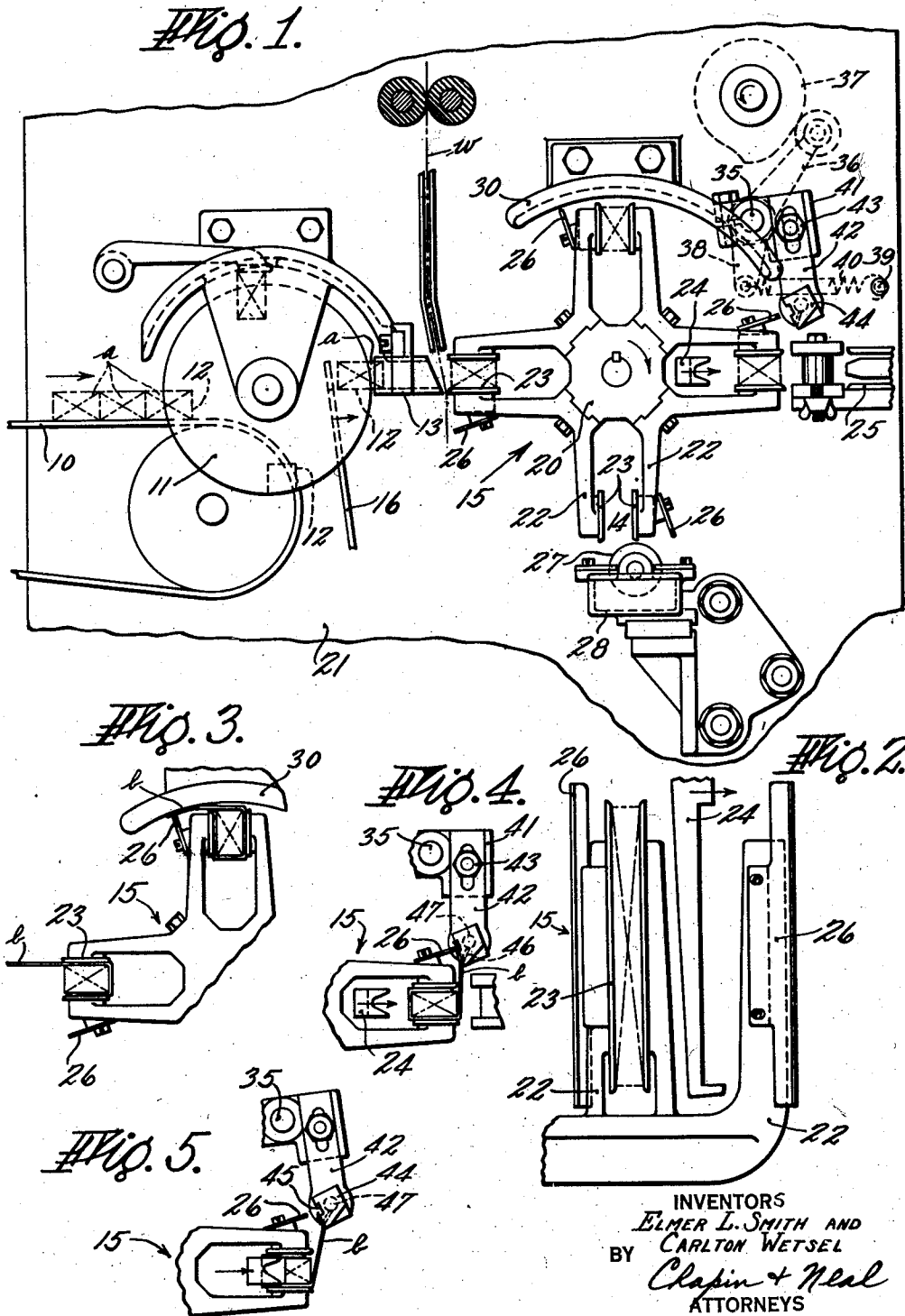


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WRAPPER GLUING DEVICE

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14 Claims. (Cl. 93—2)

This invention relates to wrapping machines, and has particular reference to improvements in mechanism for applying a stripe of sealing liquid to the longitudinal seam of the wrapper. One object of the invention is to provide improved mechanism for applying a stripe of sealing liquid on a line spaced from the end of the wrapper. Another object is to provide improved mechanism for preventing smearing of the sealing liquid over the marginal space between the stripe and the edge of the wrapper. Another object is to provide improved mechanism in association with a wrapping carrier such as an intermittent wheel for applying sealing liquid to a flap extending from a partially wrapped article. Additional objects will appear from the following description and claims.

Referring to the drawing,

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

Fig. 2 is a detail plan of a portion of the wrapping wheel and its ejecting mechanism; and

Figs. 3, 4 and 5 are details illustrating successive stages in the wrapping of an article.

In the machine shown in Fig. 1 the articles *a* are fed in a continuous stream along a conveyor 10 until they reach a timing wheel 11. Here they are interrupted by contact with its surface until the wheel comes to rest with a pocket 12 in alignment with the conveyor. The wheel is given a step by step rotation by any of the usual intermittent drives until it carries the article into alignment with a guideway 13. The article is then carried from the wheel 11 through the guideway 13 and into a pocket 14 of an intermittently rotated wrapping wheel 15 by an ejector arm 16, picking up a wrapper *w* on its way. Any standard mechanism may be provided for rotating the wheel 15 a quarter of a turn at a time, in step with the rotations of the wheel 11.

Wheel 15 is carried on a rotatable member 20, at the end of which remote from the frame 21 are fixed arms 22 extending back towards the frame and bearing pocket wall members 23. This construction provides a free annular space within the pockets in which an ejector 24 may lie during the rotation of the wheel, the ejector being moved periodically in the direction of the arrow to shift the article into the delivery channel 25. On the arms 22 are also carried bars 26 having their outer edges parallel to the axis of the wheel and at a radial distance from the axis slightly greater than the outer edges of the pocket wall members 23. In the rotation of the wrapping wheel these bars are carried into contact with a

roll 27 dipping into a reservoir 28 and rotated by any suitable means at the same speed as the bars 26. The bars pick up a coating of solvent or adhesive, depending upon the type of wrapper used, the rotation of the roll serving to keep its surface uniformly coated with the liquid.

As the wrapper and article are pushed into the wrapping wheel pocket by the ejector 16 the wrapper is partially folded around the article, leaving an extending flap *b*. During the rotation of the wrapping wheel this flap is bent against the adjacent bar 26 by a circular guard 30. The bar is set so as to contact with the wrapper at a little distance from its edge, it being the object to prevent any sealing liquid flowing past the edge of the flap when the latter is finally pressed down into place. The flap of course adheres to the bar on account of the adhesive or solvent carried by it, and if the flap were pulled clear by the action of ejector 24 moving the article into the delivery channel the sealing liquid would be smeared to the edge of the wrapper, thus defeating the purpose of the invention.

To avoid this undesirable effect we have provided a device which insures that the flap will be pressed closely against the bar, and also that the flap will be pulled cleanly away from the bar without smearing. Upon the frame of the machine is mounted a rock shaft 35 having fixed to it an arm 36 controlled by a rotatable cam 37, and an arm 38 connected to a pin 39 by a spring 40. Also mounted on the shaft is a bracket 41 having an arm 42 connected to it by a bolt and slot connection 43. This arm bears a member 44 having a groove 45 positioned to register with the successive bars as they are presented by the wrapping wheel, and a series of holes 46 adjacent to the groove and connected to a central recess 47. A flexible tube (not shown) connects this recess to any suitable source of constant suction.

The cam 37 is timed so as to move the member 44 towards the bars as the latter come to rest in front of it. The slot 45 prevents any transfer of adhesive to the member if a wrapper is absent from the pocket. If a wrapper is in place it will be pressed firmly against the bar by the initial movement of the member 44 towards the wheel (Fig. 4). At the same time the suction exerted through holes 46 clamp the flap to the member, so that as the latter is moved away from the wheel the flap will be carried with it and any adhesion between it and the bar broken (Fig. 5). When the ejector 24 carries the article into the channel 25 the flap will be kept from contact with the bar, and will finally slide off from the member 44 and

be pressed against the underlying portion of the wrapper, without any danger of smearing its marginal surface between the stripe of sealing liquid and the wrapper edge. The suction exerted on the flap during the motion of the article into the delivery channel tensions it until it is bent around the corner of the article, making a smooth and tight wrap. This action is similar in its purpose to the wrapper clamps formerly located at the delivery station of a wrapping wheel (see for example the clamp 136 shown in the Ferguson Patent 1,557,039, October 13, 1925). The present device however, differs from the mechanically operated wrapper clamps in contacting with one side of the flap only. It is thus possible to tension the flap without smearing the marginally spaced line of sealing liquid applied by the bar 26.

The invention has been shown as applied to a wrapping carrier in the form of a wheel having four equally spaced pockets. It will be understood, however, that in certain aspects the invention is independent of the particular form of carrier to which it is applied. Other changes in the details of the specific embodiment shown may of course be made within the scope of the invention as defined in the following claims.

We claim:

1. A wrapping machine having means for holding an article having a projecting flap, means for applying sealing liquid to one side of the flap, and suction means engaging the other side of the flap to free the flap from the liquid applying means.
2. A wrapping machine having means for holding an article having a projecting flap, means for applying sealing liquid to one side of the flap, suction means engaging the other side of the flap, and mechanism for moving the suction means away from the liquid applying means to free the flap therefrom.
3. A wrapping machine having means for holding an article having a projecting flap, means for applying sealing liquid to one side of the flap, suction means engaging the other side of the flap, and mechanism for moving the suction means to first press the flap against the liquid applying means and then to free it therefrom by a motion substantially directly away from said means.
4. A wrapping machine having means for holding an article having a projecting flap, means for applying to said flap a stripe of sealing liquid spaced from the end thereof, and means engaging the flap to move it out of contact with said applying means in a direction substantially normal thereto and without smearing the sealing liquid towards the end of the flap.
5. A wrapping machine having means for holding an article having a projecting flap, a sealing liquid applying bar, means for coating the bar with a sealing liquid, folding means for bending the flap across the bar, and a suction member engaging the flap and pulling it substantially directly away from the bar.
6. A wrapping machine having means for holding an article having a projecting flap, a sealing liquid applying bar, means for coating the bar with a sealing liquid, folding means for bending the flap across the bar, a member having a groove in alignment with the bar and one or more suction apertures adjacent the groove, and means for moving the member towards the bar to cause the edges of the groove to straddle the bar and thus to press the flap against the bar, and for moving the member directly away from the bar to free the flap therefrom without substantial slippage.
7. A pocketed wrapping carrier having a sealing

liquid applying bar mounted adjacent one side of the pocket, means for applying sealing liquid to bar, means for introducing into the pocket an article with a wrapper folded around it so as to leave a projecting flap on the side of the pocket remote from the bar, a folder for bending the flap across the article and over the bar, a flap folding device, means for ejecting the article from the carrier and past the folding device to fold said flap with its liquid coated side in contact with the underlying portion of the wrapper on the article and a suction device engaging the flap and freeing it from the bar before the article is moved past the flap folding device.

8. A rotatable wrapping wheel having a plurality of pairs of spaced wall members forming article receiving pockets, a sealing liquid applying bar located adjacent each pocket and having its outer surface at a greater radial distance from the axis of the wheel than the walls of the pockets, a sealing liquid reservoir, a transfer roll dipping into the reservoir and positioned to transfer sealing liquid to the bars without smearing the pocket wall members, means for introducing into the pockets successively articles having wrappers folded around them so as to leave projecting flaps on the side of the pocket remote from the bar, a folder for bending the flap across the article and over the bar, the bar being so located relatively to the pocket as to contact with the flap along a line spaced from the end thereof, a flap folding device, means for ejecting the article from the wheel and past the folding device to fold the flap with its liquid coated surface in contact with the underlying portion of the wrapper on the article, and a suction member engaging the flap and movable to free the flap from contact with the bar and thus avoid smearing of the uncoated margin of the flap upon ejection of the article.

9. A rotatable wrapping wheel having a plurality of pairs of spaced wall members forming article receiving pockets, a sealing liquid applying bar located adjacent each pocket and having its outer surface at a greater radial distance from the axis of the wheel than the walls of the pockets, a sealing liquid reservoir, a transfer roll dipping into the reservoir and positioned to transfer sealing liquid to the bars without smearing the pocket wall members, means for introducing into the pockets successively articles having wrappers folded around them so as to leave projecting flaps on the side of the pocket remote from the bar, a folder for bending the flap across the article and over the bar, the bar being so located relatively to the pocket as to contact with the flap along a line spaced from the end thereof, a flap folding device, means for ejecting the article from the wheel and past the folding device to fold the flap with its liquid coated surface in contact with the underlying portion of the wrapper on the article, a member having a groove in alignment with the bar and suction apertures adjacent the groove, and means for moving the member towards the bar of the pocket in ejecting position, and then away from the bar to free the flap from the bar and thus avoid smearing of the uncoated margin of the flap upon ejection of the article.

10. A wrapping machine comprising a pocketed wrapping wheel, means for introducing into the wheel a partially wrapped article having an extending flap, a delivery chute, means for moving the article from the wrapping wheel into the delivery chute to fold down said flap, and suction

means engaging the flap to tension it during the movement of the article into the delivery chute.

11. A wrapping machine comprising a pocketed wrapping wheel, means for introducing into the wheel a partially wrapped article having an extending flap, a device for applying a sealing liquid to one side of the flap, a delivery chute, means for moving the article from the wrapping wheel into the delivery chute to fold down said flap, and suction means engaging the second side of the flap to tension it during the movement of the article into the delivery chute.

12. A wrapping machine comprising a pocketed wrapping wheel, means for introducing into the wheel a partially wrapped article having an extending flap, a device for applying a stripe of sealing liquid to one side of said flap spaced from the end thereof, a delivery chute, means for moving the article from the wrapping wheel into the delivery chute to fold down said flap, and suction means engaging the second side of the flap to tension it during the movement of the article into the delivery chute without smearing the stripe of sealing liquid.

13. A wrapping machine having means for holding an article having a projecting flap, a sealing liquid applying bar, means for coating the bar with a sealing liquid, folding means for bending the flap across the bar, and means engaging the flap to move it away from the bar in a direction substantially normal to the bar.

14. A pocketed wrapping carrier having a sealing liquid applying bar mounted adjacent one side of the pocket, means for applying sealing liquid to the bar, means for introducing into the pocket an article with a wrapper folded around it so as to leave a projecting flap on the side of the pocket remote from the bar, a folder for bending the flap across the article and over the bar, a flap folding device, means for ejecting the article from the carrier and past the folding device to fold the flap with its liquid coated side in contact with the underlying portion of the wrapper on the article, and means engaging the flap to free it from the bar before the article is moved past the flap folding device.

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