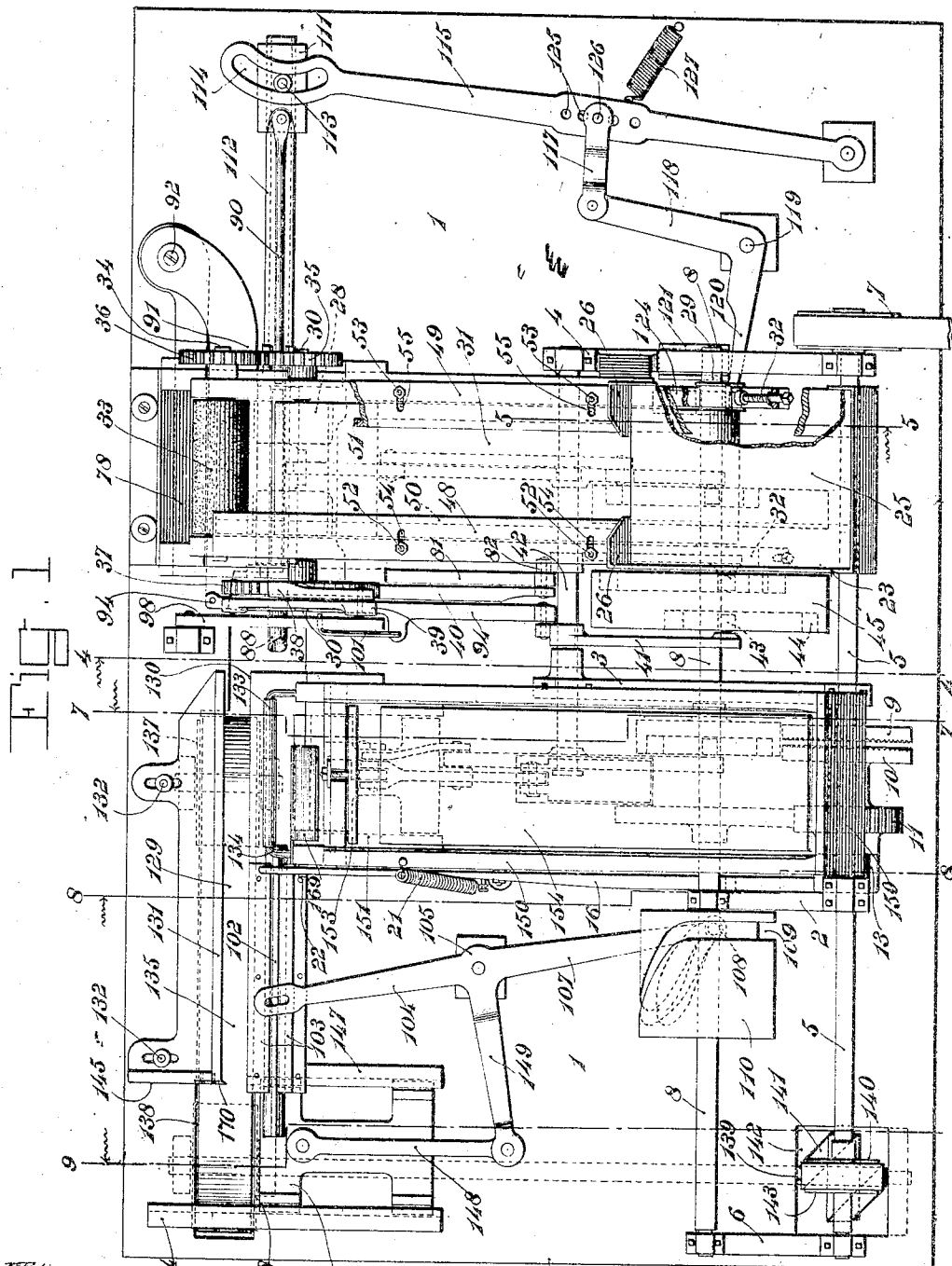


1,040,772.

A. H. SARKISIAN.
CIGARETTE MAKING MACHINE.
APPLICATION FILED NOV. 25, 1911.

Patented Oct. 8, 1912.

6 SHEETS—SHEET 1.



Witnesses
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Inventor
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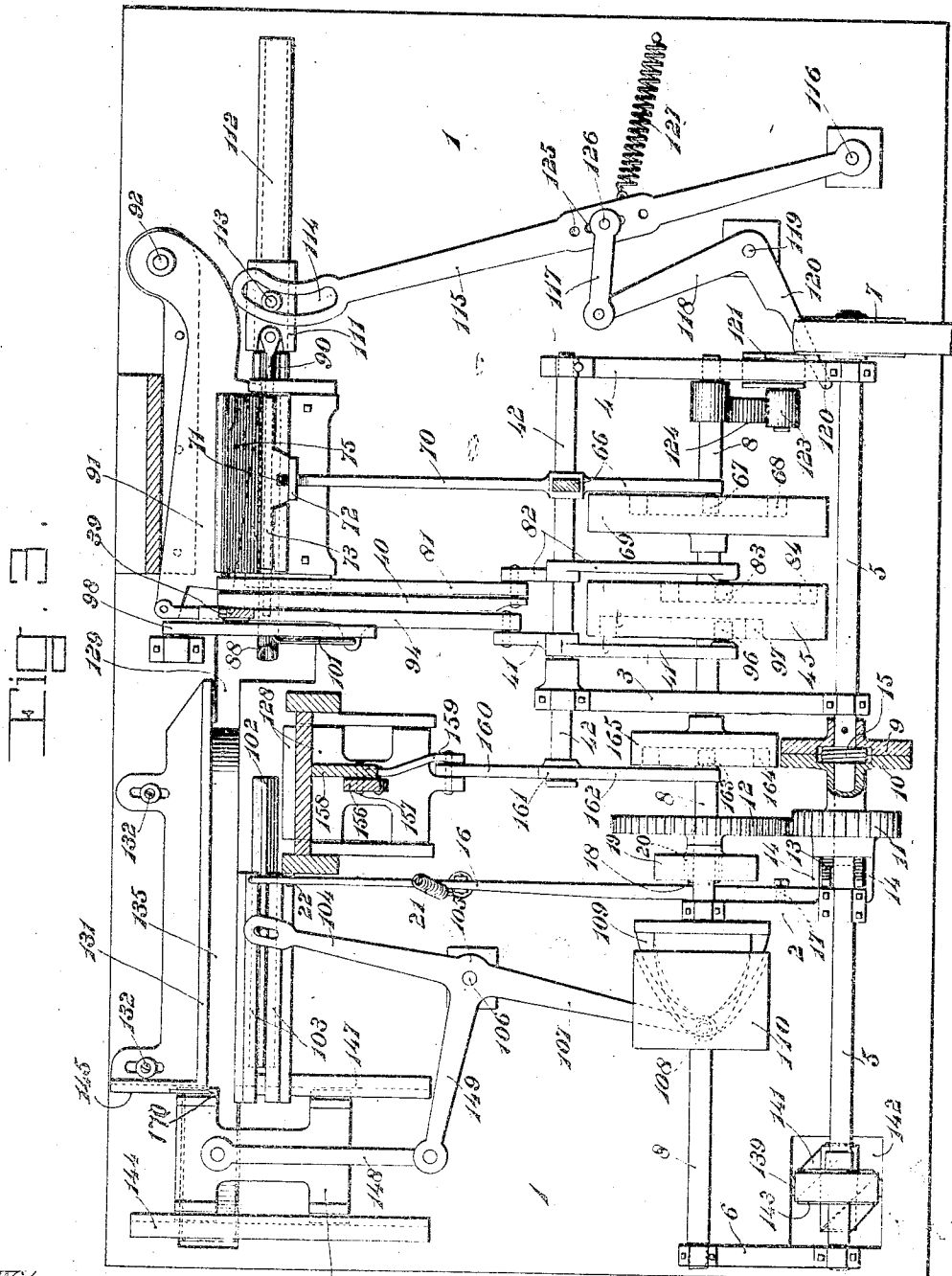
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6 SHEETS—SHEET 3.



Witnesses

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6 SHEETS—SHEET 4.

Fig. 4.

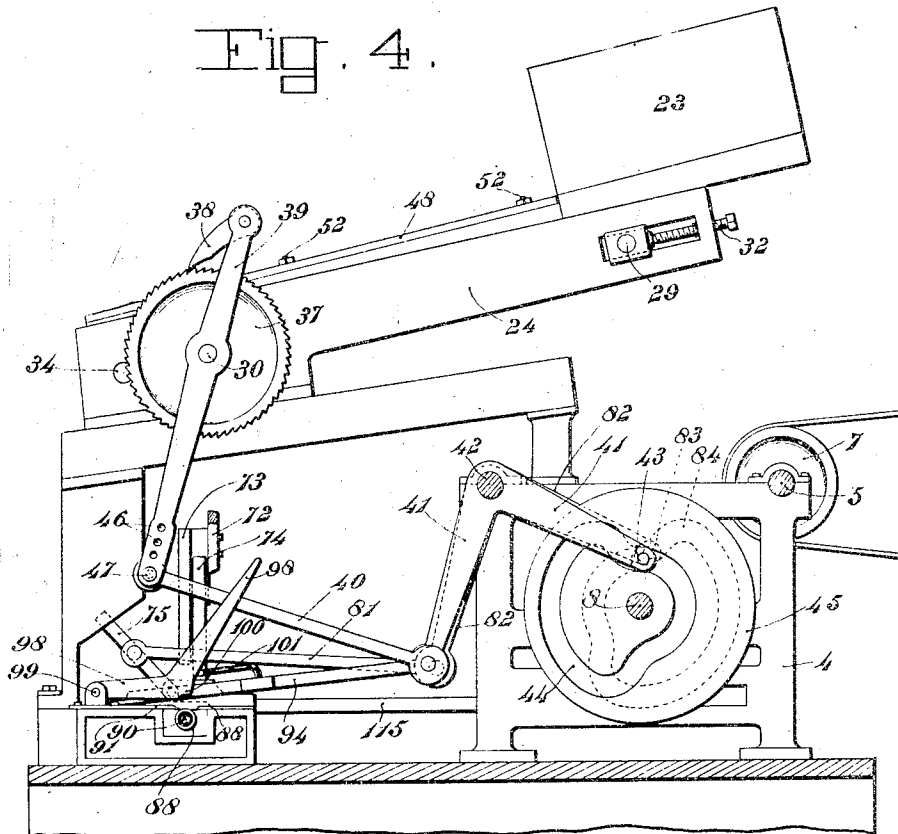
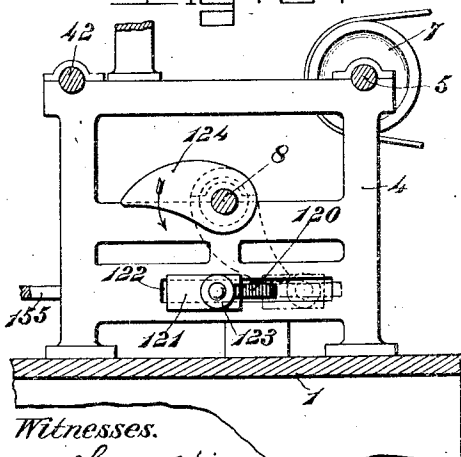


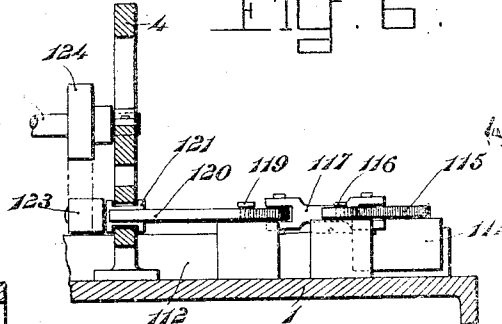
Fig. 5.



Witnesses.

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Fig. 6.



Inventor:

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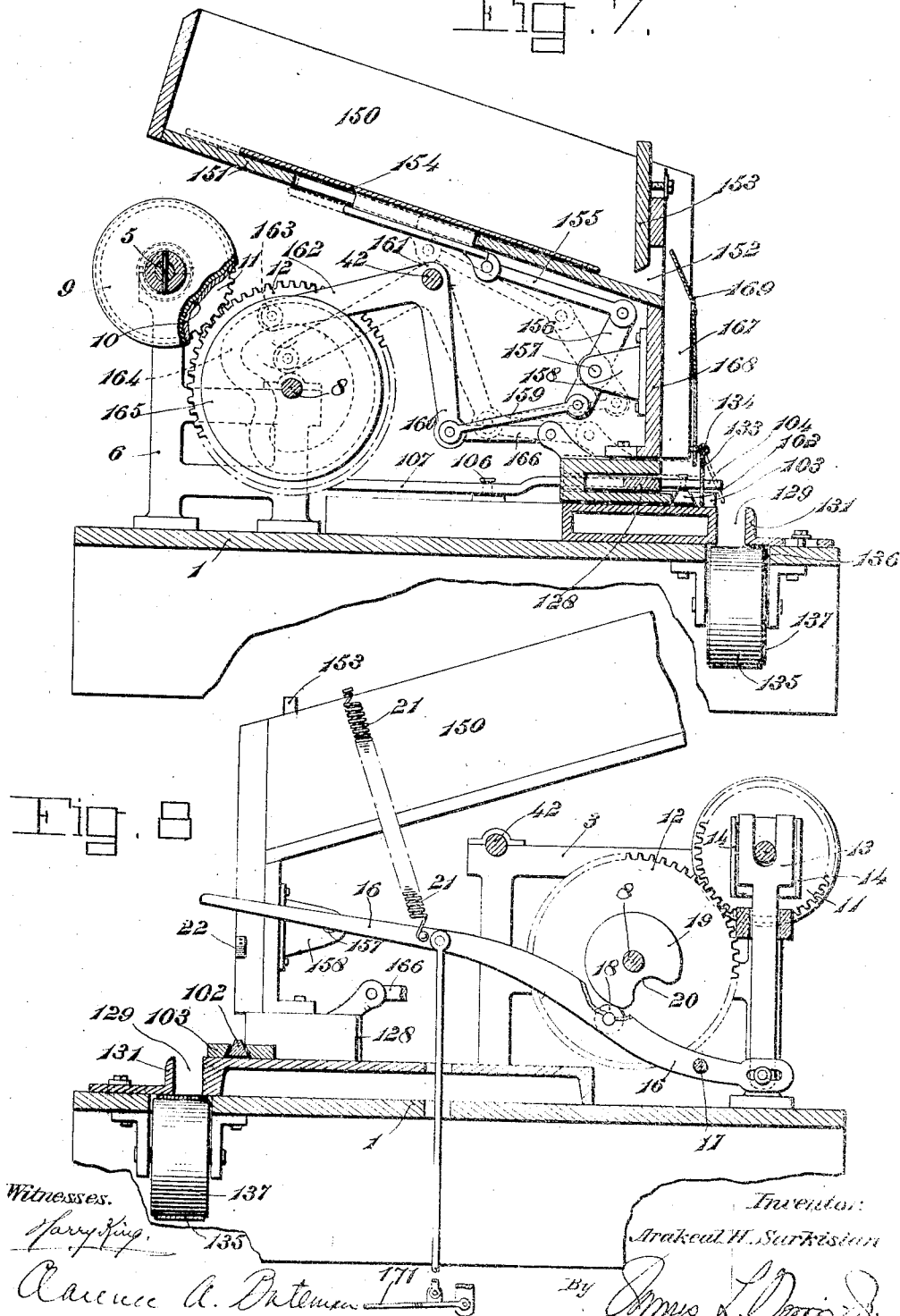
By Amos L. Norris D. Atty.

A. H. SARKISIAN.
CIGARETTE MAKING MACHINE.
APPLICATION FILED NOV. 25, 1911.

1,040,772.

Patented Oct. 8, 1912.
6 SHEETS—SHEET 5.

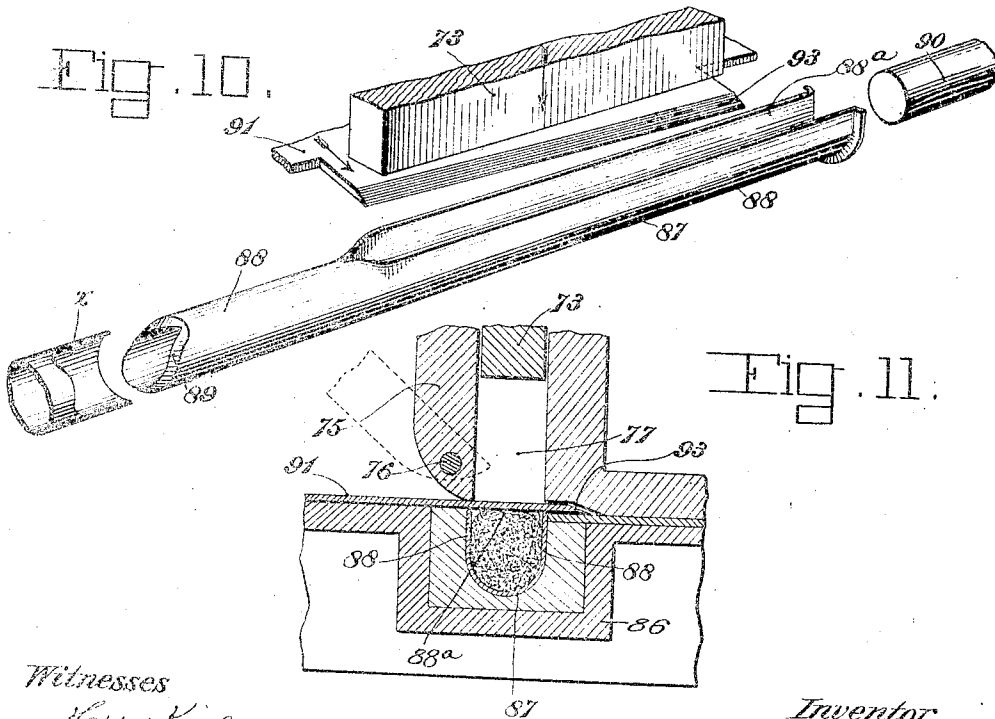
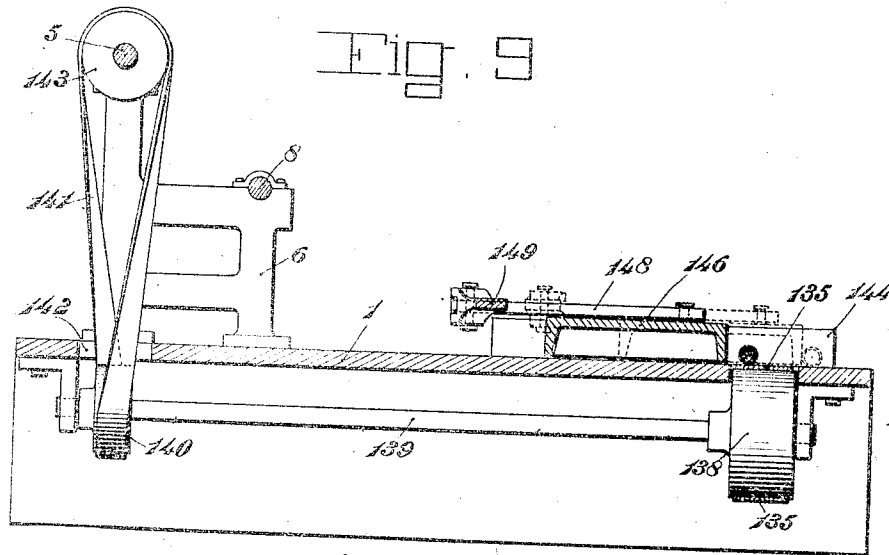
Fig. 7.



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1,040,772.

Patented Oct. 8, 1912.
6 SHEETS—SHEET 6.



Witnesses

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UNITED STATES PATENT OFFICE.

ARAKEAL H. SARKISIAN, OF BRIDGEWATER, MASSACHUSETTS.

CIGARETTE-MAKING MACHINE.

1,040,772.

Specification of Letters Patent.

Patented Oct. 8, 1912.

Application filed November 25, 1911. Serial

632,407.

To all whom it may concern:

Be it known that I, ARAKEAL H. SARKISIAN, a subject of the Sultan of Turkey, residing at Bridgewater, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Cigarette-Making Machines, of which the following is a specification.

My present invention relates to improvements in cigarette making machines and more especially to the type wherein the loose tobacco and formed tubular wrappers are fed to the machine, and the tobacco is divided into appropriate charges to form fillers and these fillers are introduced endwise into the cigarette tubes, and the primary object of this invention is to provide a generally improved machine of the type above described having a large capacity whereby a great number of cigarettes may be made thereby in a given length of time and the different operations involved are performed by such means as to insure certainty and uniformity in the manufacture of the cigarettes.

Another object of the invention is to provide a machine whereby cigarettes having a cork tip or mouthpiece may be made in such a manner that the tip or mouthpiece will contain no part of the tobacco filler, economy in manufacture being thereby effected, and, furthermore, cigarettes so made are more satisfactory to the smoker.

Further objects of the invention are to provide a cigarette making machine of this type with means whereby the amount of tobacco filler for the cigarettes is capable of being adjusted or regulated and the machine is capable of making cigarettes of different lengths or sizes.

To these and other ends, the invention consists in certain improvements, and combinations and arrangements of parts, all as will be hereinafter more fully described, the novel features being pointed out particularly in the claims at the end of the specification.

In the accompanying drawing:—Figure 1 is a top plan view of a cigarette making machine constructed in accordance with the present invention; Fig. 2 is an end elevation of the machine as shown in Fig. 1 and viewed from the right thereof; Fig. 3 represents a horizontal section of the machine with the tobacco and tube-feeding devices

removed and showing the operating mechanisms of the machine in plan; Fig. 4 represents a vertical section of the machine on the line 4—4 of Fig. 1; Figs. 5 and 6 are detail views of the means for operating the plunger which transfers the tobacco filler from the former or mold to the cigarette wrapper, Fig. 5 being a section on the line 5—5 of Fig. 1, looking in the direction of the arrow; Fig. 7 represents a section on the line 7—7 of Fig. 1 and looking in the direction of the arrow; Fig. 8 represents a section on the line 8—8 of Fig. 1 and looking in the direction of the arrow; Fig. 9 represents a section on the line 9—9 of Fig. 1 and looking in the direction of the arrow; Fig. 10 is a perspective view of the former or mold for the tobacco filler, the packer or plunger for introducing the filler into the former or mold, the knife or member for closing the opening in the former or mold, and the plunger for transferring the filler from the former or mold to the cigarette wrapper; and Fig. 11 is a detail sectional view of the mechanism for packing and forming the filler.

Similar parts are designated by the same reference characters in the several views.

In the accompanying drawing I have shown as an example one specific form of cigarette making machine embodying the different features of the present invention. It will be understood, however, that the invention is not necessarily limited to the particular construction shown, as modifications and changes may be made in the detail construction and the relative arrangement of the parts in order that the invention may be applied to the best advantage according to the conditions or circumstances of each particular case. In the present instance the machine embodies a suitable base or table 1 which preferably serves as a support for the various mechanisms of the machine whereby these different mechanisms will be maintained in proper coöperative relation.

In the construction shown, a set of three frames 2, 3 and 4 are mounted in fixed relation on the upper side of the base 1, and these frames provide bearings and supports for the driving mechanisms of the machine, these various driving mechanisms being operated from a main or common power shaft 5 which is journaled in said frames and also

in an end frame 6, and this power shaft may be driven by a belt pulley 7 or equivalent means. This power shaft drives a cam shaft 8, the latter being journaled in the frames 2, 3 and 4, and in order to enable the operation of the machine to be controlled conveniently, a stop motion is interposed between the power and cam shafts. In the present instance the driving connection between these two shafts embodies a clutch member 9 which is fixed to the power shaft, a complementary clutch member 10 which is capable of rotary and axial motion on the power shaft, the clutch member 10 carrying a pinion 11, this pinion 11 coöperates with a gear 12 fixed on the cam shaft 8, and operation of the cam shaft 8 which is effected through the medium of the clutch members 9 and 10 is controlled by a clutch controller 13 which in the present instance is in the form of a bifurcated wedge which operates vertically in guides 14 and is interposed between the inner side of the frame 2 and the opposed end or hub of the pinion 11, upward movement of this clutch controller causing axial movement of the clutch member 10 which will engage it with the complementary clutch member 9 and thereby form a driving connection between the pinion 11 and the power shaft 5 and downward movement of the clutch controller will permit disengagement of the clutch members, such disengagement being assisted or facilitated by a compression spring 15 which may be interposed between the two members of the clutch. The clutch controller 13 is operatively connected to a lever 16, the latter being mounted on a fixed fulcrum 17 and bears a roller or projection 18 which roller coöperates with the periphery of a cam 19, the latter being fixed to the cam shaft 8 and is formed with a notch or recess 20 which is capable of receiving the roller or projection 18 after the machine has completed each cycle of operations, this cycle of operations being completed upon each revolution of the cam shaft. As the roller or projection 18 can enter the recess or notch 20 only after each cycle of operations has been completed, it is obvious that the clutch will be disengaged to interrupt the operation of the machine only at the end of a cycle, thus avoiding stoppage of the machine before a cycle has been completed. A spring 21 operates upon the lever 16 and normally tends to operate the clutch controller 13 in a direction to disengage the clutch. While the machine is operating continuously or without interruption at the end of each cycle the lever 16 is engaged beneath a shoulder 22 whereby the clutch will be held in engaged condition and the roller or projection 18 will be out of engagement with the cam 19. When, however, it is desirable to interrupt the operation of the machine, the lever 16 is disengaged from the shoulder

22, thereby permitting the roller 18 to engage the periphery of the cam 19, and when this roller reaches the notch 20 in the cam, the spring 21 will operate the lever to disengage the clutch automatically.

The tobacco in loose form for the cigarette fillers is introduced into a hopper 23 which is supported on a frame 24 fixed to the base, the bottom 25 of the hopper being preferably inclined to feed the tobacco by gravity to an outlet in the hopper which is defined by the gate members 26. The frame 24 has a pair of rollers 27 and 28 journaled therein, these rollers being mounted on parallel shafts 29 and 30 and an endless belt or conveyor 31 is stretched between and passes over these rollers. Belt-tension means 32 is shown for maintaining a proper tension on the belt. The belt 31 is also preferably inclined and its upper stretch moves in a direction downwardly and forwardly from the outlet in the tobacco supply hopper 23 to a point where the tobacco is to be divided into charges suitable for the cigarette fillers, the tobacco in loose form discharging from the outlet of the hopper and onto the belt and traveling with the belt in the form of a continuous ribbon or stream. A compression roller 33 is mounted immediately beyond the lower roller 28 and on a shaft or axis 34 which is parallel to the axis or shaft 30, and the rollers 28 and 33 are connected to revolve in unison by coöperative gears 35 and 36 which are fixed to the respective shafts 30 and 34. The shaft 30 serves to operate the belt 31 to feed the tobacco to the devices which divide it into charges and form these charges into fillers and for this purpose it is provided in the present instance with an operating wheel 37 which is fixed on said shaft and bears ratchet teeth on its periphery. A pawl 38 coöperates with said ratchet teeth and such pawl is carried by the upper arm of a lever 39, this lever being conveniently mounted to rock on the shaft 30 as a fulcrum and its lower end is pivotally connected by a link 40 to a bell-crank lever 41, the latter being rotatably mounted on a supporting shaft 42 and bears a roller or projection 43 which coöperates with a cam groove 44 in a cam 45, the cam 45 being fixed on the cam shaft 8. Rotation of the cam shaft causes reciprocation of the link 40 and the latter in turn imparts rocking movements at appropriate intervals to the lever 39, the to-and-fro movements of the upper end of this lever causing the pawl 38 to successively engage the teeth on the wheel 37 and thereby rotate the latter and the shaft 30, the shaft 30 bearing the roller 28 and this roller will transmit the movement to the belt.

The present invention provides means whereby the amount of tobacco in each filler may be regulated or adjusted, the lower arm

of the lever 39 being provided for this purpose with a plurality of apertures 46 any one of which is adapted to receive the pin 47 which operatively connects the link 40 to this lever. By inserting the pin 47 in the different apertures, the constant stroke of the link 40 will cause the lever 39 to swing through angles of different degrees, thereby enabling the pawl 38 to rotate the wheel 37 through different angles at each working stroke of the pawl. The present invention also provides means whereby the length of the tobacco filler may be varied according to the length of the cigarette that is to be made. Such means comprises a pair of lateral guides 48 and 49 which are mounted on the frame 24 toward the opposite marginal edges of the belt 31, these guides having downturned flanges 50 and 51 at their inner edges which flanges extend to points in immediate proximity to the belt and thereby determine the width of the ribbon or stream of tobacco fed by the belt. These guides are adjustable in a lateral direction whereby the distance between them may be adjusted to conform substantially to the desired lengths of the fillers, such adjustment of the guides being permitted by the bolts 52 and 53 which extend through slots 54 and 55 in the respective guides.

The ribbon or stream of tobacco when it reaches the lower end of the belt 31 passes downwardly between the rollers 28 and 33 where this tobacco is compacted or compressed. A pair of guide plates 56 and 57 are mounted in opposed relation to form a passage 58 for the tobacco, the upper edges of these guide plates being in close relation to the surface of the belt 31 and the periphery of the roller 33 for the purpose of stripping the tobacco from such belt and roller respectively, and to facilitate this stripping action, the upper edges of the guide plates may be sharpened, as shown. A plate 59 having a slot 60 therein is mounted in fixed relation at the lower edges of the guides 56 and 57, and this plate forms a knife edge 61 at one side of the slot 60. A plunger 62 is mounted to reciprocate on a support 63, this support being preferably inclined and its lower end is directly beneath the slot 60 through which the tobacco is discharged, this end of the support 63 serving as a gage to determine the thickness of the charge of tobacco. The reciprocating plunger 62 carries a knife blade 64 which is movable across the bottom of the slot 60 and is adapted to cooperate with the stationary knife edge 61 so that when the plunger 62 moves in one direction, the knife blade 64 will pass through the tobacco and will cooperate with the knife edge 61 to sever the ribbon of tobacco to form a charge. This movement of the plunger which severs the tobacco to form a charge also serves to

eject the charge of tobacco thus formed from beneath the slot 60, the charge of tobacco then entering the mechanism to be hereinafter described which serves to form the charge into a filler and to introduce such filler into the cigarette tube. Different means may be provided for reciprocating the plunger 62 at appropriately timed intervals. In the present instance this plunger is operated by a link 65 which is pivotally connected to the upper arm of a bell-crank lever 66, such lever being pivoted on the bar 42 and bears a roller or projection 67 which cooperates with a cam slot 68 formed in the cam 69, the latter being fixed to revolve with the cam shaft 8. The lever 66 also has a rigid arm 70 which projects forwardly beneath the support 63 and has a recessed end 71 which cooperates with an apertured operating extension 72 formed on a packing plunger 73, the cam 69 serving to operate both of the plungers 62 and 73. The packing plunger 73 in the present instance reciprocates in a vertical plane and immediately within a stationary vertical plate 74, the latter serving as one side of a packing press. The opposite or complementary side of the packing press embodies a pivoted plate 75 which is turnable about the pivot 76 as an axis, and this pivoted plate may be opened into the angular position as shown in Fig. 2 and it may be closed against the plunger 73 as shown in Fig. 11, forming a pocket 77 wherein the charge of tobacco is confined, and upon the descent of the packing plunger 73 this charge of tobacco is compressed and compacted. While the pivoted side plate 75 is in open position, as shown in Fig. 2, the charge of tobacco is free to enter the pocket 77 beneath the packing plunger. The charge of tobacco is ejected from the support 63 beneath the slot 60 by the working stroke of the plunger 62, and after being so ejected, the charge will fall by gravity into the space 77, a stationary guard 78 and a guard 79 which is pivoted at 80 being provided in the present instance to so control the descent of the charge as to maintain its longitudinal axis horizontally. The pivoted guard 79 lies within the pivoted side plate 75 when the latter is open and as this side plate moves into closed position, it will swing the pivoted guard into a substantially horizontal position as indicated by the dotted lines in Fig. 2 and, hence, this guard does not interfere with the operation of the side plate of the press. The side plate of the press is operated by a link 81 which is pivotally connected to a bell-crank lever 82, this bell-crank lever being fulcrumed on the bar 42 and it bears a roller or projection 83 which operates in a cam slot 84 formed in a cam 45, the latter being fixed to turn with the cam shaft 8.

A block 86 is mounted on the base 1 in

mediately below the press plate 74 and 75 and this block is grooved and contains a mold or former 87, this former being composed in the present instance of a tube which is slotted or split longitudinally to form an opening 88 to receive the charge of tobacco, this opening being beneath and in alignment with the vertically movable plunger 73 so that upon the descent of the packing plunger 73 the compressed charge of tobacco will be removed from the chamber 77 and introduced into the former or mold. One end of this former or mold is tubular as at 86 and is also preferably formed with an inclined and beveled edge 89 to facilitate the reception of the tip or mouthpiece *m* of a previously formed cigarette tube, the opposite end of the former or mold being open to permit the entrance of a plunger 90 which is reciprocable axially of the former or mold and is operative to transfer the tobacco which is molded in the former or mold into the cigarette tube while the mouthpiece of the latter is held upon the tubular end 86 of the former or mold. In order to prevent the tobacco filler from being forced out of the opening in the former or mold during the operation of the ejecting plunger, a blade 91 is preferably employed, this blade being pivoted to the base on the axis 92 and preferably has a beveled or knife edge 93 which passes beneath the pivoted side plate 75 and across the opening in the upper side of the former or mold, this blade thereby closing the top of the former or mold and cutting off any surplus tobacco that may project from the former. This blade 91 is operated in the present instance by a bar 94 which is operatively connected to one arm of a bell-crank lever 41, the latter being fulcrumed on the bar 42 and it bears a roller or projection 43 which operates in a cam slot 44 in one face of the cam 45. In order to hold the cigarette tube upon the tubular end 86 of the former and to prevent detachment of the cigarette tube while the tobacco filler is being introduced endwise into the tube by the reciprocatory plunger 90, it is preferable to employ a clamp to grip the tip or mouthpiece of the cigarette tube and thereby prevent its detachment.

In the present instance I show a clamp in the form of a lever 98 which is pivoted at 99 and has a segmental seat 100 which is curved to correspond substantially to the curvature of the cigarette tube, and when this lever is lowered it will bear upon the tip or mouthpiece of the tube and thereby clamp the same upon the tubular end 86 of the former, thereby coupling these parts together during the transfer of the tobacco filler from the former to the cigarette tube. This clamp is preferably operated from the bar 94 which serves to swing the blade 91

into position to close the opening in the former or mold, this bar 94 in the present instance having an arm 101 which engages beneath the clamping lever 98 and when the bar 94 operates in a direction to swing the blade 91 into a position to close the opening in the former, this arm 101 on the bar 94 will move away from the clamping lever 98 and permit the latter to descend and engage and grip the tip of the cigarette tube. Movement of the bar 94 in a reverse direction will swing the blade 91 into a position to uncover the opening in the former or mold and by the same movement of the bar 94 the arm 101 thereon will lift and disengage the clamping lever 98 from the tip of the cigarette tube and will permit the finished cigarette to be withdrawn and disengaged from the tubular end 86 of the former.

The cigarette tubes are successively applied to the tubular end 86 of the former or mold by a plunger 102 which is mounted in alignment with the axis of the former or mold and is movable toward and from the same. This plunger in the present instance operates between a pair of guides 103 on the base and it is actuated by an arm 104 of a lever 105, the latter being pivoted at 106 on the base and has an arm 107 which bears a roller 108, the latter operating in the cam slot 109 of a cylinder cam 110, this cam being fixed on the cam shaft 8. The plunger 90 which operates to push the molded tobacco filler through the former or mold and into the cigarette tube is connected to a cross-head 111 which operates in a guide 112 fixed to the base, the plunger 90 being thus guided to operate in a path in alignment with the axis of the former or mold. The cross-head is provided with a roller or projection 113 which operates in a slot 114 at one end of a lever 115, the latter being pivoted on the base at 116 and is operatively connected by a link 117 to a bell-crank lever 118, the latter being pivoted on the base at 119 and has an arm 120 which co-operates with a slide 121. This slide is guided to reciprocate in a slot 122 in the frame 4 and it carries a roller or projection 123 which is arranged to be acted on by a cam 124, the latter being fixed to turn with the cam shaft 8.

Means has been described whereby the length of the charges of tobacco may be regulated according to the desired length of the cigarette. Means is provided whereby the stroke of the plunger 90 may be adjusted accordingly, such means consisting in the present instance of a plurality of radially spaced apertures 125 in the lever 115 any one of which may receive the pin 126 which operatively connects the link 117 thereto, this adjustment enabling the throw of the lever 115 and consequently the stroke of

the plunger to be varied. A spring 127 is preferably employed to retract the plunger 90, this spring being shown connected to the lever 115 and it operates to retain the arm 120 in engagement with the slide 121, the spring of course yielding during operation of the cam 124.

The machine shown in the present instance embodies means for conveying the finished cigarettes from the point where they are disengaged from the tubular end 88 of the former or mold. Such means consists in the present instance of a reciprocatory ejector 128 which operates across the path of movement of the plunger 102 while the latter is retracted, thereby moving the finished cigarette laterally into a runway 129, this runway being formed by a stationary wall 130 and a relatively adjustable wall 131, the latter being preferably in the form of a gage and embodying adjusting screws 132 whereby the distance between the walls 130 and 131 may be adjusted. However, to retain each cigarette tube in proper position in front of the plunger 102 after the cigarette tube has been delivered at this point and while it is being shifted endwise to apply the tip thereof to the tubular end 88 of the former or mold, a laterally yieldable guard 133 is preferably employed, that shown in the present instance being in the form of a plate pivotally suspended from the axis 134. This guard will prevent displacement of the cigarette tube at the times mentioned, but it will be deflected or pushed aside by the completed cigarette when the latter is pushed laterally by the ejector 128. The finished cigarettes are conducted along the runway 129 by a traveling belt 135 which operates in a slot 136 in the base 1, this belt passing over pulleys 137 and 138 which are mounted in suitable bearings at the under side of the base as shown, and the shaft 139 for the pulley 138 is driven continuously by any suitable means, such for example, as by the pulley 140 thereon which is engaged by a belt 141, this belt passing upwardly through a slot 142 in the base and is operated by a pulley 143 on the continuously revolving power shaft 5. The endwise movement of the finished cigarettes on the belt 135 is arrested by an abutment 144 which extends across the delivery end of the belt, this abutment together with the end 145 forming a guideway through which the cigarettes are removed from the belt and conveyed by a lateral movement to suitable receiving means. The removal of the cigarettes from the belt when they reach the abutment 144 is accomplished by a horizontally reciprocable ejector 146 which operates between an extension of the abutment 144 which serves as a guide and the guide 147, this ejector being operated by a link 148 which is operatively connected to an arm

149 formed rigidly with the lever 105. Figs. 1 and 3 show the two extreme positions of the ejector.

Different means may be provided for supplying the cigarette tubes to the point where they receive the fillers. In the present instance, a hopper 150 is shown into which the previously formed paper tubes are deposited, the bottom 151 of this hopper being inclined to feed the tubes to the discharge opening 152 of the hopper and a vertically adjustable gate 153 is shown whereby the discharge of the tubes through the outlet 152 may be properly controlled. In order to insure a positive feed of the tubes from the hopper a panel 154 may be used which is reciprocable longitudinally of the hopper bottom 151, this panel being operatively connected in the present instance by a link 155 to one arm of a lever 156, the latter being pivoted at 157 to a stationary bracket 158 and the opposite end of the lever is connected by a link 159 to an arm 160 of a bell-crank lever 161, the latter being mounted to rock on the bar 42 as a fulcrum, and the arm 162 thereof bears a roller or projection 163 which coöperates with a cam slot 164 formed in a cam 165, the latter being mounted to turn with the cam shaft 8 whereby reciprocating movements will be imparted to the panel 154 during rotation of the cam 165. The cam 165 and the bell-crank lever 161 also serve in the present instance to reciprocate at appropriate intervals the ejector 128, the arm 160 of said bell-crank lever being connected to said ejector by the link 166. The outlet 152 of the hopper 150 leads to a vertical chute 167 and this chute is directly above the line of movement of the plunger 102 which serves to fit the tips of the tubes over the tubular end 88 of the former or mold, and this chute is closed at the back and two ends by a housing 168 and a guard 169 closes the front of said chute. The cigarette tubes are fed one at a time from the chute to the plunger 102, the guard 133 serving to position the tube in front of this plunger.

The cycle of operations involved in the making of each cigarette may be briefly described as follows:—The hopper 23 being filled with tobacco for the fillers and the hopper 150 containing the cigarette tubes, the machine is set in operation by engaging the lever 16 with the shoulder 22, thus engaging the clutch and causing rotation of the cam shaft. The movement imparted at intervals to the belt 31 causes a ribbon or stream of tobacco to pass through the passage 58, and reciprocation of the panel 154 serves to maintain a supply of cigarette tubes in the chute 167. The first operation upon the tobacco is produced by the plunger 62, the latter moving forward and causing the knife blade 64 thereon to sever a section

of tobacco from the ribbon, and the continued motion of the plunger will cause the charge of tobacco thus produced to drop into the chamber 77 beneath the packing plunger 73, the latter at this time being elevated and the pivoted side plate 75 being open. After the charge of tobacco has entered the chamber 77, the side plate 75 closes to compress the charge laterally and the plunger 73 descends to compress the charge vertically and to transfer the compressed charge into the mold or former, the blade 81 being in position to uncover the opening in the mold until after the latter has received its charge, whereupon it operates to cover and close such opening. The plunger 103 also operates upon the lowermost tube in the chute 107 and to shift this tube endwise until its tip has slipped over the tubular end 88 of the former or mold. When the blade 81 operates to close the opening in the mold, the clamp 98 also operates to grip the tip of the tube and hold it on the tubular end of the former. With these parts in such position, the plunger 99 operates to push the tobacco filler longitudinally of the mold and to introduce the filler into the cigarette tube, and the plunger 103 having receded from the tube, the final movement of the plunger 99 serves to remove the tip of the finished cigarette from the mold, this operation being permitted by the clamp 98 which releases its grip upon the cigarette tip. The ejector 123 next operates to transfer the cigarette to the conveyor 135.

The foregoing cycle of operations takes place automatically and continuously until interrupted by manipulation of the lever 16. A knife blade 170 may be provided to trim the cigarettes to the proper lengths during each reciprocation of the slide 146. A treadle 171 may be provided to facilitate operation of the controlling clutch, this treadle being connected by a link to the lever 16.

I claim as my invention:—

1. In a cigarette making machine, the combination of a mold having relatively fixed sides and a tobacco-receiving opening in the top thereof, means for introducing a charge of tobacco into the mold through said opening therein, means for applying a cigarette tube to the mold, a device movable laterally across said opening in the mold to close the same, and means operative to force a charge of tobacco endwise through the mold and into the cigarette tube applied thereto.

2. In a cigarette making machine, the combination of a mold having relatively fixed side walls and a tobacco-receiving opening of fixed size in the top thereof, means for introducing a charge of tobacco

means for positioning a cigarette tube to receive the charge of tobacco from the mold, a knife movable laterally across said opening in the mold to close the same, and means for transferring the charge of tobacco from the mold to the cigarette tube.

3. In a cigarette making machine, the combination of a mold having a tobacco-receiving opening and a tube-receiving end formed as an integral and fixed extension thereof, means for introducing a charge of tobacco into the mold, means for applying a cigarette tube to said tube-receiving end, means movable across the opening in the mold to close the same, and means for transferring the charge of tobacco from the mold to the tube.

4. In a cigarette making machine, the combination of a mold having a tube-receiving end, relatively fixed side walls and a tobacco-receiving opening in the top thereof, means movable longitudinally of the mold for applying a cigarette tube to the tube-receiving end thereof, means for introducing a charge of tobacco into the mold, a device movable laterally across said opening in the mold to close the same, and means operative longitudinally of the mold to transfer a charge of tobacco from the latter to the tube.

5. In a cigarette making machine, the combination of a mold having a tube-receiving portion at one end, relatively fixed side walls, and a tobacco-receiving opening in the top thereof, means for introducing a charge of tobacco into the mold, means for applying a cigarette tube to said tube-receiving portion of the mold, a knife movable transversely across said opening to close the same, and means operative longitudinally of the mold for transferring a charge of tobacco from the mold to the cigarette tube and for removing the filled cigarette tube from the mold.

6. In a cigarette making machine, the combination of a mold having a tube-receiving portion at one end and an opening with parallel fixed side walls adapted to receive a charge of tobacco, means for applying the tip of a cigarette tube to said tubular end of the mold, means cooperative with the tip of the tube to retain the latter on said tube-receiving end of the mold, a device movable laterally across said opening to close the same, means operative longitudinally of the mold for forcing a charge of tobacco from the mold into the tube, and means for releasing the tip of the tube after the latter has received the charge.

7. In a cigarette making machine, the combination of a mold having an opening with parallel fixed walls to receive a charge of tobacco and having a tube-receiving end, means for applying the tip of a cigarette tube over said tube-receiving end, a clamp

coöperative with the tip of the tube to retain the latter on said end, a device movable transversely across said opening to close the same, means operative to force a charge of tobacco endwise of the mold and to introduce the same into the tube, and means for releasing said clamp when the tube has received the charge of tobacco.

8. In a cigarette making machine, the combination of a mold having a charge-receiving opening in the top provided with parallel relatively fixed side walls and having a tube-receiving portion at one end, means for introducing a charge of tobacco into the mold through said opening, means for applying a cigarette tube to the tube-receiving end of the mold, a device movable transversely across said opening to close the same, and means operative endwise of the mold for transferring the charge of tobacco from the mold to the cigarette tube.

9. In a cigarette making machine, the combination of a mold having a charge-receiving opening in the top provided with relatively fixed parallel side walls and having a tube-receiving end, means for applying a cigarette tube to the tube-receiving end of the mold, a plunger operative to introduce a charge of tobacco into the mold through said opening therein, a member operative transversely across said opening to close said opening in the mold after the latter has received a charge of tobacco, and means operative longitudinally of the mold for forcing the tobacco endwise therethrough and into the tube.

10. In a cigarette making machine, the combination of a mold having relatively fixed sides and an opening in its top to receive a charge of tobacco and having a tube-receiving portion at one end, a plunger movable toward and from the mold and operative to introduce a charge of tobacco therein, a blade movable relatively to the mold in a plane intersecting that of the plunger and operative to close the opening in the mold, means for applying the tip of a cigarette tube to the tube-receiving portion at one end of the mold, and a second plunger operative longitudinally through the mold for transferring a charge of tobacco therefrom to the cigarette tube.

11. In a cigarette making machine, the combination of a mold having relatively fixed sides and an opening in its top to receive a charge of tobacco and having a cigarette tube-receiving portion at one end, a vertically movable plunger operative to introduce a charge of tobacco into the mold through said opening therein, a blade movable horizontally and laterally across the opening in the mold and having a knife edge, means for applying the tip of a cigarette tube to the tube-receiving portion of the mold, and a second plunger movable

longitudinally through the mold and operative to transfer a charge of tobacco from the mold and to the tube.

12. In a cigarette making machine, the combination of a mold comprising a body portion adapted to receive a charge of tobacco and formed with a longitudinal opening, the mold also having a tube-receiving end formed integrally with the mold and provided with a diagonal beveled edge, means for moving a cigarette tube endwise to introduce the tip thereof over the tube-receiving end of the mold, a plunger movable longitudinally of the mold to force a charge of tobacco therethrough and into the tube, and a member movable transversely across said opening to close the mold.

13. In a cigarette making machine, the combination of a mold having a tube-receiving portion at one end and also having an opening for the reception of a charge of tobacco, means coöperative with the mold for compressing a charge of tobacco and for introducing such charge into the mold, means movable relatively to both sides of the mold and transversely across said opening for closing the opening in the mold after the latter has received a charge of tobacco, and means operative to remove the charge of tobacco from the mold by an endwise movement.

14. In a cigarette making machine, the combination of a mold having a tube-receiving portion at one end and also having an opening of fixed size through which the mold may receive a charge of tobacco, means for applying a tube to the tube-receiving end of the mold, means coöperative with the mold and embodying a plunger for compressing the charge of tobacco and introducing the compressed charge into the mold through said opening therein, means movable laterally relatively to the mold for closing said opening in the mold after the latter has received a charge, and means operative longitudinally of the mold for transferring the charge from the mold to the tube.

15. In a cigarette making machine, the combination of a mold having a tube-receiving portion at one end and having an opening with relatively fixed parallel side walls through which the mold may receive a charge of tobacco, means for applying a tube to the tube-receiving end of the mold, compression members movable relatively in a direction transversely of the opening in the mold for compressing a charge of tobacco laterally, a plunger operative between said members for compressing and introducing the charge of tobacco into the mold through said opening therein, means movable transversely relatively to the mold for closing the opening in the mold after the latter has received a charge of tobacco, and means for

transferring the charge from the mold to the tube.

16. In a cigarette making machine, the combination of a mold having an opening in one of its side walls, pivotally related compression members mounted adjacent to and having their upper portions movable relatively in a direction transversely of said opening in the mold for compacting a charge of tobacco laterally, a plunger operative between said members for compressing and introducing a charge of tobacco into the mold through said opening therein, a blade having a knife edge operative to cut off surplus tobacco and to close the opening in the mold, and means operative longitudinally of the mold for removing the charge in an endwise direction.

17. In a cigarette making machine, the combination of a mold having a charge-receiving opening in its upper side, charge-compressing means embodying compression members, one of said members being pivoted to form a guide to direct a charge of tobacco toward the opening in the mold and movable into parallelism with the other member to compress such charge, means for delivering a charge of tobacco to said pivoted member, and a plunger operative vertically between said members to introduce a compressed charge into the mold through said opening therein.

18. In a cigarette making machine, the combination of a mold having an opening in its upper side for the reception of a charge of tobacco, a vertically movable plunger mounted in alignment above said opening in the mold, a pair of members cooperative with the plunger, one of said members being pivoted to swing into parallelism with the other member and into angular relation thereto and constituting when in the latter position a guide for directing a charge of tobacco toward the opening in the mold, and means arranged above the mold for cutting and delivering a charge of tobacco to the mold.

19. In a cigarette making machine, the combination of a mold having a charge-receiving opening in its upper side, a plunger mounted above and movable toward and from said opening in the mold, a pair of members cooperative with the plunger, one of said members being pivoted to swing into parallelism with and into angular relation to the plunger and constituting while in the latter position a guide for directing a charge of tobacco beneath the plunger, means for cutting and delivering a charge of tobacco to said pivoted member, means for operating said pivoted member to confine the delivered charge beneath said plunger, and means for operating the plunger to introduce such charge into the mold through said opening therein.

20. In a cigarette making machine, the combination of a mold having an opening in its upper side and also having a tube-receiving portion at one end, means for applying the tip of a cigarette tube to the tube-receiving end of the mold, a plunger mounted above and movable toward and from said opening in the mold, members cooperative with the opposite sides of the plunger, one of said members being pivoted to swing toward and from the plunger and constituting when in open position an inclined guide for directing a charge of tobacco beneath the plunger and constituting a parallel wall for the plunger when in closed position, means for delivering a charge of tobacco to said pivoted member, means for moving said member into parallelism with the plunger to confine the charge beneath the same, means for operating the plunger to introduce the charge into the mold, means for closing the opening in the mold after the latter has received the charge, and means operative lengthwise of the mold to transfer the charge therefrom to the tube.

21. In a cigarette making machine, the combination of a mold having an opening in its upper side, a plunger connected above and movable toward and from said opening, a member pivoted to swing into parallel and angular relations to the plunger and serving while in said angular position as a guide for directing a charge of tobacco into the space between the under side of the plunger and the opening in the mold, a pivoted guard cooperative with said pivoted member, means for delivering a charge of tobacco to said guard and member, means for moving said member toward the plunger to confine the charge beneath the plunger, and means for operating the plunger to introduce the charge into the mold.

22. In a machine of the class described, the combination of means for advancing a ribbon of tobacco, an abutment located in the line of movement of said ribbon and against which the latter is fed, and a slide embodying a knife movable rectilinearly in a direction transversely of the line of movement of the ribbon to sever the same and form a charge, the slide also having combined therewith a plunger movable across the abutment in unison with said knife to remove the charge from the abutment.

23. In a machine of the class described, the combination of a conveyor embodying an endless belt and a roller over which said belt passes, means for supplying tobacco to said belt to form a ribbon of tobacco thereon, a compression and guiding roller cooperative with the roller first mentioned and arranged substantially in the plane of the belt to deflect the ribbon of tobacco thereon, guides to receive the deflected ribbon of tobacco between them and operative to strip

the tobacco from the belt and the second roller, an abutment against which the ribbon is fed by said guides, and a knife in advance of said abutment operative to divide the ribbon of tobacco passing between said guides into predetermined charges.

24. In a machine of the class described, the combination of a flat conveyer for advancing a ribbon of tobacco, means for imparting a step-by-step movement to said conveyer, flat parallel guides to receive between them the ribbon from said conveyer, an abutment against which the ribbon is directed by said guides, and a knife in advance of said abutment and operative during the intervals between the movements of the conveyer for dividing the ribbon into laterally elongated charges.

25. In a machine of the class described, the combination of a conveyer embodying an inclined endless belt, a hopper at the upper end thereof for delivering tobacco to the belt to form a ribbon of tobacco thereon, a pair of cooperative rollers at the lower end of the belt, the belt passing over one of said rollers and the other roller being spaced beyond and located in the plane of the belt, means operatively connecting said rollers to rotate them in unison, means for imparting intermittent movements to said rollers and belt, opposed flat and parallel guides to receive between them the ribbon of tobacco from the belt after such ribbon has passed between said rollers, and a knife operative to divide the ribbon into charges.

26. In a machine of the class described, the combination of a conveyer, means for supplying tobacco thereto to form a ribbon of tobacco thereon, means to receive the ribbon from the conveyer, an abutment located in the path of the ribbon and against which the same is fed, a knife in advance of the abutment for dividing the ribbon of tobacco into charges, means for imparting step-by-step movements to the conveyer, and means for varying the degrees of movement imparted to said conveyer whereby charges of different sizes may be made.

27. In a machine of the class described, the combination of a conveyer, means for supplying tobacco thereto to form a ribbon of tobacco thereon, means for cutting said ribbon of tobacco transversely to form charges, and means for regulating the width of the ribbon of tobacco on said conveyer whereby charges of different lengths may be made.

28. In a cigarette making machine, the combination of a mold having a tube-receiving portion at one end, means for introducing a charge of tobacco into the mold, a plunger movable in alinement with the mold and operative to apply a tube to the tube-

receiving end thereof, a plunger operative longitudinally through the opposite end of the mold for transferring the charge of tobacco from the mold and to the tube, and an ejector movable transversely of the path of movement of the plunger first mentioned for removing the cigarette from the path of movement of such plunger.

29. In a cigarette making machine, the combination of a mold having a tube-receiving portion at one end, a plunger reciprocable in alinement with the mold, a chute arranged above said plunger for supplying cigarette tubes successively thereto, means for operating said plunger to apply a cigarette tube to the tube-receiving end of the mold, means for supplying a charge of tobacco to the mold, a plunger operative through the mold to transfer the charge of tobacco to the tube, and a reciprocatory ejector operative beneath said chute and across the path of movement of the plunger first mentioned for removing the completed cigarette.

30. In a cigarette making machine, the combination of a mold, means for supplying a charge of tobacco thereto, a plunger movable in alinement with the mold, a chute for supplying cigarette tubes successively to said plunger, means for operating said plunger to present a tube in cooperative relation to the mold, a second plunger operative through the mold for transferring the charge of tobacco to the tube, an ejector operative beneath said chute and across the path of movement of the plunger first mentioned for removing the filled cigarette from the path of movement of the plunger first mentioned, a traveling conveyer arranged to receive the cigarette, and a second ejector movable across said conveyer for removing the cigarette therefrom.

31. In a cigarette making machine, the combination of a mold, means for supplying a charge of tobacco thereto, a chute for supplying cigarette tubes successively to the mold, means for transferring a charge of tobacco from the mold to a cigarette tube, an ejector for removing the filled cigarettes, and a yieldable guard mounted in front of said ejector and operative to guide a cigarette tube while being applied to the mold.

32. In a cigarette making machine, the combination of a mold having means for supplying a charge of tobacco thereto, means for transferring such charge from the mold to a cigarette tube, means for supplying tubes successively to the mold comprising an inclined hopper having an outlet, a reciprocatory panel in the bottom of the hopper for feeding the tubes to said outlet, a chute arranged to receive the tubes from said outlet of the hopper, a plunger ar-

ranged at the bottom of the chute and operative to apply the tubes successively to the mold, a movable guard for holding the tubes in operative relation to said plunger, and an ejector movable toward the guard for removing the cigarettes from the line of movement of said plunger.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ARAKEAL H. SARKISIAN.

Witnesses:

JOHN W. RORKE,

GARABED H. CARAGULIAN.