April 29, 1930. H. H. WHEELER 1,756,843

CIGAR TRANSFERRING MACHINE

Filed Aug. 30, 1928 3 Sheets-Sheet 1

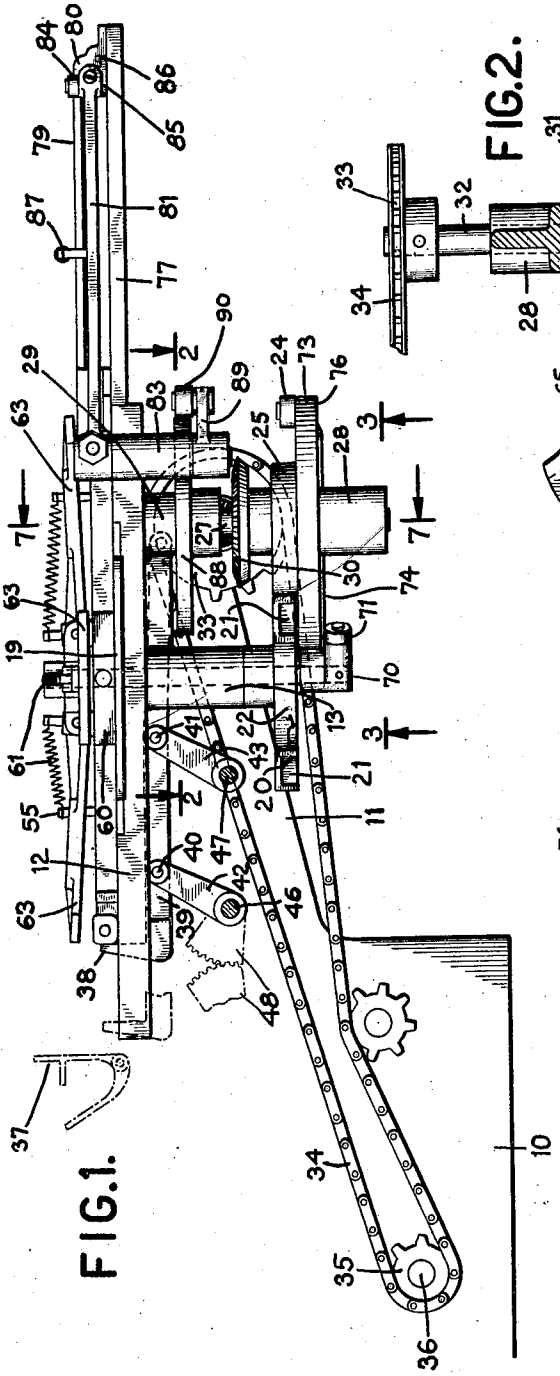


FIG. 1.

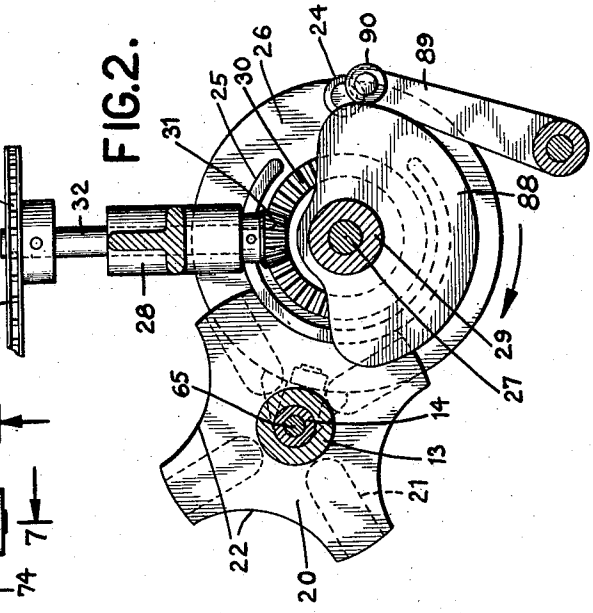


FIG. 2.

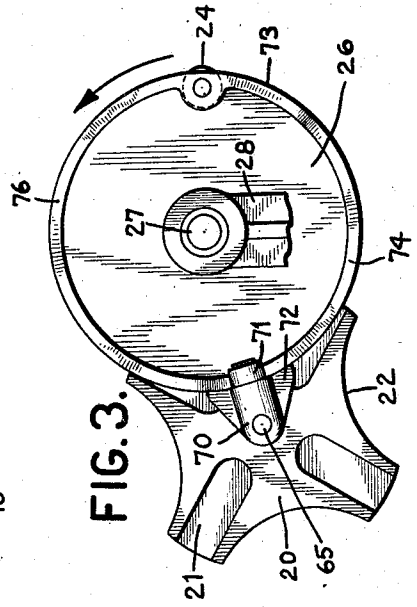


FIG. 3.

Inventor
HENRY H. WHEELER.

By his Attorneys
Cooper, Kerr & Dunham

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CIGAR TRANSFERRING MACHINE

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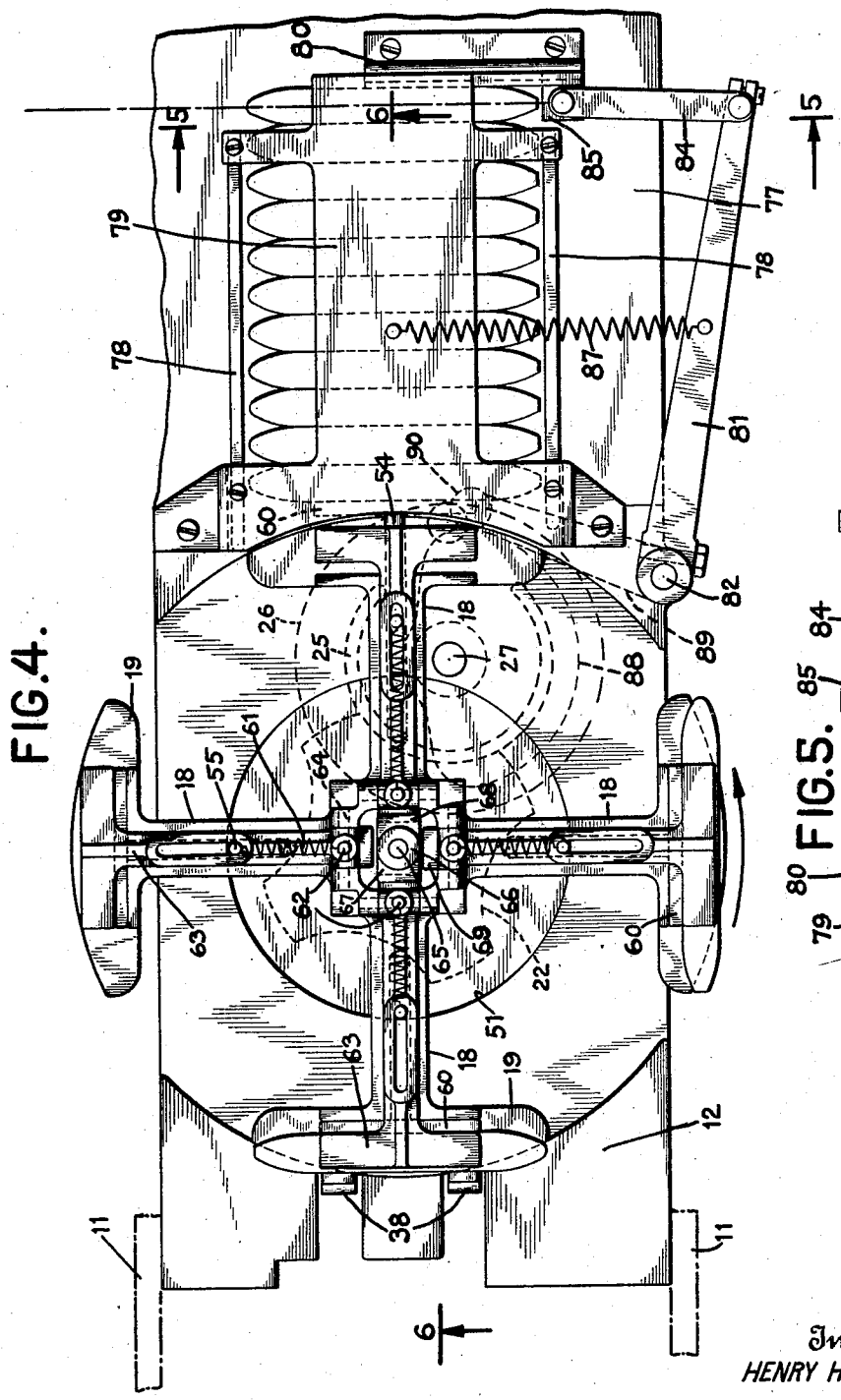


FIG. 4.

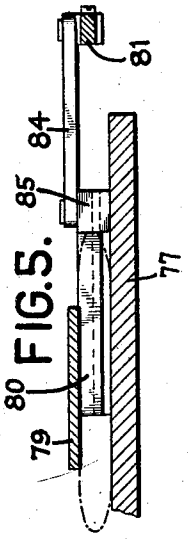


FIG. 5.

Inventor
HENRY H. WHEELER.

By his Attorneys
Cooper, Kerr & Dunham

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CIGAR TRANSFERRING MACHINE

Filed Aug. 30, 1928 3 Sheets-Sheet 3

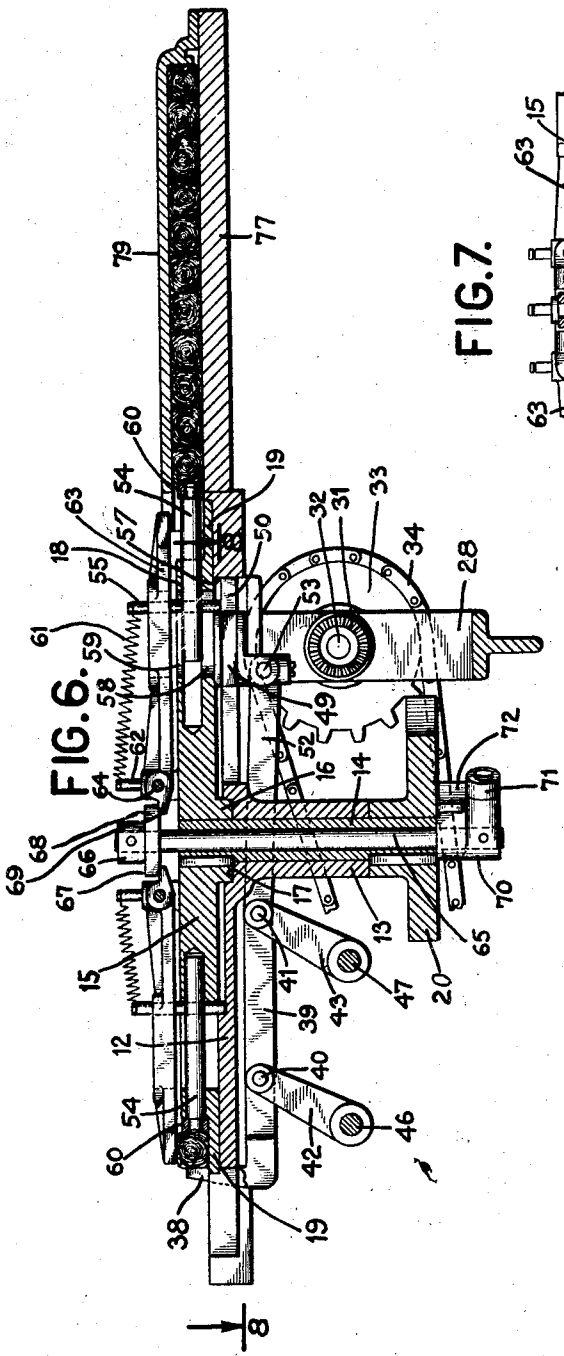


FIG. 6.

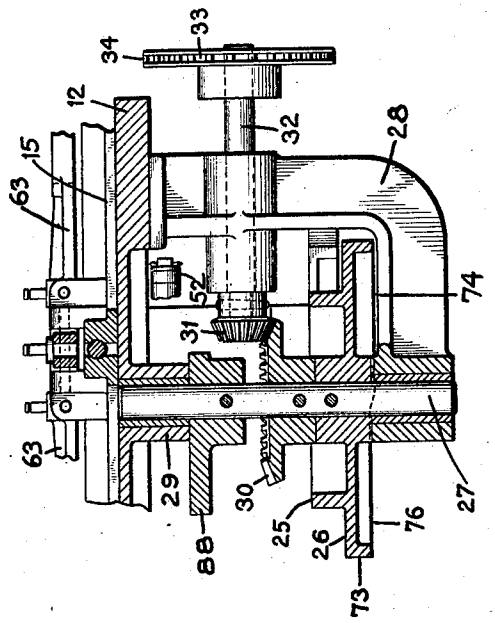


FIG. 7.

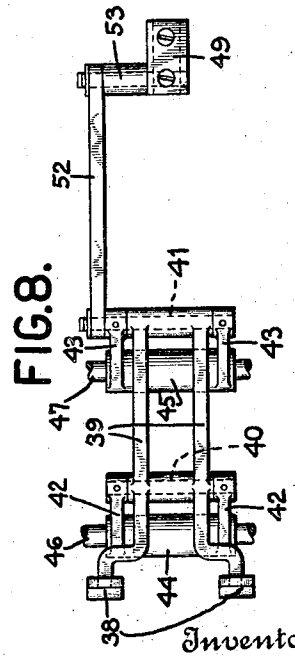


FIG. 8.

Inventor
HENRY H. WHEELER.

By his Attorneys
Cooper, Kerr & Dunham

Patented Apr. 29, 1930 1,756,843

UNITED STATES PATENT OFFICE

HENRY H. WHEELER, OF BROOKLYN, NEW YORK, ASSIGNOR TO GENERAL CIGAR COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

CIGAR-TRANSFERRING MACHINE

Application filed August 30, 1928. Serial No. 303,001.

This invention relates to a machine or device for transferring a cigar from one station to another station, and more particularly to a device for receiving cigars from a cigar foiling machine and automatically feeding them to a cigar banding machine.

Heretofore, the practice has been to accomplish the transfer of cigars from a foiling machine to a banding machine by the agency of an operative who received the cigars being delivered from a foiling machine and individually fed them to a banding machine.

It is among the objects of this invention to enable the necessity of an operative between a cigar foiling machine and a cigar banding machine to be dispensed with and to provide an automatically operating device capable of carrying out the operation of transferring cigars from one machine to the other.

Other objects involving novel constructions and combinations of parts will appear in the specification and in the claims thereof setting forth a preferred embodiment of my invention which may be fully understood from the detailed description and drawings, in which:

Fig. 1 is a side elevation of the transferring machine and illustrates its relation to a foiling machine.

Fig. 2 is a sectional view on line 2—2 of Fig. 1.

Fig. 3 is a view on line 3—3 of Fig. 1, and shows the Geneva actuating mechanism for the turret.

Fig. 4 is a plan view of the transferring machine.

Fig. 5 is a view on line 5—5 of Fig. 4, illustrating the cross-head by which a cigar is advanced to a banding machine.

Fig. 6 is a longitudinal vertical section on line 6—6 of Fig. 4.

Fig. 7 is a vertical section on line 7—7 of Fig. 1.

Fig. 8 is a plan of the means for feeding cigars to and for causing the discharge of cigars from the turret of the transferring machine.

The relation of the transferring machine, which embodies a preferred form of my invention, to a cigar foiling machine is generally illustrated in Fig. 1, in which 10 designates a portion of the frame construction of the foiling machine. Enough of the foiling machine is illustrated to show its relation to the present invention, and reference may be had to my United States application Serial No. 203,082, filed July 2, 1927, for a full disclosure of a machine with which the machine herein described may be used. As it is advantageous to construct the transferring machine of small compass, I have found it convenient to mount it upon projections 11, 11 (Figs. 1 and 4) extending from the frame 10 of the foiling machine instead of providing it with a base of its own. The base 12 is secured to and supported by projections 11, 11 one on each side thereof. Base 12 constitutes a fixed table in respect to which the various elements of the transferring machine are related.

Vertically disposed at the central portion of base 12 is a bearing 13, integral therewith, Fig. 6, and within which is situated a freely rotatable hollow shaft 14. Keyed to the upper end of hollow shaft 14 is a turret 15 having a hub 16 bearing in a recess 17 in base 12. Turret 15 has a hub portion from which extends, in a radial direction, the desired number of arms 18, Fig. 4.

Four arms 18 are illustrated and, as seen in Fig. 4, the left hand arm is at the receiving station while the right hand arm is at the discharging station. The turret is rotated counter-clockwise and there are shown two arms which are midway of the receiving and discharging stations, one carrying a cigar which is to be deposited at the discharge station and the other being without a cigar, it having previously deposited one at the discharge station. Each arm has at its outer end a laterally extending shelf portion 19 for carrying a cigar.

The turret 15 is driven intermittently by Geneva gearing which is designed to successively position an arm 18 opposite the receiving and discharging tables. The Geneva gearing provides for as many quiescent positions of the turret as the turret has arms. An even number of positions, and hence an even number of arms 18, are provided so as to simplify the design of the machine by enabling a com-

mon source of motion to be used for both advancing a cigar onto the turret and ejecting a cigar from the turret. This mechanism will be described hereinafter.

The Geneva gearing which provides step-by-step movement has its driven wheel 20 affixed to the lower end of hollow shaft 13, Fig. 6. Wheel 20 has four slots 21 and four locking edges 22, Figs. 1, 2 and 3, which are adapted to be successively engaged by a roller 24 and locking ring 25, respectively, on the upper surface of disk 26. Disk 26 is affixed to shaft 27 which has its lower end mounted in bracket 28 and its upper end held in a bearing 29 extending below base 12, Fig. 7.

Shaft 27 is driven through bevel gears 30, 31, the latter of which is keyed to shaft 32 horizontally mounted in bracket 28. Shaft 32 carries at its outer end a sprocket wheel 33 which is driven through a sprocket chain 34, Fig. 1, and a sprocket wheel 35 pinned to a shaft 36. Shaft 36 is driven by the driving mechanism (not shown) of the cigar foiling machine and the ratio of drive of the turret 15 in respect to the rate of delivery of cigars by the foiling machine is such that the turret will make a quarter of a revolution for each cigar deposited at the receiving station of the transferring machine. The cigars are successively deposited upon base 12 by rockable carriers 37 carried by a reel (not shown) of the foiling machine.

As carrier 37 descends it drops a cigar on base 12 at the receiving station of the cigar transferring machine at a point just forward a pair of fingers 38 extending vertically from a member 39 (Figs. 1, 6 and 8) of the cigar advancing mechanism of the transferring machine.

While I have referred to the manner in which cigars may be delivered directly from the operating mechanism of a foiling machine, it is apparent that cigars could be supplied to the transferring machine by other means, as, for example, by a chute.

Member 39 is mounted on rods 40, 41 at the upper ends of two pairs of arms 42, 43, which are respectively connected to sleeves 44, 45, the former being journaled on shaft 46 and the latter being journaled on shaft 47.

The cigar advancing member 39 is reciprocated upon shafts 46, 47 in timed relation with and by the controlling mechanism of the cigar foiling machine through the intermediary action of a pair of gear sectors 48. The timed relation is such that fingers 38 will be in an extended position when a cigar is deposited at the receiving station and the fingers 38 will advance a cigar onto an arm 18 of turret 15 when the turret is quiescent.

The means for causing ejectment of a cigar from the turret comprises a reciprocatory slide 49 mounted so as to move rearwardly and forwardly in a slot 50, Fig. 6, at the discharge side of base 12. The slide 49 has an I-shaped cross-section with its mid-portion fitting in slot 50 and having its top portion extending into annular recess 51 in the top of base 12.

Reciprocation of slide 49 is accomplished by means of a link 52 having its forward end pivotally connected at 53 to the slide and its rearward end pivotally mounted at one end of rod 41, Fig. 8. It is apparent that by the arrangement just described, slide 49 will be caused to move with member 39 with the result that a cigar will be advanced onto the turret with the same movement that causes a cigar to be ejected from the turret.

Ejectment of a cigar from the turret at a discharging station occurs when slide 49, in its forward movement, carries with it an ejector 54 which has a vertically disposed pin 55 through which it is controlled. As the turret 15 rotates, ejector 54 and pin 55 may not be displaced from their retracted positions since the lower end of pin 55 is then prevented from moving by the outer wall of annular recess 51. However, when an ejector is opposite the discharge station, it may be moved forwardly by slide 49 since a slot 57 is provided in base 12 for permitting such a movement. Slots 58, 59 in arms 18 serve to guide pins 55 and maintain them erect. A cross-bar 60 at the forward end of each ejector 54 contacts directly with the cigar being ejected.

The ejectors are always biased toward the center of the turret because of springs 61, each of which has one end attached to a pin 55. These springs also serve to retract the ejectors after an ejecting operation.

The anchor end of each spring 61 is secured to a post 62 extending upwardly from a gripping finger 63, one being provided for each arm 18. Each finger 63 is pivoted on a pin 64 mounted at the hub portion of turret 15. It is apparent that a portion of the weight of a finger 63 will be carried by a cigar disposed on a shelf 19, as illustrated in Fig. 6, but the relation of a spring 61 to a finger 63 is such as to provide the desired gripping effect.

The means for controlling the operation of the gripping fingers 63 comprises a rod 65 mounted at the center of the turret and within hollow shaft 13. To the upper end of rod 65 there is secured a head or cap 66 having two lugs 67, 68 extending in opposite directions, Figs. 4 and 6, so as to be engageable with projections 69 of the two fingers 63 which are in the receiving-discharging station line. The lower end of the rod 65 carries a member 70 upon which is mounted a roller 71 and a shoe 72. Shoe 72 is designed to always contact with the peripheral surface 73 of disk 26 on shaft 27, Fig. 1, so that rod 65 may not rotate.

Rod 65 is normally held in an elevated position, Fig. 6, by the tension of springs 61 transmitted thereto through posts 55, projections 69 and lugs 67, 68 of head 66. By lowering the position of rod 65 the two fingers 63

whose projections 69 are in the line of action of lugs 67, 68, are elevated to positions where they will not bear upon the cigars thereunder, Fig. 1. The mechanism just described does not relieve the gripping effect of a finger 63 upon a cigar in transit between the receiving and the discharging stations.

Rod 65 is periodically lowered by the action on roller 71 of the plate cam upon the lower surface of disk 26. The high surface 74 of the plate cam causes rod 65 to be lowered, and it comes into operation against roller 71 for that purpose at about the time that the turret stops its rotary movement. After a cigar has been advanced upon the turret by finger 38 and a cigar has been ejected from the turret by an ejector 54, roller 71 leaves the high surface 74 of plate cam and is permitted to rise against the low surface 76 in response to the action of springs 61. With roller 71 bearing upon surface 76 the two fingers 63 which have been released will drop to their gripping positions, Fig. 6.

The discharging station comprises a table 77 in prolongation of base 12 and attached thereto at its forward end. This table 77 is sufficiently long to accommodate one or more cigars, and it is provided with a pair of rails 78 forming a channel for receiving the cigars. A keeper plate 79 is disposed above the cigars upon table 77 and a guide rail 80 limits the extent of the receiving station.

After a cigar has been deposited at the receiving station and before another cigar is deposited the most advanced cigar should be removed from the table. For accomplishing this result I provide automatic means for causing movement of each successive cigar longitudinal of itself and the same means serves to supply the cigars to a banding machine (not shown). An arm 81 is fastened to a rock shaft 82 which is mounted on a boss 83, formed integral with base 12. The free end of arm 81 has pivotally mounted thereon a link 84 which carries a cross-head 85 at its other end. Cross-head 85 has a lip 86 fitted within a track in guide rail 80. Spring 87 affords an impositive means by which arm 81, link 84 and cross-head 85 may be actuated during a cigar advancing operation. Spring 87 is permitted to act for that purpose by cam 88 mounted upon shaft 27. The lower end of rock shaft 82 carries an arm 89 at the end of which is a roller 90 which bears on the periphery of cam 88. As the high surface of cam 88 passes from under roller 90 as the cam rotates clockwise, Figs. 2 and 4, spring 87 is permitted to act and to cause a cigar to be supplied to the banding machine, and when rock shaft 82 is rocked clockwise by cam 88 spring 87 will be expanded and cross-head 85 will be retracted to the position illustrated in Fig. 4, where it is poised ready for another cigar advancing operation.

The invention is capable of wide variation and relationship of parts without departure from the nature and principle thereof. I do not restrict myself unessentially in the foregoing or other particulars, but contemplate such alterations and modifications within the scope of the appended claims as may be found advisable.

I claim:

1. A transferring machine adapted to receive cigars from a foiling machine and to supply the same to a banding machine, said transferring machine comprising, in combination, a base, a turret rotatively mounted thereon, a plurality of arms extending radially from said turret, a plurality of fingers carried by said turret, one of said fingers being provided for each of said arms, said fingers being pivotally mounted, resilient means for pressing each of said fingers in contact with a cigar carried by a corresponding arm during rotation of said turret, means for advancing cigars successively onto said turret arms, each successive cigar being advanced upon the arm of said turret which is at a receiving station at the time of actuation of said cigar advancing means, automatic means for causing step-by-step rotation of said turret, an ejector carried by each arm, means for releasing a finger from contacting relation with the cigar held thereby, and means for actuating an ejector at a discharge station, said last named means having connections with the means for advancing cigars onto the turret at the receiving station.

2. A transferring machine adapted to receive cigars from a foiling machine and to supply the same to a banding machine, said transferring machine comprising, in combination, a base, a turrret rotatively mounted on said base, a plurality of arms extending from said turret, a plurality of fingers carried by said turret, one of said fingers being provided for each of said arms, said fingers being pivotally mounted, resilient means for pressing each of said fingers in contact with a cigar carried by a corresponding arm during rotation of said turret, means for causing step-by-step rotation of said turret, an ejector, means for actuating said ejector at a discharge station, means for releasing a finger from contacting relation with the cigar held thereby, said means being automatic to release the cigar at the discharge station and comprising a rod slidably mounted and having a head operable upon said fingers, a plate cam and means affixed to the lower end of said rod and contacting with said plate cam.

3. A transferring machine adapted to receive cigars from a foiling machine and to supply the same to a banding machine, said transferring machine comprising, in combination, a base, a turret rotatively mounted on

said base, a plurality of arms extending radially from the center of said turret, a plurality of fingers carried by said turret, one of said fingers being provided for and above each of said arms, said fingers being pivotally mounted, means for pressing each of said fingers in contact with a cigar carried by a corresponding arm during rotation of said turret, means for causing step-by-step rotation of said turret, an ejector carried by each arm, means for actuating an ejector at a discharge station, means for releasing a finger from contacting relation with the cigar held thereby, said means being automatic to release the cigar at the discharge station and comprising a rod slidably mounted at the central position of the turret and having a head engageable with said finger, a plate cam and means affixed to the lower end of said rod and contacting with said plate cam, and automatic means for causing movement of each successive cigar after it has been ejected from the turret at a discharge station.

4. A transferring machine adapted to receive cigars from a foiling machine and to supply the same to a banding machine, said transferring machine comprising, in combination, a base, a turret rotatively mounted thereon, a plurality of arms extending from said turret, a plurality of fingers, one of said fingers being provided for each of said arms, said fingers being pivotally mounted, means for pressing each of said fingers in contact with a cigar carried by a corresponding arm during rotation of said turret, means for causing step-by-step rotation of said turret, an ejector on each arm, means for actuating the ejectors at a discharge station, means for releasing a finger from contacting relation with the cigar held thereby, said means being automatic to release the cigar at the discharge station and comprising a rod slidably mounted at the central position of the turret and having a head engageable with said fingers, a plate cam and a roller affixed to the lower end of said rod and contacting with said plate cam, and automatic means for causing movement of each successive cigar after it has been ejected from the turret at a discharge station, said means comprising a pivotally mounted arm, a link and a cross-head at the outer end of said arm, a spring, a cam, and an arm having a roller bearing upon said cam, said last named arm having connection with the same pivot as said pivotally mounted arm.

5. A transferring machine adapted to receive cigars from a folding machine and to supply the same to a banding machine, said transferring machine comprising, in combination, a base, a turret rotatively mounted on said base, a plurality of arms extending radially from said turret, a plurality of fingers carried by said turret, one of said fingers being provided for each of said arms, said fingers being pivotally mounted, resilient means for pressing each of said fingers in contact with a cigar carried by a corresponding arm during rotation of said turret, means for advancing cigars successively onto said turret arms, each successive cigar being advanced upon the arm of said turret which is at a receiving station opposite said cigar advancing means at the time of actuation of said means, means for causing step-by-step rotation of said turret, an ejector carried by each arm, a pin carried by said ejector and having one end thereof engaging an annular wall in said base for retaining said ejector in a retracted position as said turret rotates, a slide for engaging said pin for actuating said ejector at a discharge station, means for releasing said fingers from contacting relation with the cigar held thereby, said means being automatic to release the cigar at the discharge station, and means for causing movement of each successive cigar longitudinal of itself after it has been ejected from the turret at a discharge station, said means comprising a pivotally mounted arm, a link and a cross-head at the outer end of said arm, a spring, a cam, and an arm having a roller bearing upon said cam, said last named arm having connection with the same pivot as said pivotally mounted arm.

In testimony whereof I hereto affix my signature.

HENRY H. WHEELER.