

Feb. 27, 1934.

R. J. BEUTEL

1,948,558

CIGAR TRANSFER FOR ENVELOPING AND BANDING MACHINES

Filed March 29, 1933

2 Sheets-Sheet 1

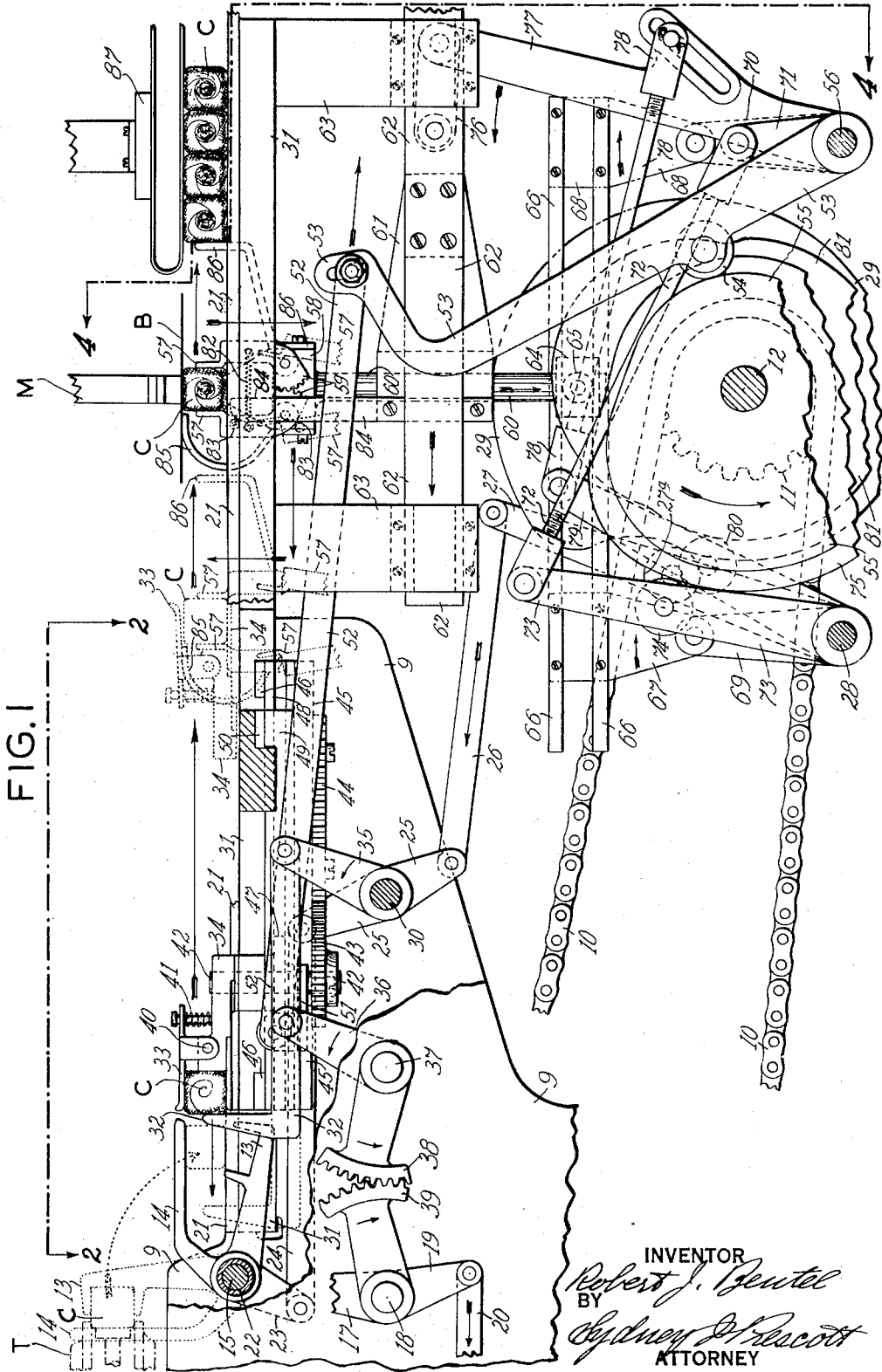


FIG. 1

INVENTOR  
Robert J. Beutel  
BY  
Sydney J. Prescott  
ATTORNEY

Feb. 27, 1934.

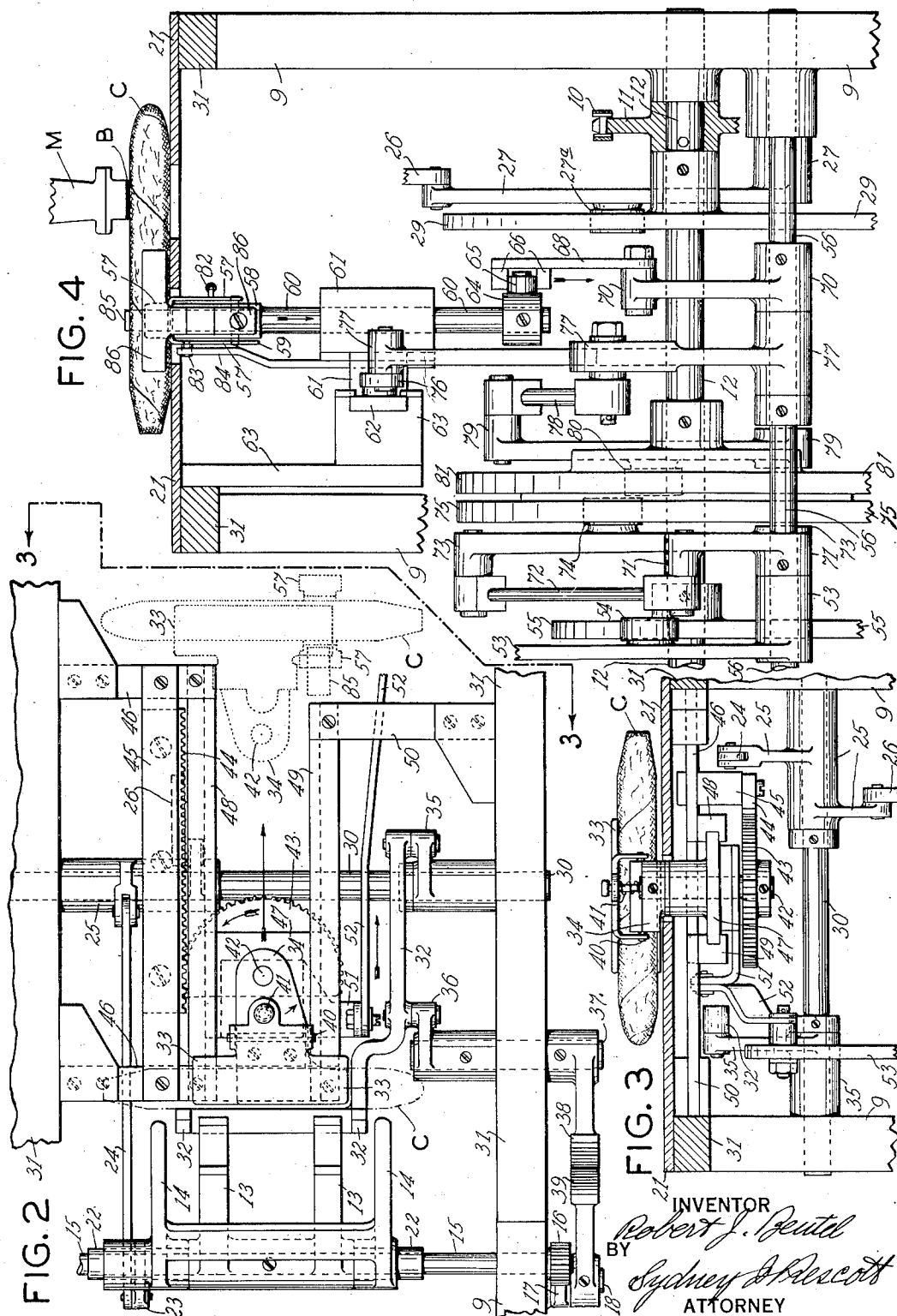
R. J. BEUTEL

1,948,558

CIGAR TRANSFER FOR ENVELOPING AND BANDING MACHINES

Filed March 29, 1933

2 Sheets-Sheet 2



## UNITED STATES PATENT OFFICE

1,948,558

## CIGAR TRANSFER FOR ENVELOPING AND BANDING MACHINES

Robert J. Beutel, Brooklyn, N. Y., assignor to  
International Cigar Machinery Company, a  
corporation of New Jersey

Application March 29, 1933. Serial No. 663,398

14 Claims. (Cl. 131—39)

This invention relates to automatic cigar transfer devices, its main object being to transfer a cigar from a cigar enveloping machine to a cigar banding mechanism, and at the same time turn the cigar 180 degrees about its transverse axis to reverse the cigar end for end so that it will be in the proper position to be banded when it arrives at band applying position.

In the process of enveloping and banding cigars it is absolutely necessary to keep them in the same right side up position as they were selected; accordingly a further object is to prevent them from being turned circumferentially while taken from one position to another, especially when the banding mechanism is located in such place that the cigar must be swung around about its axis in order to apply the band to the right part of the cigar.

These objects in the present invention are achieved by employing a set of grippers which swing the cigar received from the enveloping mechanism 180 degrees about its axis, whereupon a clamping device takes the cigar to the banding mechanism and holds the same during the banding operation. With these and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations 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 sectional side elevation of the complete cigar transfer mechanism;

Fig. 2 is a plan view of the set of grippers and its operating mechanism for reversing the cigar end for end taken on line 2—2 of Fig. 1, with the table removed;

Fig. 3 is an end elevation of Fig. 2 taken on line 3—3 of Fig. 2; and

Fig. 4 is an end elevation of the clamping device and its operating mechanism, taken on line 4—4 of Fig. 1.

In carrying the invention into effect there is provided means for gripping a cigar, mechanism for rotating said means one-half turn to reverse the gripped cigar end for end, and a clamping device for removing the cigar from said means after it is reversed and carrying it to band-applying position. In the best forms of construction contemplated said means includes a slide, a vertical shaft mounted in said slide, and a pair of connected relatively yieldable grippers, one of which is supported by the shaft, and said mechanism includes a semi-circular gear sector on said shaft, a stationary rack meshing with said gear sector, and means for intermittently reciprocating said slide and there-

by turning the gripped cigar through an angle of 180 degrees about its transverse axis, and said device includes a rod, a pair of relatively yieldable clamping fingers connected to said rod, means for intermittently separating said fingers to admit the reversed cigar between them and thereafter release it in band-applying position after it is banded, and mechanism for imparting a four-way motion to said rod to cyclically bring said fingers into clamping relation with the reversed cigar and then carry them with the cigar into band-applying position. These various means and parts may be widely varied in construction within the scope of the claims for the particular device selected to illustrate the invention is but one of many possible concrete embodiments of the same. The invention, therefore, is not to be restricted to the specific construction shown and described.

The cigar transfer device is operated from the main drive of a cigar enveloping machine such as disclosed in the patent to H. H. Wheeler, No. 1,899,174, granted Feb. 28, 1933, by means of a chain 10 driving a sprocket 11 actuating the cam shaft 12 (Fig. 1). The enveloped cigars C ejected from the turret T of said enveloping machine are delivered to the transfer device by means of swingable transfer arms 13 and 14 forming a part of the enveloping machine. Arms 13 are fixedly mounted on a shaft 15 loosely mounted in bearings of frame 9 and provided with pockets on their free ends to receive the cigar as it is ejected from the turret T, as shown in dotted lines in Fig. 1. Shaft 15 is actuated by means of a gear 16 (Fig. 2), oscillated from a gear sector 17 mounted on a shaft 18 which is operated by means of a lever 19 and link 20 from the main drive of the enveloping machine like shaft 12, thus assuring that cam shaft 12 and shaft 18 are operated in synchronism. When the arms 13 are swung downwardly they deliver the cigars C onto a table 21 and enter suitable slots provided in the table to receive them. The arms 14 are fixed on a sleeve 22 having a circumferential slot receiving the screw which secures the arms 13 to the shaft 15, and loosely supported on shaft 15, one of the arms 14 being equipped with an operating lever 23 receiving oscillating motion from a link 24 connected to a double lever 25 actuated through a link 26 from a cam lever 27 pivoted to a shaft 28 supported in bearings of main frame 9, thereby actuating both arms 14 in unison. Cam lever 27 carries a cam roller 27a engaging with a cam 29 mounted on cam shaft 12. Double lever 25 is loosely mounted on a shaft 30 supported in bearings of main frame 9.

After the cigar C is delivered onto the table 21, which is supported by rails 31 fastened to

frame 9, arms 13 move down through the slots in the table out of engagement with the cigar (Fig. 1) while arms 14 on the cigar rest and prevent the same from turning circumferentially. A hook-shaped pusher 32 then moves the cigar from beneath arms 14 and inserts it between the grippers 33 and 34. Pusher 32 is pivoted to a pair of parallel levers 35 and 36. Lever 35 is loosely mounted on shaft 30 while lever 36 is fastened to a shaft 37 oscillated by means of a gear sector 38 meshing with gear sector 39 mounted on oscillating shaft 18. Gripper 33 is pivoted to gripper 34 by pin 40, thereby forming a pocket in which the cigar C is inserted by pusher 32. Gripper 33 is held firmly against the cigar C in the pocket so formed by the action of a compression spring 41 coiled about a stop pin connecting the grippers 33 and 34. The latter is fixed on a vertical shaft 42 oscillated by means of a gear sector 43 engaging with a stationary rack 44 fastened to a supporting bar 45 attached to bars 46 which are held by lugs of rails 31. Vertical shaft 42 is turnably mounted on a slide 47 (Fig. 3), slidably mounted in grooves of guide rails 48 and 49. Rail 48 is also fastened to bars 46 while rail 49 is held by one of the bars 46 and by another bar 50 supported also by a lug of rail 31. To the bottom of slide 47 is fixed an operating plate 51 to which is pivoted a link 52 transmitting oscillating motion from a cam lever 53 which is actuated by means of a roller 54 from a cam 55 mounted on cam shaft 12, cam lever 53 being fulcrumed on a shaft 56 supported by bearings of frame 9. During the forward motion of sliding plate 47 actuated from cam lever 53, gear sector 42 is rotated one half-turn by the stationary rack 44, which causes shaft 42 and plates 33 and 34 to turn and thereby also swing the cigar 180 degrees around its transverse axis without turning the cigar circumferentially. The cigar C is then removed from the pocket formed by grippers 33 and 34 by means of a pair of clamping fingers 57, operated by mechanism which will be presently described, which take the cigar to the banding station and hold the same during the banding operation.

As soon as the cigar C is taken from the pocket formed by grippers 33 and 34, the latter return to their original position and stand ready to receive another cigar. The clamping fingers 57 are pivoted to a supporting head 58 and are connected to each other by means of gear sectors 59 thereby forming a pocket in which the cigar is transferred and held. Supporting head 58 is equipped with a guide rod 60 slidably supported in a guide bracket 61 attached to a horizontal carriage 62 slidably supported in brackets 63 mounted on one of the frame rails 31. Guide rod 60 on its lower end carries a collar 64 to which is pivoted a guide roller 65 engaging in a guide track 66 attached to lugs 67 and 68. Lug 67 is pivoted to a lever 69 loosely mounted on shaft 28. Lug 68 is pivoted to a lever 70 fixed on shaft 56 which is oscillated by means of lever 71, operated through a connecting rod 72 from a cam lever 73 carrying a cam roller 74 engaging with a cam 75 mounted on main cam shaft 12. The just described operating means for guide rod 60 causes the up and down movement of clamping fingers 57. The back and forth movement of the latter is controlled by means of the horizontal slide 62 which receives reciprocating motion through a link 76

from a lever 77 actuated through a connecting rod 78 from a cam lever 79 carrying a cam roller 80 which engages with a cam 81 mounted on main cam shaft 12. Cam lever 79 is pivoted to shaft 28.

After the cigar C is swung 180 degrees by the first set of transfer fingers to the dotted position indicated in Figs. 1 and 2, clamping fingers 57 come up, clamp the cigar and take the same to the banding mechanism M, where the cigar is held by fingers 57 until the band B is applied. Then clamping fingers 57 move downward and then backward again awaiting the arrival of a new cigar upon which fingers 57 will move upward again and repeat the same action as described. The path of travel of clamping fingers 57 is indicated by arrows in Fig. 1. Fingers 57 are equipped with a tension spring 82 causing clamping action of fingers 57. In order to open the latter when engaging with the cigar or withdrawing from the same, one of the fingers 57 is equipped with a roller 83 riding against a guide bar 84 which is fastened to guide bracket 61. Supporting head 58 carries a lifting finger 85 provided for the purpose of lifting gripper 33 (see dotted position in Fig. 1), off the cigar when fingers 57 engage with the same, thus preventing any injury of the cigar when the latter is taken out of the grippers by fingers 57. Supporting head 58 is furthermore equipped with a pusher finger 86 which during the forward motion of head 58 pushes the finished banded cigar between a tension guide 87 where the freshly applied bands are allowed to dry. During all the operation and movements, the cigar C is held firmly and in the right side up position so that the banded cigars can be repacked in the same box where they were taken from.

What is claimed is:

1. The combination with means for gripping a cigar, of mechanism for rotating said means one half-turn to reverse the gripped cigar end for end, and a clamping device for removing the cigar from said means after it is reversed and carrying it to band-applying position.
2. The combination with means for gripping a cigar, of mechanism for rotating said means one half-turn to reverse the gripped cigar end for end, and a clamping device for removing the cigar from said means after it is reversed and carrying it to band-applying position, said device including mechanism for causing said means to release the cigar after it is reversed.
3. The combination with means for gripping a cigar, of mechanism for rotating said means one half-turn to reverse the gripped cigar end for end, and a clamping device for removing the cigar from said means after it is reversed and carrying it to band-applying position, said means including a slide, a vertical shaft mounted in said slide, and a pair of connected relatively yieldable grippers, one of said grippers being supported by said shaft, and said mechanism including a semi-circular gear sector on said shaft, a stationary rack meshing with said gear sector, and means for intermittently reciprocating said slide and thereby turning the gripped cigar through an angle of 180 degrees about its transverse axis.
4. The combination with means for gripping a cigar, of mechanism for rotating said means one half-turn to reverse the gripped cigar end for end, and a clamping device for removing the cigar from said means after it is reversed

and carrying it to band-applying position, said device including a horizontally reciprocable carriage, a vertical rod reciprocably mounted in said carriage, a pair of relatively yieldable clamping fingers connected to said rod and adapted to clamp a cigar, means for intermittently reciprocating said carriage to bring said fingers underneath the reversed cigar, means for relatively separating said fingers, and means for raising said rod to bring the separated fingers into clamping relation with the reversed cigar.

5. The combination with means for gripping a cigar, of mechanism for rotating said means one half-turn to reverse the gripped cigar end for end, and a clamping device for removing the cigar from said means after it is reversed and carrying it to band-applying position, said device including means for releasing the clamped cigar in band-applying position after it is banded, and a pusher finger for moving the released cigar out of band-applying position.

6. The combination with means for gripping a cigar, of mechanism for rotating said means one half-turn to reverse the gripped cigar end for end, and a clamping device for removing the cigar from said means after it is reversed and carrying it to band-applying position, said device including a rod, a pair of relatively yieldable clamping fingers connected to said rod, means for intermittently separating said fingers to admit the reversed cigar between them and thereafter release it in band-applying position after it is banded, and mechanism for imparting a four-way motion to said rod to cyclically bring said fingers into clamping relation with the reversed cigar and then carry them with the cigar into band-applying position.

7. The combination with the cigar delivery transfer of a cigar enveloping machine, of means for gripping a cigar, a device for pushing the cigar from said transfer into said means, mechanism for rotating said means one half-turn to reverse the gripped cigar end for end, and a clamping device for removing the cigar from said means after it is reversed and carrying it to band-applying position.

8. The combination with the cigar delivering transfer of a cigar enveloping machine, of means for gripping a cigar, a device for pushing the cigar from said transfer into said means, mechanism for rotating said means one half-turn to reverse the gripped cigar end for end, and a clamping device for removing the cigar from said means after it is reversed and carrying it to band-applying position, said clamping device including mechanism for causing said means to release the cigar after it is reversed.

9. The combination with the cigar delivering transfer of a cigar enveloping machine, of means for gripping a cigar, a device for pushing the cigar from said transfer into said means, mechanism for rotating said means one half-turn to reverse the gripped cigar end for end, and a clamping device for removing the cigar from said means after it is reversed and carrying it to band-applying position, said device including means for releasing the cigar in band-applying position after it is banded, and a pusher finger for moving the released cigar out of band-applying position.

10. The combination with the cigar delivery

transfer of a cigar enveloping machine, of means for gripping a cigar, a device for pushing the cigar from said transfer into said means, mechanism for rotating said means one half-turn to reverse the gripped cigar end for end, and a clamping device for removing the cigar from said means after it is reversed and carrying it to band-applying position, said means including a slide, a vertical shaft mounted in said slide, and a pair of connected relatively yieldable grippers, one of said grippers being supported by said shaft, and said mechanism including a semi-circular gear sector on said shaft, a stationary rack meshing with said gear sector, and means for intermittently reciprocating said slide to turn the gripped cigar through an angle of 180 degrees about its transverse axis.

11. The combination with the cigar delivery transfer of a cigar enveloping machine, of means for gripping a cigar, a device for pushing the cigar from said transfer into said means, mechanism for rotating said means one half-turn to reverse the gripped cigar end for end, and a clamping device for removing the cigar from said means after it is reversed and carrying it to band-applying position, said device including a rod, a pair of relatively yieldable clamping fingers connected to said rod, means for intermittently separating said fingers to admit the reversed cigar between them and then release it in band-applying position after it is banded, and mechanism for imparting a four-way motion to said rod to cyclically bring said fingers into clamping relation with the reversed cigar and then carry them with the cigar into band-applying position.

12. The combination with means for gripping a cigar, of mechanism for rotating said means one half-turn to reverse the gripped cigar end for end, said means including a slide, a vertical shaft mounted in said slide, and a pair of connected relatively yieldable grippers, one of said grippers being supported by said shaft, and said mechanism including a semi-circular gear sector on said shaft, a stationary rack meshing with said gear sector, and means for intermittently reciprocating said slide and thereby turning the gripped cigar through an angle of 180 degrees about its transverse axis.

13. A clamping device for carrying a cigar into band-applying position, comprising a horizontally reciprocable carriage, a vertical rod reciprocably mounted in said carriage, a pair of relatively yieldable clamping fingers connected to said rod and adapted to clamp a cigar, means for intermittently reciprocating said carriage to bring said fingers underneath a cigar, means for relatively separating said fingers, and means for raising said rod to bring the separated fingers into clamping relation with the cigar.

14. A clamping device for carrying a cigar into band-applying position, comprising a rod, a pair of relatively movable clamping fingers connected to said rod, means for intermittently separating said fingers to admit a cigar between them and thereafter release the cigar in band-applying position after it is banded, and mechanism for imparting a four-way motion to said rod to cyclically bring said fingers into clamping relation with a cigar and then carry them with the cigar into band-applying position.

ROBERT J. BEUTEL.