May 27, 1930. H. H. WHEELER 1,760,615

BANDING ATTACHMENT FOR CIGAR ENVELOPING MACHINES

Filed April 4, 1928 3 Sheets-Sheet 1

Fig. 1.

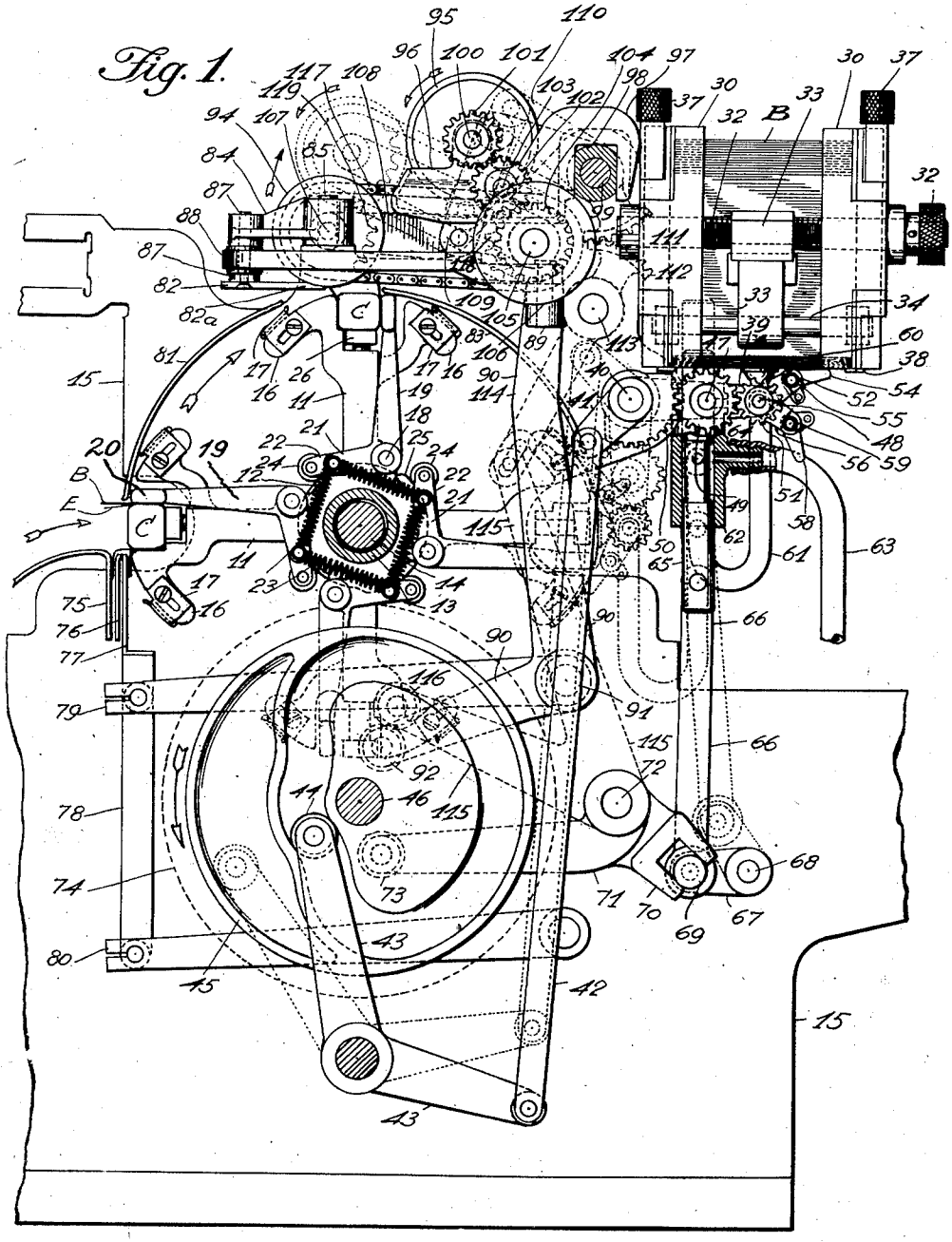

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Fig. 2.

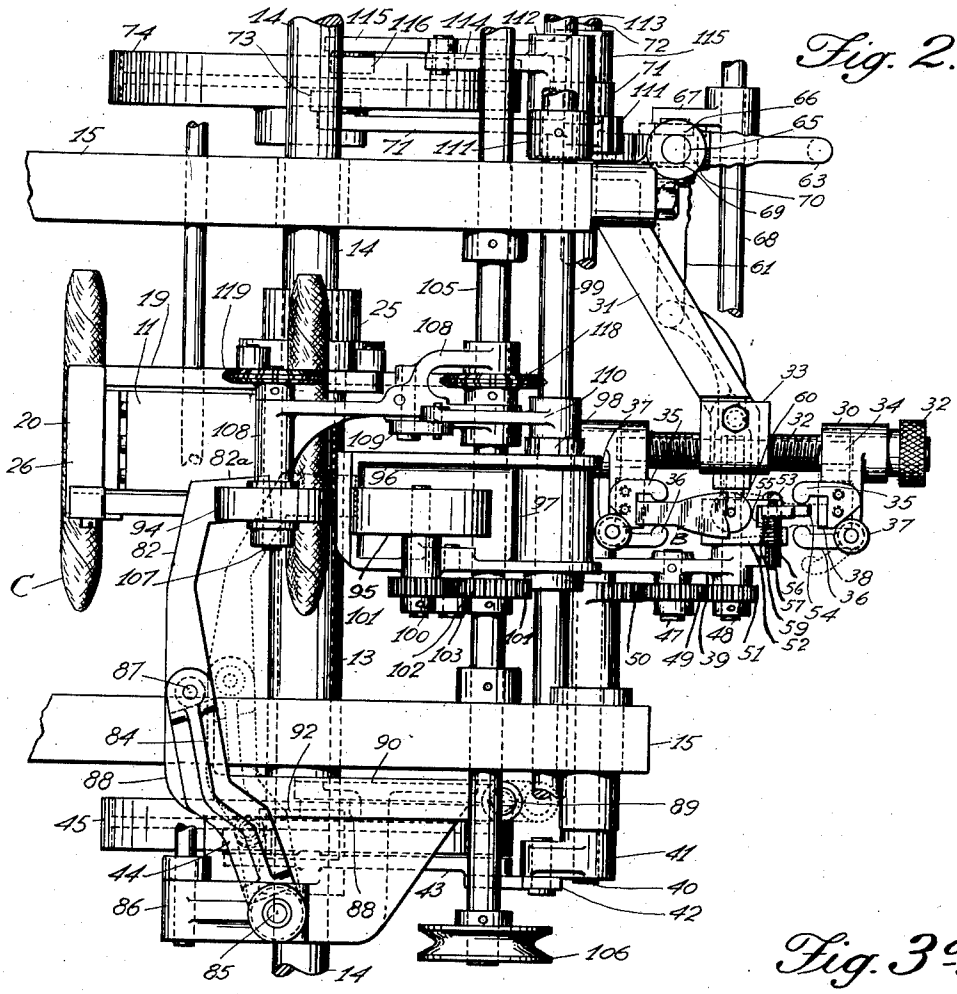

Fig. 3.

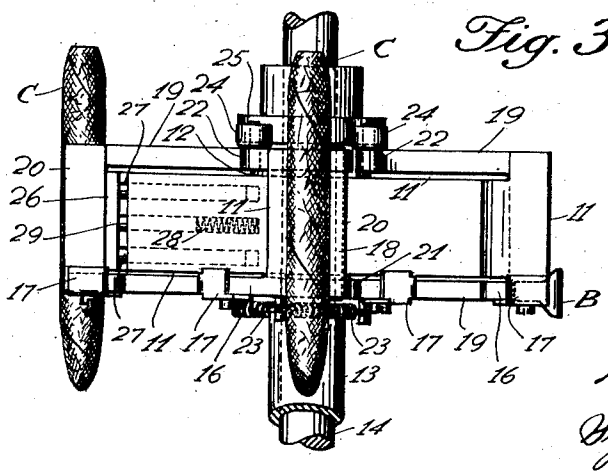

Fig. 3a.

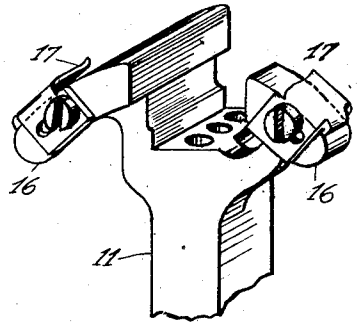

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Fig. 4.

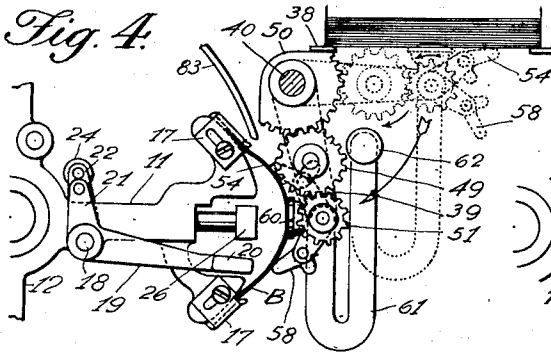


Fig. 5.

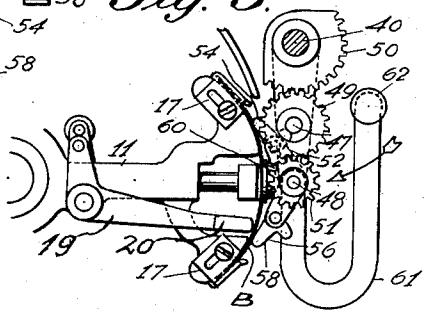


Fig. 6.

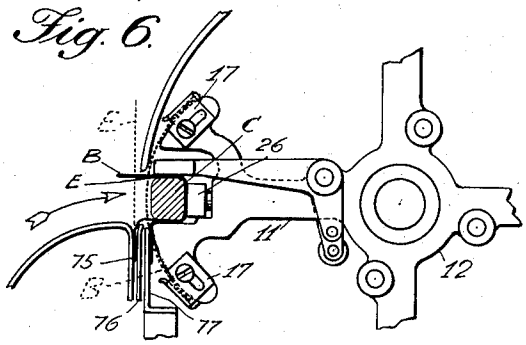


Fig. 7.

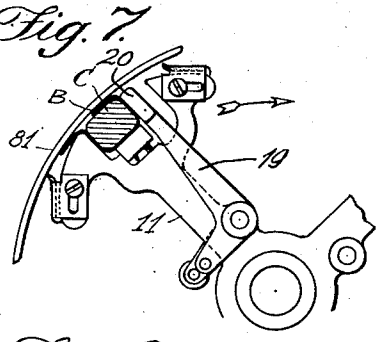


Fig. 8.

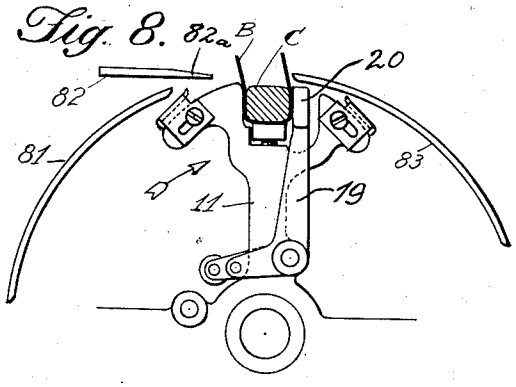


Fig. 9.

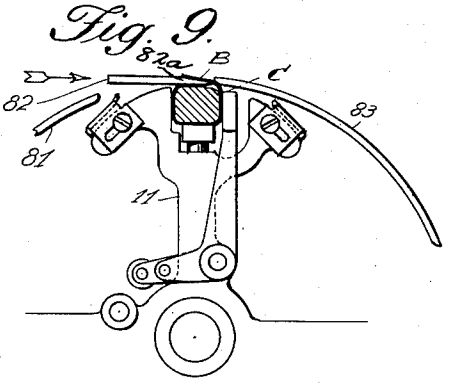
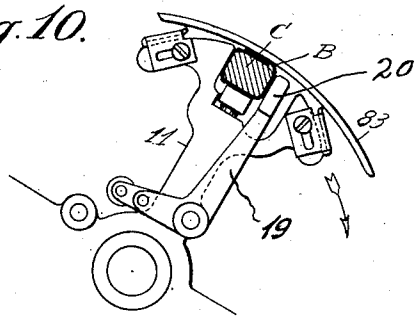


Fig. 10.



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Patented May 27, 1930 1,760,615

UNITED STATES PATENT OFFICE

HENRY H. WHEELER, OF BROOKLYN, NEW YORK, ASSIGNOR TO INTERNATIONAL CIGAR MACHINERY COMPANY, A CORPORATION OF NEW JERSEY

BANDING ATTACHMENT FOR CIGAR-ENVELOPING MACHINES

Application filed April 4, 1928. Serial No. 267,461.

This invention relates to a banding attachment for cigar enveloping machines, the present device being particularly adapted for use as an attachment to an enveloping machine such as that disclosed in my co-pending application filed July 2, 1927, and serially numbered 203,082. A principal object of this invention is to provide for wrapping an assemblage consisting of a band and envelop around the cigar, instead of wrapping the band and the envelop separately about the cigar as done heretofore. Another object is to provide means for this purpose which will be applicable to machines similar to that disclosed in the above mentioned application, and in which the mechanism supporting and transferring the cigar for wrapping by the envelop will also serve to support and transfer the cigar for wrapping by the band.

The cigar enveloping machine above referred to is provided with a rotating turret, the arms of which receive the cigars and the envelops at a receiving station, and carry them through one-half of a revolution to a discharge station, the envelop ends being folded and sealed at an intermediate station.

The device described herein feeds a cigar band to each turret arm before it receives a cigar and its envelop, and circumferentially folds and seals this band around the cigar with the envelop.

For this purpose, the bands, taken one by one from a magazine by an arm provided with a suction-head, are inserted into holders or clips, provided on each turret-arm in such position that the bands are held in arched form substantially coinciding with the periphery of the turret and extending over the turret pockets, this insertion taking place at the cigar-discharging station, immediately after an enveloped and banded cigar has been ejected from the turret-arm. At the cigar and envelop receiving station, the incoming cigar pushes the band into the turret-pocket, thereby folding it around three sides of the cigar. At the intermediate station, while the envelop ends being sealed in the manner fully disclosed in the application referred to, a cam-operated finger pushes the trailing end of the band over the fourth side of the cigar and, having previously been in contact with an oscillating roller carrying moisture from a drum revolving in a water-receptacle, moistens the gum on the leading end of the band. A stationary folding plate, extending from the intermediate station to the discharge station of the turret, pushes the leading end of the band down over the previously folded trailing end and holds it in place while the gum is drying.

In the accompanying drawings:

Fig. 1 is a side elevation of a portion of the enveloping machine showing the various parts of the banding attachment in place, the dotted lines showing the other positions of the movable parts;

Fig. 2 is a top view of the banding mechanism shown in Fig. 1;

Fig. 3 is a top view of the turret;

Fig. 3ª is a perspective view of the end of one of the turret arms, showing the band holding clips; and

Figs. 4 to 10 are fragmental side elevations of the turret showing the different stages of the banding operation.

In carrying out the invention, there is provided a mechanism for wrapping assemblages of bands and envelops circumferentially about the cigars with the bands outside the envelops, and there is also provided means for presenting bands to said mechanism for assemblage with the envelop. In the best constructions, the means for presenting the bands to the mechanism are operative to present each band to said mechanism before the latter receives the envelop for the assemblage. This means is further operative to present bands to the mechanism at a point other than that at which it receives the envelops. The method used in applying the bands to the cigars consists in assembling the bands and envelops and then wrapping the assemblages circumferentially about the cigars with the bands outside the envelops. In the best constructions, a rotating turret is provided having pockets for supporting the cigars, and coacting folding devices are provided for wrapping the bands circumferentially about the cigars in the pockets, and means are also provided for pre-

senting each band to the turret before the latter receives the cigar.

Referring to Figs. 1 to 3, the turret of the enveloping machine includes arms 11 extending from the hub 12, the latter being mounted on a sleeve 13 of a shaft 14, which is supported in the frame 15 of the machine. The arms 11, near the periphery of the turret, form one side of the cigar receiving pockets and have arcuate circumferential extensions 16 which carry adjustable band receiving clips 17 (see Fig. 3ª). Near the hub, each arm 11 carries an axially disposed stud 18, upon each end of which is pivoted a movable arm 19, the connected outer ends 20 of which form the other side of the respective cigar pocket. The arms 19 have lateral extensions 21 and 22 extending across the arms 11, one at each side, the front extensions 21 of the different arms being connected together by springs 23 to make them bear resiliently against cigars in the pockets, while the rear extensions 22 carry rollers 24 which, when resting on a cam 25 mounted on the shaft 14, take up the pressure of the springs 23 and serve to open the movable jaws 20 of the pockets for removal of cigars. The bottoms of the cigar receiving pockets of the turret are formed by plungers 26 mounted on guide pins 27 slidable in radial holes of the arms 11 and pressed outward by springs 28 bearing against studs 29 attached to the plungers 26.

The bands B are stacked in a magazine 30, which is supported by a bracket 31 attached to the frame 15 of the enveloping machine. The magazine is made adjustable for different sizes and shapes of bands by means of movable end frames 30, controlled by an adjusting screw 32, which is journaled in a supporting block 33 and has right and left hand threads, in order to move the end frames 30 equidistantly from the center of the magazine for different lengths of bands. The end frames 30 slide on a guide pin 34 supported in the block 33. Each end frame has a fixed jaw 35 and a movable jaw 36, the latter being hinged on clamp screw 37, in order that they may be set for varying widths of band ends. The tips of the bands in the magazine rest on plates 38 attached to the bottom of the end frames 30.

At each step of the turret, a band B is taken from the bottom of the magazine 30 and deposited in the clips 17 of a turret-arm by a transfer arm 39 mounted on a shaft 40 of the enveloping machine. The shaft 40 has an arm 41 connected by a rod 42 to one arm of a bell-crank 43, the other arm of which carries a roller 44 engaging a cam 45 on a shaft 46. At each revolution of the cam 45, corresponding to one forward step of the turret 11, which is driven from shaft 46 by a Geneva gear (not shown) having as many drive-slots as there are turret arms, the transfer arm 39 is turned through a right angle into the position shown in dotted lines in Fig. 1.

The transfer arm 39 has a stud 47 and a shaft 48, the former carrying a gear-wheel 49 meshing with a stationary segment 50 centered on the shaft 40, while to the latter is pinned the gear 51 meshing with the gear 49. To the shaft 48 is also clamped a forked block 52 to which is pivoted, by a screw 53, a dog 54 which is held under tension against the cigar band by a spring 55. An angular extension 56 of the arm 39 carries a shouldered pin 57 on which is pivoted a similar dog 58 tensioned by a spring 59 to press the band when the arm 39 is in the position shown in Figs. 4 and 5.

To the block 52 is also attached the suction-head 60 connected by a flexible tube 61 to a suction-valve 62, which has a hose-connection 63 to a vacuum pump, not shown, and is provided with an air inlet 64 and in which slides plunger 65, having reduced and enlarged portions controlling the flow of air and connected by rod 66 to an arm 67 pivoted on a shaft 68 of the enveloping machine. The arm 67 has a pin 69 engaging a fork 70 of a lever 71 fulcrumed on a shaft 72 and carrying a roller 73 engaging a cam 74 on the shaft 46.

As the arm 39 is moved into the dotted position by the cam 45, the block 52 is turned by the gear 51 in the direction of the arrow shown in Fig. 4 so that, when the arm 39 approaches the turret arm, both dogs 54 and 58 bear resiliently against the band B carried by the suction-head 60, thereby bending the ends of the band away from said suction-head into proper position to enter the clips 17 of the turret-arm into which they are fully inserted by the dogs in the extreme position of the arm 39, as shown in Fig. 5. When this position is reached, the suction-valve plunger 65 is at the upper end of its stroke, at which it shuts off the air connection to tube 61 and connects tube 63 with the air-opening 64, thereby releasing the suction of the head 60.

The band B having been delivered to the turret arm, the latter carries the same to the cigar receiving station in the diametrically opposite position of the turret arm. At this station, the incoming cigar C pushes the envelop E, which is fed downwards from a reel and is held between guides 75 and 76 against the band B held in the clips 17, and carries both into the turret pocket, the envelop E being cut off as soon as the advancing cigar C commences to move the resilient plunger 26 of the turret-arm, the plunger then holding the envelop firmly against the cigar.

When the cigar C is fully inserted into the turret pocket, the band B surrounds three sides of the cigar, the ends having been pulled out of the clips 17, the upper end

then extending horizontally from the turret pocket and the lower end resting vertically against the movable folding plate 77, as shown in full lines in Fig. 6, the dotted lines showing the position of the envelop E and of the band B before the cigar C has entered the turret pocket.

The folding plate 77 is attached to a block 78, supported by cam-operated parallel levers 79 and 80, and serves to fold the lower flap of the envelop E over the cigar C, as soon as the latter has entered the turret pocket.

When the turret then advances, the band-ends are held down, as shown in Fig. 7, by the stationary folding plate 81, which functions to fold down and hold in position the upper flap of the envelop while the turret arm moves to the envelop folding station. Having arrived at this station, at the top of the turret, the band-ends B emerge from the folder 81 and stand up substantially straight, as indicated in Fig. 8.

While the envelop ends are being folded at this position of the turret arm, the band folding finger 82^a is moved forward, as shown by the arrow in Fig. 9, thereby folding one end of the band B over the cigar C and pushing the overhang of the other end against and partly under a stationary band-folder 83, thus causing the upper band-end to bend down and touch the top of the finger 82^a. The upper end of the band being gummed on the inside, and the top of finger 82^a having previously received a charge of moisture, the latter operation serves to moisten the gum so that the band will become sealed as soon as the further advance of the turret brings the overlapping end fully under the folder 83, which holds it down upon the first-folded end, as shown in Fig. 10, while the turret-arm moves into the discharge position where the banded cigar is ejected and a new band is inserted.

The band folding finger 82^a forms the angular end of the bar 82 (Figs. 1 and 2) attached to an arm 84 pivoted on a stud 85 carried by a bracket 86. The arm 84 has a pin 87 on which is pivoted the link-bar 88 held on a pin 89 carried by the vertical arm of a bell-crank lever 90 fulcrumed on a shaft 91, and having on its other arm a roller 92 engaging the cam 74 on the shaft 46. The motion of the cam 74 thus causes a horizontal back and forth movement of the link-bar 88 which, in turn, produces the required oscillation of the arm 84 about the stud 85.

In its rearward position, the finger 82^a receives moisture by contact with an oscillating roller 94 which, at the upward end of its stroke, wipes against a drum 95 revolving in a water receptacle 96. The latter has a forked lug 97 by which it is hung from a flat cut into a sleeve 98 on a shaft 99, so that it can be readily removed for cleaning and refilling. The drum 95 is mounted on a stud 100 which carries a gear 101 in mesh with a gear 102 on a stud 103, both studs 100 and 103 being attached to the water receptacle 96. The gear 102 is driven by a gear 104 on a shaft 105, which is rotated by a pulley 106 connected by a belt with a pulley on one of the revolving shafts of the enveloping machine.

The moisture transfer roller 94 is supported on a shaft 107 carried by an arm 108 which is pivoted on the shaft 105 and connected by a link 109 to an arm 110 on the shaft 99. The shaft 99 has a rocking motion imparted to it by gear segments 111 and 112, the latter being fulcrumed on a shaft 113 and having an arm 114 in engagement with a bell-crank 115 which carries a roller 116 controlled by the cam 74 on the shaft 46. The roller 94 is rotated by a chain 117 running over sprockets 118 and 119 on the shafts 105 and 107 respectively.

The rollers 94 and 95 may preferably be provided with a facing of felt or other moisture-absorbing material so that they will, under any climatic condition, retain sufficient moisture to seal the band.

By simply omitting the envelopes, the machine, without change, may be used for cigar banding alone.

What is claimed is:

1. The combination with mechanism for wrapping assemblages of bands and envelops circumferentially about cigars with the bands outside the envelops, of means for presenting bands to said mechanism for assemblage with envelops.

2. The combination with mechanism for wrapping assemblages of bands and envelops circumferentially about cigars with the bands outside the envelops, of means for presenting bands to said mechanism for assemblage with envelops, said means being operative to present each band to said mechanism before the latter receives an envelop for the same assemblage.

3. The combination with mechanism for wrapping assemblages of bands and envelops circumferentially about cigars with the bands outside the envelops, of means for presenting bands to said mechanism for assemblage with envelops, said means being operative to present bands to said mechanism at a point other than that at which it receives envelops.

4. The combination with mechanism for wrapping assemblages of bands and envelops circumferentially about cigars with the bands outside the envelops, of means for presenting bands to said mechanism for assemblage with envelops, said mechanism having a cigar discharge station, and said means being operative to present bands to said mechanism at said station.

5. The combination with mechanism for wrapping assemblages of bands and envelops

circumferentially about cigars with the bands outside the envelops, of means for presenting bands to said mechanism for assemblage with envelops, said mechanism having an envelop receiving station, and said assemblages being made at said station.

6. The combination with mechanism for wrapping assemblages of bands and envelops circumferentially about cigars with the bands outside the envelops, of means for presenting bands to said mechanism for assemblage with envelops, said means being operative to present bands in arched form to said mechanism for subsequent assemblage with envelops.

7. The combination with mechanism for wrapping assemblages of bands and envelops circumferentially about cigars with the bands outside the envelops, of means for presenting bands to said mechanism for assemblage with envelops, said means including a band magazine, and means for transferring bands from said magazine to said mechanism.

8. The combination with mechanism for wrapping assemblages of bands and envelops circumferentially about cigars with the bands outside the envelops, of means for presenting bands to said mechanism for assemblage with envelops, said means including a band magazine, and a suction-head and coacting device receiving bands in flat form from said magazine and turning and delivering them in arched form to said mechanism.

9. The method of applying bands to cigars, which consists in assembling bands and envelops, and wrapping the assemblages circumferentially about cigars with the bands outside the envelops.

10. The combination with a rotating turret having cigar supporting pockets and coacting folding devices for wrapping bands circumferentially about cigars in said pockets, of means for presenting each band to said turret before the latter receives a cigar to be encircled by said band, said turret having a cigar discharge station, and said means being operative to present bands to said turret at said station.

11. The combination with a rotating turret having cigar supporting pockets and coacting folding devices for wrapping bands circumferentially about cigars in said pockets, of means external to the turret for presenting each band to said turret before the latter receives a cigar to be encircled by said band, said means being operative to present bands in arched form to said turret for subsequent assemblage with cigars.

12. The combination with a rotating turret having cigar supporting pockets and coacting folding devices for wrapping bands circumferentially about cigars in said pockets, of means for presenting each band to said turret before the latter receives a cigar to be encircled by said band, said means including a band magazine, and means including a swinging transfer arm for transferring bands from said magazine to said turret.

13. The combination with a rotating turret having cigar supporting pockets and coacting folding devices for wrapping bands circumferentially about cigars in said pockets, of means for presenting each band to said turret before the latter receives a cigar to be encircled by said band, said means including a band magazine, and a suction-head and coacting device receiving bands in flat form from said magazine and turning and delivering them in arched form to said turret.

14. The combination with a rotating turret having cigar supporting pockets and coacting folding devices for wrapping bands circumferentially about cigars in said pockets, of means for presenting each band to said turret before the latter receives a cigar to be encircled by said band, said turret having means for receiving the ends of bands in arched form and so holding them until assembled with cigars.

15. The combination with a rotating turret having cigar supporting pockets and coacting folding devices for wrapping bands circumferentially about cigars in said pockets, of means for presenting each band to said turret before the latter receives a cigar to be encircled by said band, said turret having oppositely disposed clips on opposite sides of said pockets for holding bands during a part of turret rotation.

16. The combination with a band magazine in which bands lie in flat form, of a suction-head and coacting device receiving bands from said magazine and delivering them in arched form with the ends of the bands foremost.

17. The combination with a band magazine in which bands lie in flat form, of a suction-head and coacting device receiving bands from said magazine, and means for swinging said head and device to cause them to turn and deliver bands in arched form.

18. The combination with mechanism for selectively wrapping circumferentially about cigars either bands alone or assemblages of bands and envelops with the bands outside the envelops, of means for presenting bands to said mechanism for assemblage with cigars.

In testimony whereof, I have signed my name to this specification.

HENRY H. WHEELER.