June 26, 1934. T. W. ALM ET AL 1,964,020

CELLOPHANE ENVELOPE END FOLDING ATTACHMENT FOR CIGAR FOILING MACHINES

Filed June 10, 1930 2 Sheets-Sheet 1

FIG. 1

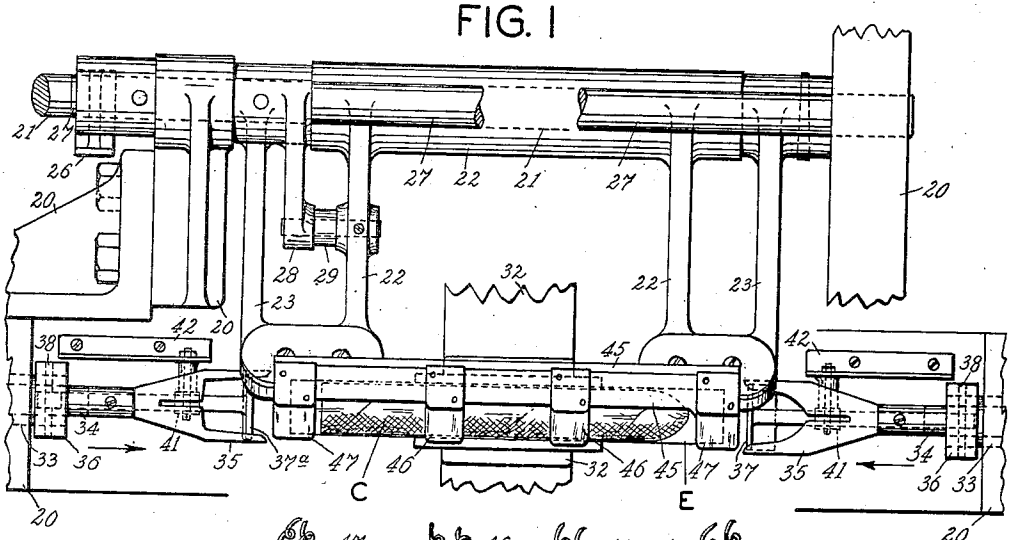


FIG. 2

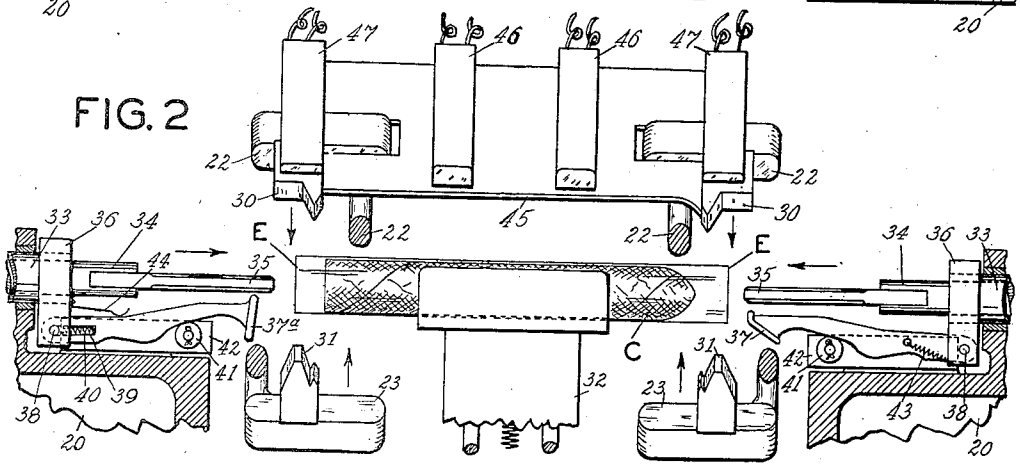


FIG. 3

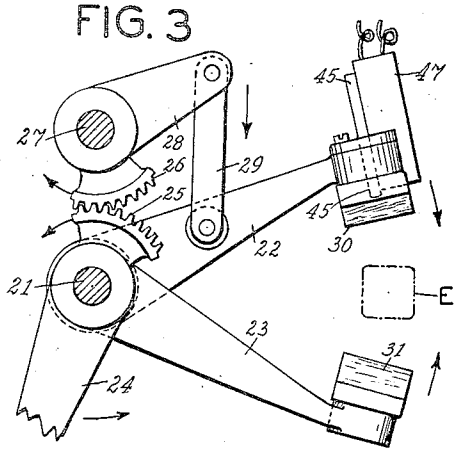


FIG. 13

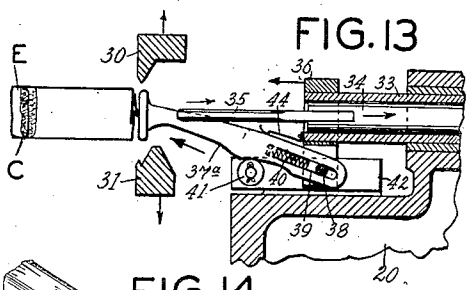
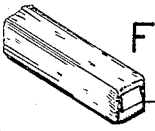


FIG. 14



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FIG. 4

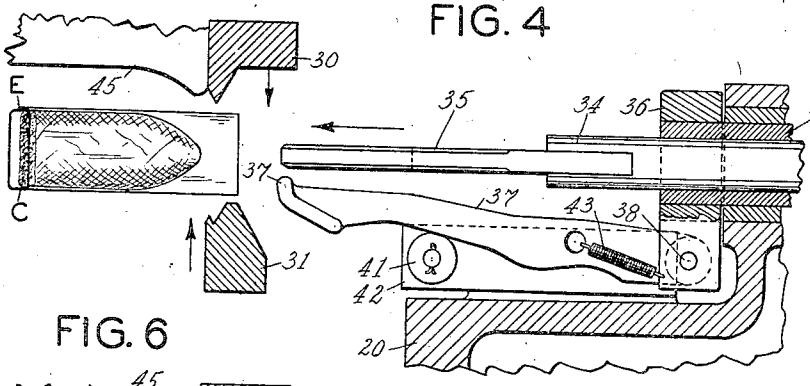


FIG. 5

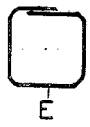


FIG. 6

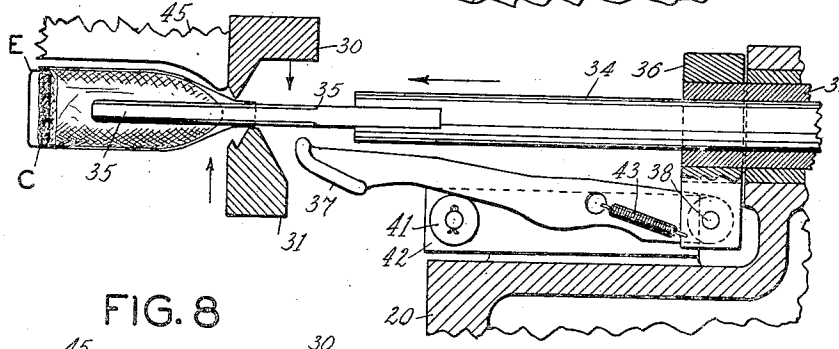


FIG. 7



FIG. 8

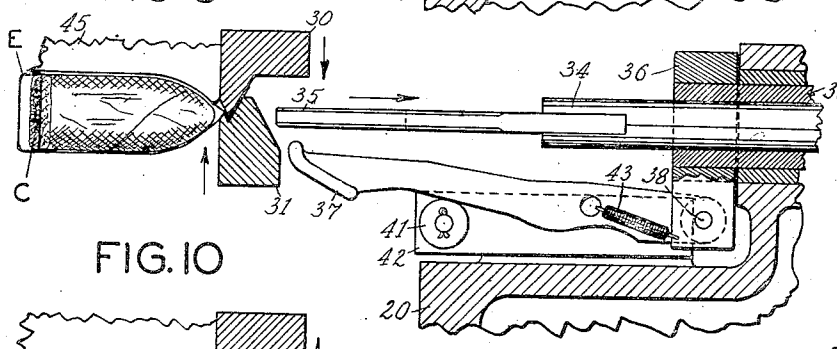


FIG. 9



FIG. 10

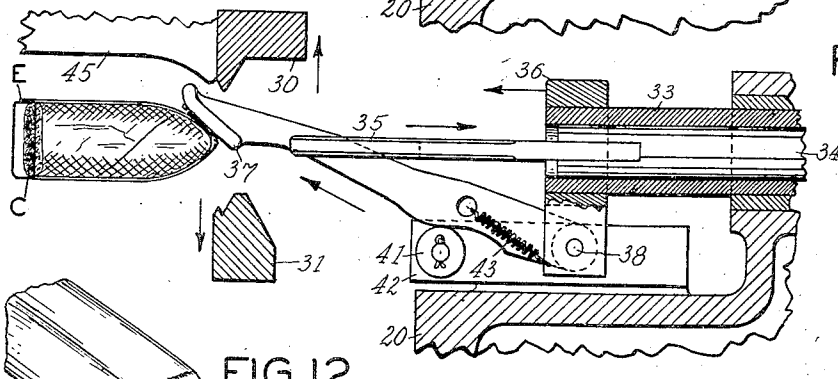


FIG. 11



FIG. 12

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UNITED STATES PATENT OFFICE

1,964,020

CELLOPHANE ENVELOPE END-FOLDING ATTACHMENT FOR CIGAR-FOILING MACHINES

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Application June 10, 1930, Serial No. 460,262

8 Claims. (Cl. 93—2)

This invention relates to cigar enveloping, its main object being to provide means for folding the ends of a waterproofed "Cellophane" cigar envelope when applied to the cigar in an ordinary foiling machine, such as shown in Patent No. 1,899,174, granted February 28, 1933 on the application of H. H. Wheeler, Cigar enveloping machine, Serial No. 203,082, filed July 2, 1927, the end folding means of which, owing to the difference in the physical properties of metal foil and "Cellophane", will not make permanent folds with the latter material. A further object of the invention is the provision of a novel method of cigar enveloping and an improved cigar envelope resulting from the novel method, said method being carried out by the above mentioned machine provided with our end folding means. With these and other objects not specifically mentioned in view, the invention consists in certain methods, machines, and cigar envelopes which will be hereinafter fully described and then specifically set forth in the claims hereunto appended.

In the accompanying drawings, which form a part of this specification and in which like characters of reference indicate the same or like parts:

Fig. 1 is a partial top view of a cigar folding machine showing the arrangement of the new folding mechanism attached to the same;

Fig. 2 is a side elevation of the mechanism shown in Fig. 1;

Fig. 3 is an end elevation of the foiling machine parts given in Fig. 1, showing their actuating means;

Figs. 4, 6, 8, 10 and 13 are sectional side elevations showing the operation of the end folding mechanism shown in Figs. 1 and 2;

Figs. 5, 7, 9 and 11 are end elevations showing the end folds corresponding to the operations indicated in Figs. 4, 6, 8 and 10;

Fig. 12 is a perspective view showing the pointed end of a cigar package as folded by the attachment shown at the right of Figs. 1 and 2; and

Fig. 14 is a similar view showing the blunt end of a cigar package as folded by the attachment shown at the left of Figs. 1 and 2.

In carrying the invention into effect, there is provided a method of, and apparatus for, enveloping cigars and a novel cigar envelope resulting therefrom. In the best practice of the invention, the apparatus includes a support for a cigar encircled by an envelope having a longitudinal seam, means for tucking the ends of the envelope, means for forming a creased flap on the ends of the envelope, means for sealing the longitudinal seam of the envelope, and means for turning the flaps over on the ends of the cigar. In the best forms of constructions contemplated, the support comprises a rotatable turret, the tucking means includes a bifurcated tucking plate arranged at each end of the support, the flap forming means includes a heated male die and a female die arranged at each end of the support, the means for sealing the longitudinal seam including a heated sealing plate which is curved to the longitudinal curvature of the cigar, and the means for turning the flaps includes folding fingers arranged at each end of the support to turn the flap over on the end of the cigar, one of said fingers being yieldingly mounted. In the best practice of the invention, also, the method includes tucking the ends of the envelope, forming creased flaps on the ends of the envelope, sealing the longitudinal seam, and turning the flaps over on the ends of the cigar. In the best practice, also, the cigar envelope formed is provided with a sealed longitudinal seam and closed ends formed by tucking the ends of the envelope, forming creased flaps on the ends of the envelope, and turning the flaps over on the ends of the cigar.

Referring to Figs. 1, 2 and 3 of the drawings, the frames 20 of the foiling machine carry the horizontal shaft 21 on which are loosely fitted the swinging arms 22 and fixedly attached the arms 23. On shaft 21, to which is imparted a rocking motion by a crank lever 24 actuated from a cam, such as shown in the patent granted on the application of Wheeler referred to above, is mounted a gear segment 25 in mesh with a gear segment 26 on a countershaft 27 located above shaft 21 and supported by frames 20. To shaft 27 is attached a crank lever 28 connected by a link 29 to one of the arms 22, so that the motion of shaft 21 causes simultaneous opening or closing of the arms 22 and 23. Arms 22 carry the male creasing dies 30 while arms 23 carry the female creasing dies 31. When the arms 22 and 23 are closed by the motion of lever 24, the male dies 30 and the female dies 31 come together, thereby creasing the ends of the tubular "Cellophane" envelope E close to the ends of the cigar C as the latter is held for cellophaning in the foiling machine turret 32.

In brackets supported by frames 20 are axially slidable two hollow shafts or sleeves 33 in each of which is slidable a rod 34. The shafts 33 and rods 34 are co-axial with the cigar package when

the latter is in the end folding position of the turret, and have longitudinal back and forth motions imparted to them by suitable cam wheels, not shown, mounted on the turret shaft of the folding machine, as shown in the patent to Neumair, 1,721,527, July 23, 1929.

On the inner end of each of the rods 34 is mounted a horizontal, bifurcated and slotted tucking plate 35, while the hollow shafts 33 carry blocks 36 on which are mounted the folding fingers 37 and 37*a*, respectively. Finger 37*a* on the left has a differently shaped end from that of finger 37 on the right, the latter being intended for the pointed end of the cigar while the former is intended for the blunt end. Fingers 37 and 37*a* are pivoted on blocks 36 by means of pins 38. While finger 37 has an ordinary round pivot hole, finger 37*a* is provided with a slot 39 containing a tension spring 40 in order to permit axial movement of finger 37*a* to suit varying lengths of cigars. Fingers 37 and 37*a* rest on rollers 41 carried by supports 42 mounted on frames 20, finger 37 being held in tension by a coil spring 43 and finger 37*a* by a leaf spring 44. To prevent opening of the cigar envelope, the longitudinal seam is sealed by means of sealing plate 45 mounted on arms 22 and having the heating units 46. The male creasing dies 30 are likewise heated, by means of heating units 47.

The successive stages of folding the ends of the cigar envelope are shown in Figs. 4 to 14. When a cigar C with its envelope has arrived at the folding station of the turret, the rods 34, which are normally in their outer position, Fig. 4, to clear the turret with its cigar packages, move inwardly towards the cigar, Fig. 6, thereby bringing the tuck plates 35 over the ends of the cigar envelope E which is open at its ends, Fig. 5, and tucking its sides inward, as shown in Fig. 7. As the tuck plates 35 advance, the male and female creasing dies 30 and 31 start coming towards each other, Fig. 6, but leave enought room to allow the passing of the tuck plates. As soon as the latter, on their return motion, have cleared the creasing dies, they close, Fig. 8, and thereby crease the ends of the cigar envelope and, as the male dies 30 are heated, the crease so formed is permanent, Fig. 9. Sealing plate 45 which moves down on the cigar simultaneously with the creasing dies, at the same time seals the longitudinal seam of the envelope. Thereupon the creasing dies 30 and 31 separate and hollow shafts 33, through guide blocks 36, move the folding fingers 37 and 37*a* towards the creased cigar envelope E, the lower sides of fingers 37 and 37*a* acting as cams in contact with rollers 41, as shown in Fig. 10. The finger 37 is thereby lifted so as to bend the crease of the forward fold over the point of the cigar C, giving the finished package the appearance shown in Figs. 11 and 12. Finger 37*a*, actuated in a similar manner, pushes the crease of the rear fold towards the blunt end of the cigar, as shown in Fig. 13, resulting in a package end of the appearance shown in Fig. 14.

If the cigars to be enveloped have pointed rear as well as front ends, the finger 37*a* shown at the rear or left ends in the accompanying drawings is replaced by a finger 37 indentical with that shown at the forward or right ends of the respective drawings.

The operation of the machine illustrated in carrying out the novel method is as follows:

When a cigar C with its envelope has arrived at the end folding station of the turret, the longitudinally reciprocating rods 34 which are normally at their outward position to clear the turret with its cigar packages, move inwardly towards the cigar ends, thereby bringing the forked tuck plates 35 over the ends of the cigar envelope. This results in tucking in opposite sides of the overhanging material of the cigar envelope along the end of the cigar as shown in Fig. 7. As the tuck plates 35 advance, male and female creasing dies 30 and 31 come towards each other until they are separated just enough to permit passage of the tuck plates. The tuck plates then withdraw, the overhanging material retaining its tucked formation until engaged by the opposed surfaces of the creasing dies which then close and crease the ends of the cigar envelope and by reason of the fact that male die 31 is heated, they are permanently creased. As the creasing dies separate the hollow shaft or sleeve 33 on which the folding finger 37 is mounted, approaches the end of the cigar, causing longitudinal movement of said finger relative to the cigar. As the finger approaches the cigar, it is given a transverse movement across the axis of the cigar by the roller 41 and engages the central projecting flap formed by the crimping dies near the base of said flap and smoothes or irons the flap which is still hot and sticky and presses and smooths it back over the end of the cigar. The contour of the cam surface on the finger is such that as it rides over a stationary pin or roller 41, it follows the contour of the end surface of the cigar. By properly shaping this cam surface and the cam which reciprocates shaft 33, the folding surfaces 37 and 37*a* of the folding finger can be caused to follow the contour of any shape of cigar end, even a square or blunt end exactly or at any desired distance therefrom, it being even possible to seal down the end flap against the somewhat stiff folded end of the cellophane envelope without exerting pressure on the cigar end.

It will be noted that the foregoing construction makes possible complete end folding and sealing and ironing or laying the sealed flap against the package end and sealing it there, all at one station, the T-shaped construction of the end folder permitting a stem thereof to pass up between the fork of the tucker plates. Also that this simple folding finger while inoperative, is withdrawn below or to one side of the axis of the cigar, providing clearway for the tucker plates, this being possible by reason of the combined transverse and longitudinal movement thereof.

It is also noted that by reason of the fact that the folding fingers 37 and 37*a* act immediately upon the withdrawal of the heated crimpers 30, they press the heated inner surface of the flap formed by said crimpers against the package end before said flap has time to cool, thereby causing adherence of said surface against the end of the package making a neater package than any in which an outstanding flap is left. The effectiveness of this folding finger is enhanced by the fact it returns along the same combined transverse and longitudinal path and thereby twice irons or smooths down the flap. Since the finger is held in its path following the contour of the cigar end by resiliently pressing the cam surface against the cam roller 41, if the cigar contour varies from that for which the machine is set, no harm will be done since the finger will yield and continue to follow the different contour. A particular feature of the folder actuating means is that the combined longitudinal and transverse movement and turning back and ironing of the flap and the return movement of the folder are all derived

from a simple horizontal reciprocation of the shaft 33, making possible the use of this device as an attachment on any folling machine such as that illustrated.

What is claimed is:

1. In a cigar enveloping machine, the combination with a support for a cigar having a pointed end and a blunt end and encircled by an envelope, of means for tucking the ends of the envelope, mechanism for simultaneously closing, creasing and heating the ends of the envelope, means for turning over and pressing one of the envelope ends against the blunt end of the cigar to heat seal it to the envelope, and mechanism for turning the other envelope end over on the pointed end of the cigar to heat seal it to the envelope.

2. In a cigar enveloping machine, the combination with a support for a cigar having a pointed end and a blunt end and encircled by an envelope, of mechanism for simultaneously closing, creasing and heating the ends of the envelope, means for turning over and pressing one of the envelope ends against the blunt end of the cigar to heat seal it to the envelope, and mechanism for turning the other envelope end over on the pointed end of the cigar to heat seal it to the envelope.

3. In a cigar enveloping machine, the combination with a support for a cigar encircled by an envelope having a longitudinal seam, of means for sealing the longitudinal seam of the envelope and forming creased ends on the envelope, said means including a heated sealing plate having its lower edge shaped to the longitudinal curvature of the cigar, heated male dies attached to the ends of said plate, and female dies cooperating with said male dies.

4. Means for sealing the longitudinal seam of an envelope encircling a cigar and forming creased ends on the envelope, comprising a heated sealing plate having its lower edge shaped to the longitudinal curvature of the cigar, heated male dies attached to said plate, and female dies cooperating with said male dies.

5. Means for sealing the longitudinal seam of an envelope encircling a cigar and forming creased ends on the envelope, comprising a heated sealing plate having its lower edge shaped to the longitudinal curvature of the cigar and dies attached to said plate.

6. In a cigar enveloping machine, the combination with a support for a cigar encircled by an envelope having a longitudinal seam, of devices for tucking the ends of the envelope, means for sealing the longitudinal seam of the envelope and transversely creasing the tucked envelope ends, said means including a heated sealing plate having its lower edge shaped to the longitudinal curvature of the cigar, heated male dies attached to the ends of said plate and female dies cooperating with said male dies, and mechanism for ironing the creased and heated envelope ends back over the ends of the cigar.

7. In a cigar enveloping machine, the combination with a support for a cigar encircled by an envelope having a longitudinal seam, of devices for tucking the ends of the envelope, means for sealing the longitudinal seam of the envelope and transversely creasing the tucked envelope ends, said means including a heated sealing plate having its lower edge shaped to the longitudinal curvature of the cigar, heated male dies attached to the ends of said plate and female dies cooperating with said male dies, and mechanism for ironing the creased and heated envelope ends back over the ends of the cigar, said mechanism including rigid folding fingers arranged adjacent the ends of the cigar and provided with cam surfaces on their lower edges, reciprocable supports on which said fingers are pivoted, and stationary rollers engaging said cam surfaces, whereby said fingers are moved to follow the contour of the cigar ends and press and smooth the envelope ends on the envelope.

8. Means for turning back and ironing a projecting envelope flap against the blunt end of an article, comprising a slotted folding finger provided with a cam surface on its lower edge, a reciprocable block provided with a pivot pin entering the slot in said finger, a spring interposed between said pin and one end of the slot, and a stationary roller engaging said cam surface, whereby reciprocation of said block will cause said finger to press and smooth the flap back on the blunt end of the article.

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