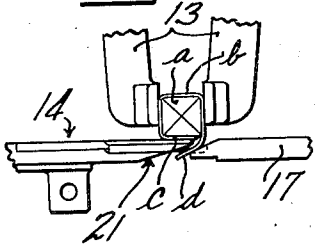


Fig. 5.

Fig. 2.

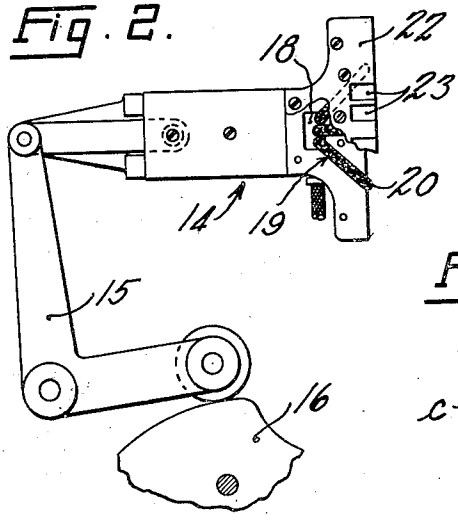


Fig. 3.

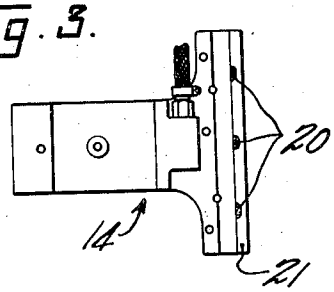
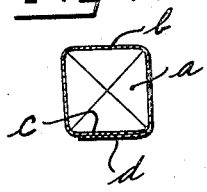


Fig. 7.



INVENTOR.
EDWARD F. CORNOCK
BY Chapin & Neal
ATTORNEYS.

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UNITED STATES PATENT OFFICE

EDWARD F. CORNOCK, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO PACKAGE MACHINERY COMPANY, OF SPRINGFIELD, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

WRAPPING MACHINE

Application filed December 5, 1931. Serial No. 579,140.

This invention relates to wrapping machines, and although described in detail with respect to the wrapping of cigars in moisture-proof cellophane it finds application in other analogous uses. One object of the invention is to provide mechanism for applying an even coat of a sealing liquid to the outstanding flap of an article. Another object is to provide mechanism for simultaneously folding one flap and applying a sealing liquid to an opposite flap. Another object is to improve the tensioning of the wrapper around the article. Another object is to provide a flap folding and sealing mechanism which will produce a minimum bending of the flap after the solvent has been applied and will avoid drawing the flap around sharp corners, whereby the amount of curl in the folded flap is reduced to a minimum. Another object is to provide a mechanism which produces a wiping action of a wick across the flap being operated upon, in order to apply a thin and even coating of a sealing liquid against the flap. Additional objects will appear from the following description and claims.

Referring to the drawing:

Fig. 1 is a sectional elevation of a portion of a wrapping machine embodying the invention;

Fig. 2 is a plan of a portion of the mechanism shown in Fig. 1, together with a detail of the means for operating it;

Fig. 3 is a bottom view of a portion of the mechanism shown in Fig. 2;

Figs. 4, 5, and 6 are details illustrating successive stages in the wrapping operation; and

Fig. 7 is a cross-section of an article so wrapped.

The invention has been shown as applied to the wrapping in moisture-proof cellophane of cigars on a machine basically similar to that illustrated in the patent to Grover 1,811,751, June 23, 1931, to which reference may be made for a description of the article forwarding mechanism and the initial folders. While the Grover machine was intended primarily for handling foil, the present device is concerned with the application to an article such as a cigar of a wrapping material adapted to be secured around the article by a freely flowing sealing liquid. A suitable wrapping material is moisture-proof cellophane, a transparent cellulose sheeting bearing on its surface a thin layer of a compound soluble in organic solvents such as ethylene glycol monomethyl ether. This substance flows freely and can be transmitted through a wick to the point where it is to be applied to the wrapper.

The wrapping mechanism has been shown somewhat diagrammatically, as the manner in which the initial folders are operated can be followed in detail, if desired, in the Grover patent referred to. The article *a*, a cigar for example, is fed by a plunger 10 from a pocket in a feed disk 11. In its travel the article contacts with and picks up a sheet of wrapping material *b* which is folded around it in inverted U form by stationary members 12. At the upper end of its travel the article and wrapper are grasped by tongs 13 which are mounted on an intermittently rotating turret as described in the Grover patent. A rear bottom folder, indicated generically at 14, is operated by a bell crank 15 and a cam 16 to fold under the rear flap *c* of the wrapper, the plunger 10 meanwhile having receded (Fig. 4). The tongs 13 now move forwardly, carrying the article over a stationary plate 17 (Figs. 5 and 6) which folds down the second flap *d*. As thus far described, the mechanism is generically of a type used in forming opposite folds in many sorts of wrapping machine. The features wherein the present invention differs from these machines will now be considered.

The body of the folder 14 has a well 18 formed in it, from which a plurality of

grooves or passages 19 lead to the forward folding edge. Wicks 20 are located in these passages, leading from the well to the front of the folder. The wicks have been shown as spaced apart, but if desired may be merged into a continuous wick extending throughout the length of the flap. The spaced wicks are generally preferable in wrapping such articles as cigars where it is not desired to form a package of absolute hermetic tightness on account of the danger of the cigar becoming mouldy. The front edge of the folder is beveled off at 21 on its side remote from the article, giving a slanting surface beyond which the wicks project slightly. A cover plate 22 overlies the wicks, and preferably has friction reducing grooves 23 in its upper face. Sealing fluid is supplied to the well through a flexible conduit 24 from a reservoir 25, preferably of the constant level type common in oil stoves and the like. The level is set so that the exposed ends of the wicks will be moist but will have no tendency to drip. The stationary plate 17 is sloped off at 26 to correspond with the bevel 21, and is preferably provided with a plurality of recesses 27 located opposite the wicks 20 so that smearing of the beveled surface 26 will be avoided in case no wrapper is present.

As the folder 14 advances under the elevated article, it folds the flap *c* underneath the article. As it moves, the tongs 13 also start to move, carrying the article over the plate 17 so that the second flap *d* will be turned well under the article as shown in Fig. 4. In this position the wicks contact with the wrapper near its edge. As the article advances further over the plate 17, the flap *d* will be pulled out from between the wick and the plate, causing a smear of solvent to be applied to the wrapper all the way to its edge. Further movement of the article (Fig. 6) causes the flap *d* to be folded over the previously laid flap *c*. The film of solvent will soften the coating on the two engaging surfaces, and as the flaps are held in contact during the end folding operations, they adhere. If desired, the evaporation of the solvent may be hastened by the application of heat in the well known manner.

The mechanism described has several advantageous features. By gripping the flap *d* during the advance of the article, this flap is drawn under tension around the lower corner of the article, insuring a tight wrap. The coating of solvent is applied clear to the edge of the flap, as described above and in contrast to prior devices in which a slight gap is left between the stripe of sealing liquid and the edge of the wrapper. Due to the slope of the surfaces 21, 26, the pull on the wrapper is approximately in line with its final position, and in the transition from the position of Fig. 5 to that of Fig. 6 the flap is not caused to bend around a sharp corner. If the wrapping material is drawn sharply around an edge, particularly after it has been moistened with a sealing liquid, a curl will be given to it which will create a tendency on the part of the flap to peel away from the article. This effect is avoided by the construction shown.

What I claim is:

1. A wrapping machine comprising means for folding a wrapper around an article leaving a flap outstanding therefrom, an abutment for supporting said flap, a wick movable to press the flap against the abutment, means for supplying a sealing liquid to the wick, and means for moving the article relative to the wick to draw the flap over the wick while the flap is so pressed against the abutment.

2. A wrapping machine comprising means for folding a wrapper around an article leaving spaced flaps outstanding therefrom, a folder movable to fold one of the flaps against the article, an abutment for supporting the second flap, a wick carried by the folder to press the second flap against the abutment, means for supplying a sealing liquid to the wick, and means for moving the article relative to the wick to draw the second flap over the wick while said flap is so pressed against the abutment.

3. A wrapping machine comprising means for folding a wrapper about an article leaving spaced flaps outstanding therefrom, a folder movable to fold one of the flaps against the article, said folder having its side away from the article beveled, a stationary plate having its side towards the article beveled to correspond with the beveled side of the folder, a wick carried within the folder and projecting from its beveled surface, means for supplying a sealing liquid to the wick, and means for moving the article over the stationary folder.

4. A wrapping machine comprising means for folding a wrapper about an article leaving spaced flaps outstanding therefrom, a folder movable to fold one of the flaps against the article, said folder having its side away from the article beveled, a stationary plate having its side towards the article beveled to correspond with the beveled side of the folder and having a plurality of recesses formed in its beveled surface, a plurality of wicks carried by the folder and projecting from its beveled surface in line with the recesses in the stationary plate, means for supplying a sealing liquid to the wick, and means for moving the article over the stationary folder.

5. A wrapping machine comprising means for folding a wrapper around an article leaving an outstanding flap, means including a wick and an abutment for grasping the flap between them and applying a sealing liquid by means of the wick to one side of the flap, and means for causing relative motion of the article and said grasping means to pull the

flap from between them substantially without bending, whereby the imparting of curl to the flap is avoided.

6. A wrapping machine comprising means for folding a wrapper around an article leaving a pair of spaced outstanding flaps, means for folding one of said flaps partially towards the article, and means for folding the other of the flaps against the article and simultaneously applying a sealing liquid against the inner surface of the partially folded flap.

In testimony whereof I have affixed my signature.

EDWARD F. CORNOCK.