June 26, 1934. F. X. MALOCSAY 1,964,640

CIGAR BANDING MACHINE

Filed Oct. 31, 1930 10 Sheets-Sheet 1

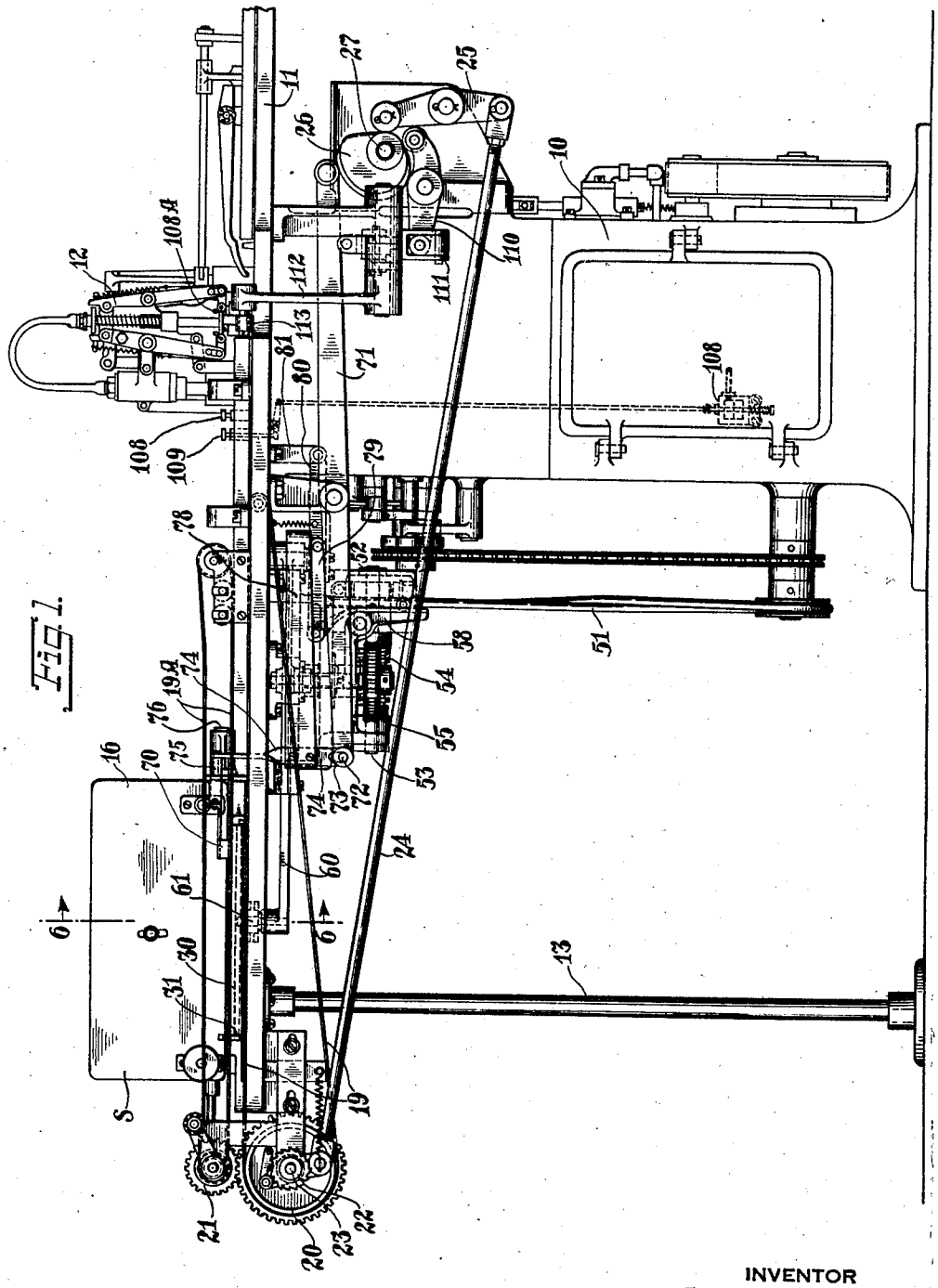


Fig 1.

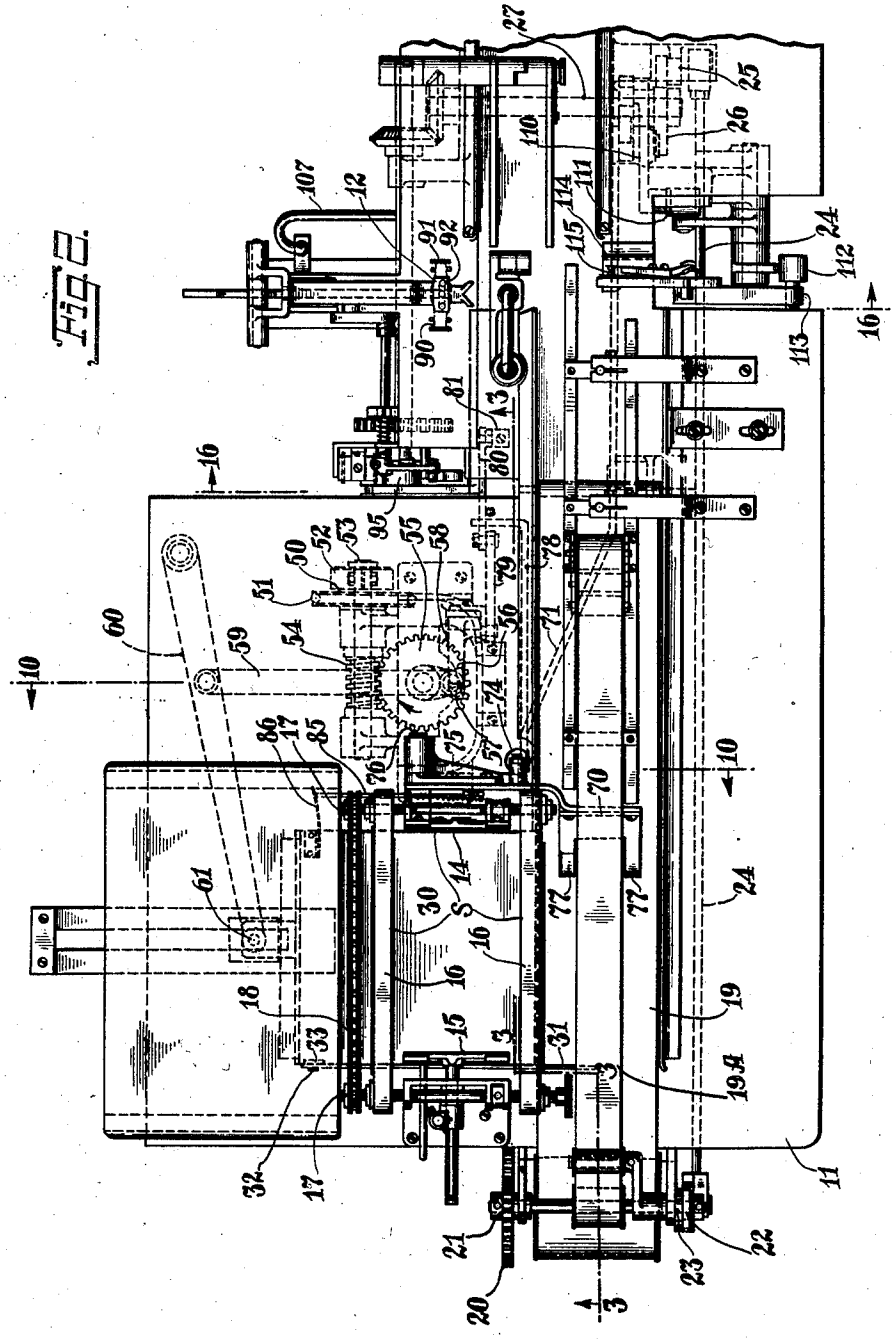
INVENTOR
Francis X. Malocsay
BY Schechter & Schechter
ATTORNEYS.

June 26, 1934. F. X. MALOCSAY 1,964,640

CIGAR BANDING MACHINE

Filed Oct. 31, 1930 10 Sheets-Sheet 2

Fig 2.

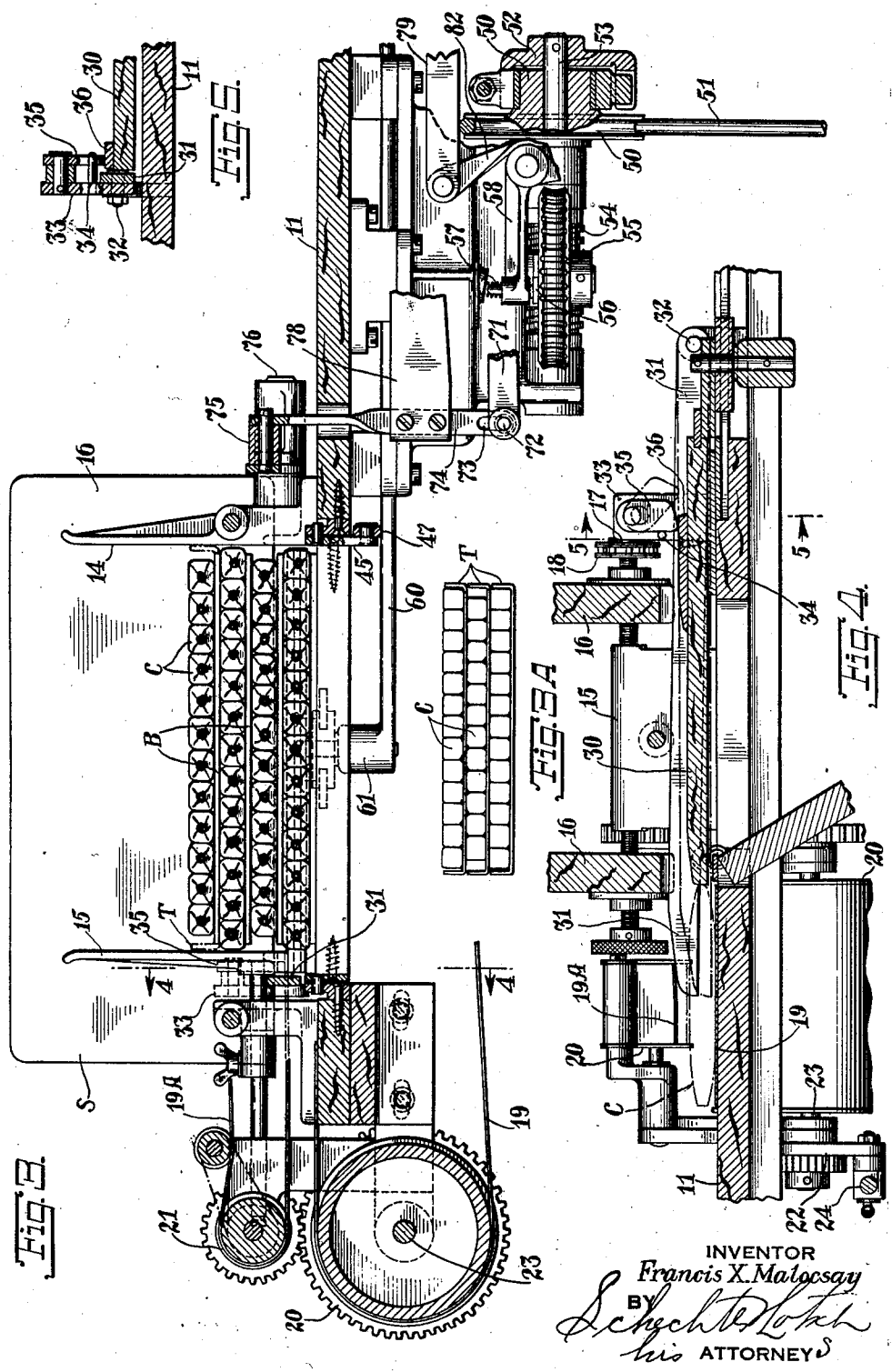


INVENTOR
Francis X. Malocsay
BY Scheckter & Kotch
his ATTORNEYS

June 26, 1934. F. X. MALOCSAY 1,964,640

CIGAR BANDING MACHINE

Filed Oct. 31, 1930 10 Sheets-Sheet 3

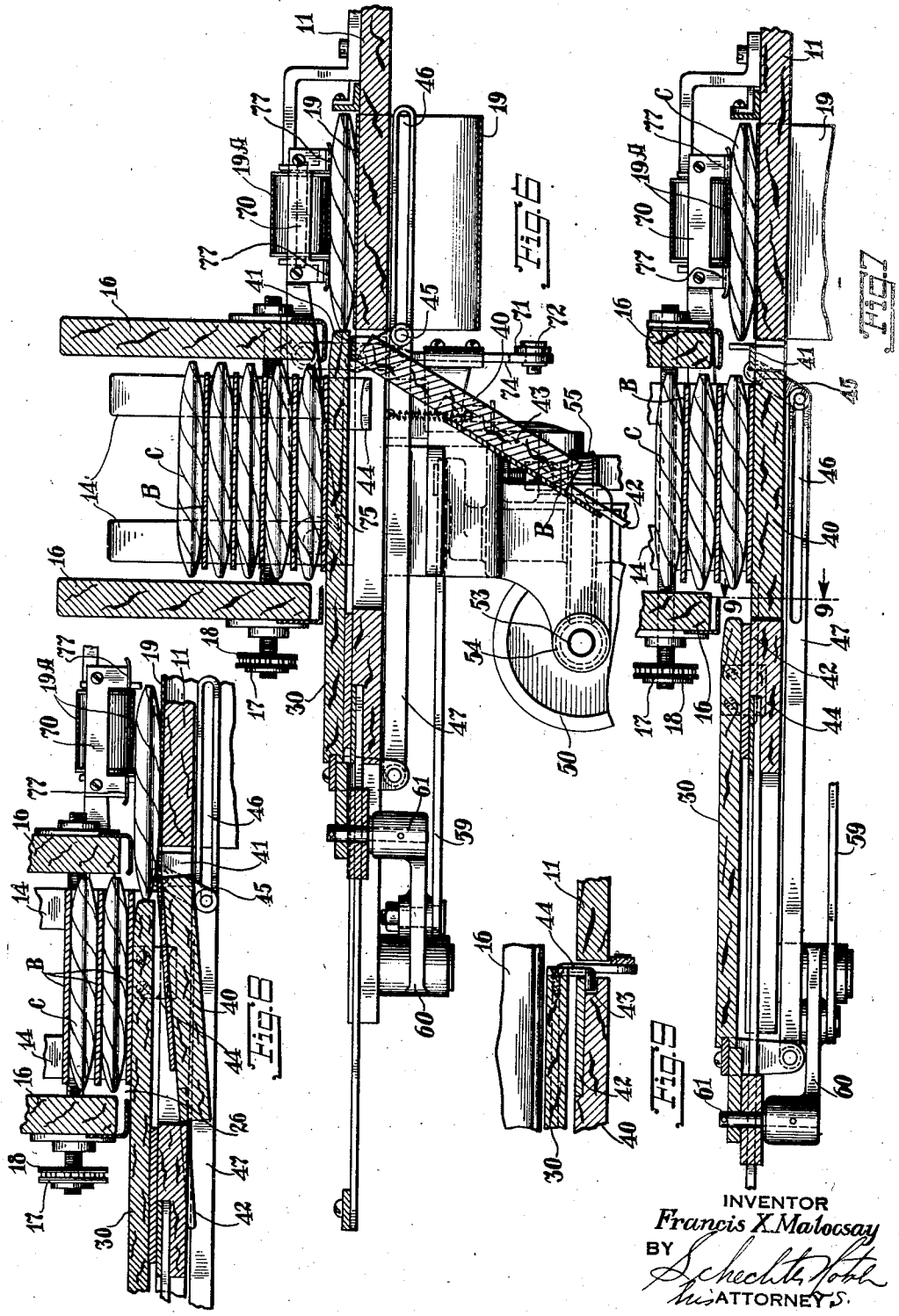


INVENTOR
Francis X. Malocsay
BY Schuchte & Lotsch
his ATTORNEYS

June 26, 1934. F. X. MALOCSAY 1,964,640

CIGAR BANDING MACHINE

Filed Oct. 31, 1930 10 Sheets-Sheet 4



INVENTOR
Francis X. Malocsay
BY Schechter & Kobb
his ATTORNEYS.

June 26, 1934. F. X. MALOCSAY 1,964,640

CIGAR BANDING MACHINE

Filed Oct. 31, 1930 10 Sheets-Sheet 5

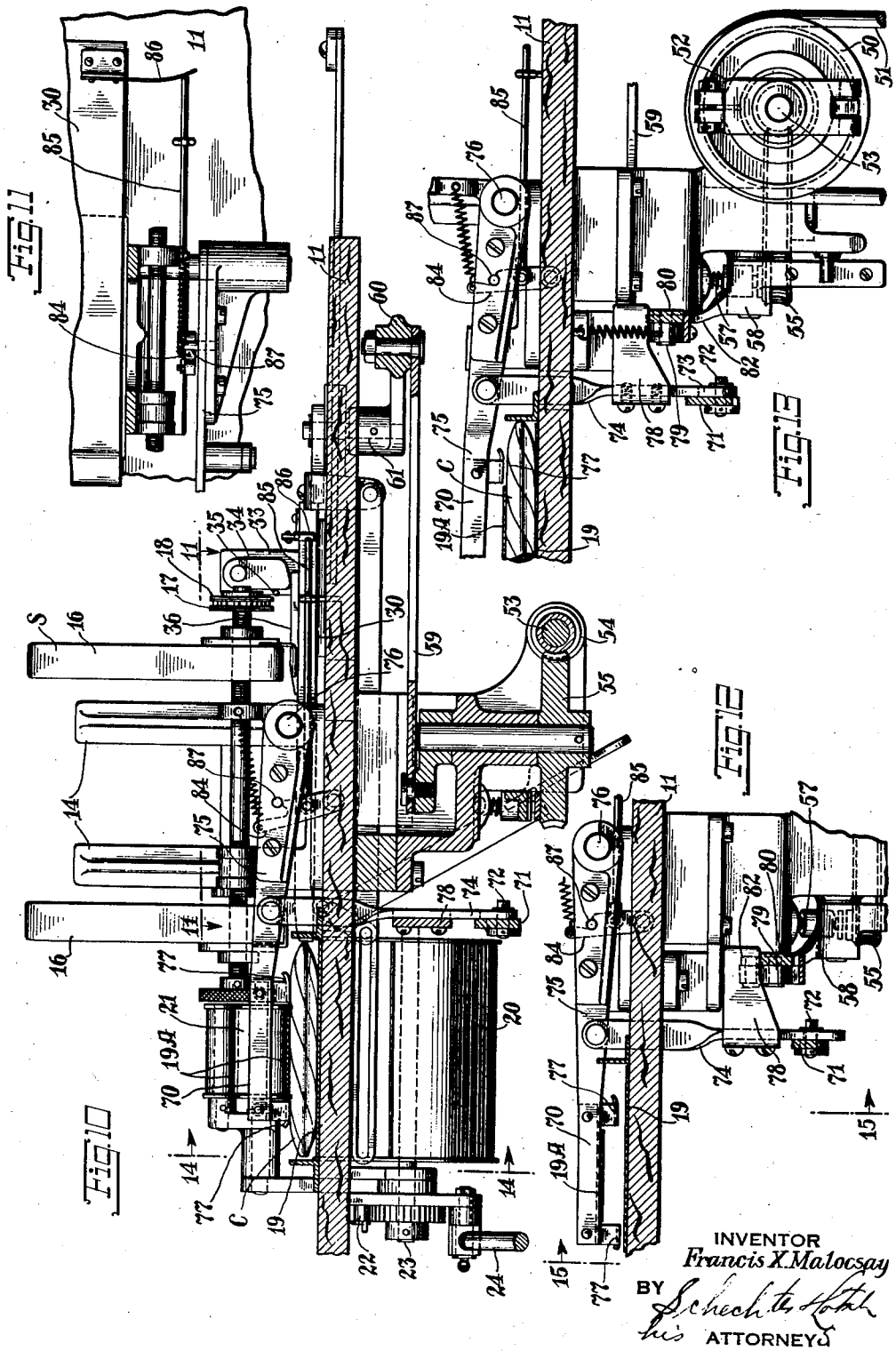


Fig. 10

Fig. 11

Fig. 12

Fig. 13

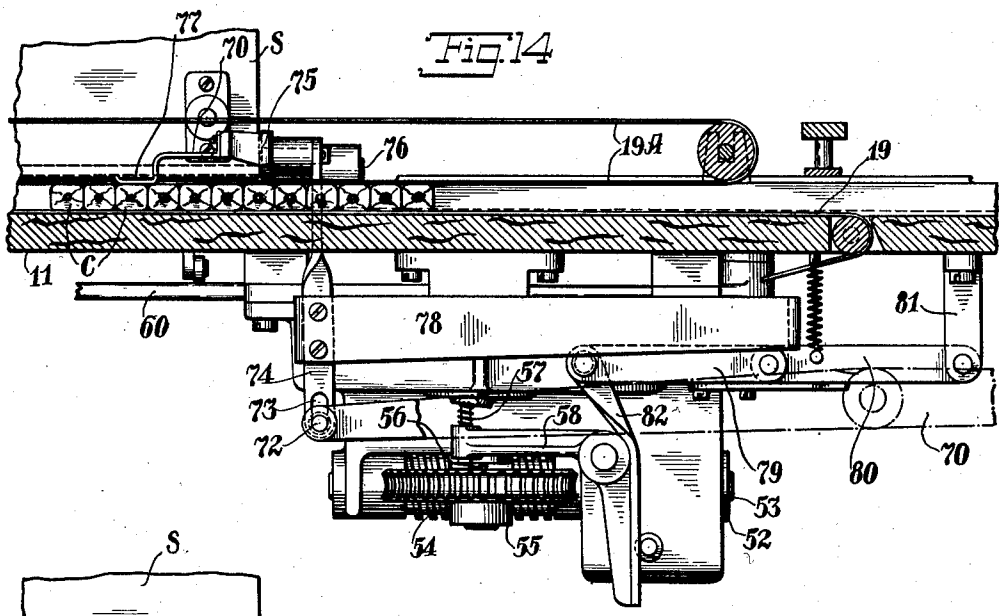
INVENTOR
Francis X. Malocsay
BY Schechter & Hoth
his ATTORNEYS

June 26, 1934. F. X. MALOCSAY 1,964,640

CIGAR BANDING MACHINE

Filed Oct. 31, 1930 10 Sheets-Sheet 6

Fig. 14



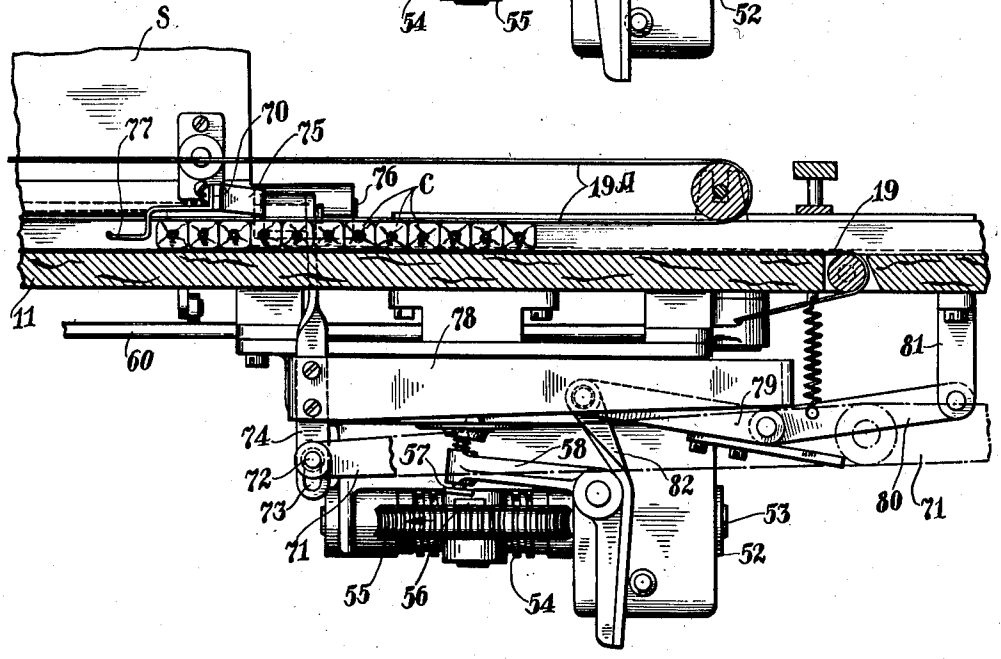


Fig. 15

INVENTOR
Francis X. Malocsay
BY Scheckter & Kobel
his ATTORNEYS.

June 26, 1934. F. X. MALOCSAY 1,964,640

CIGAR BANDING MACHINE

Filed Oct. 31, 1930 10 Sheets-Sheet 7

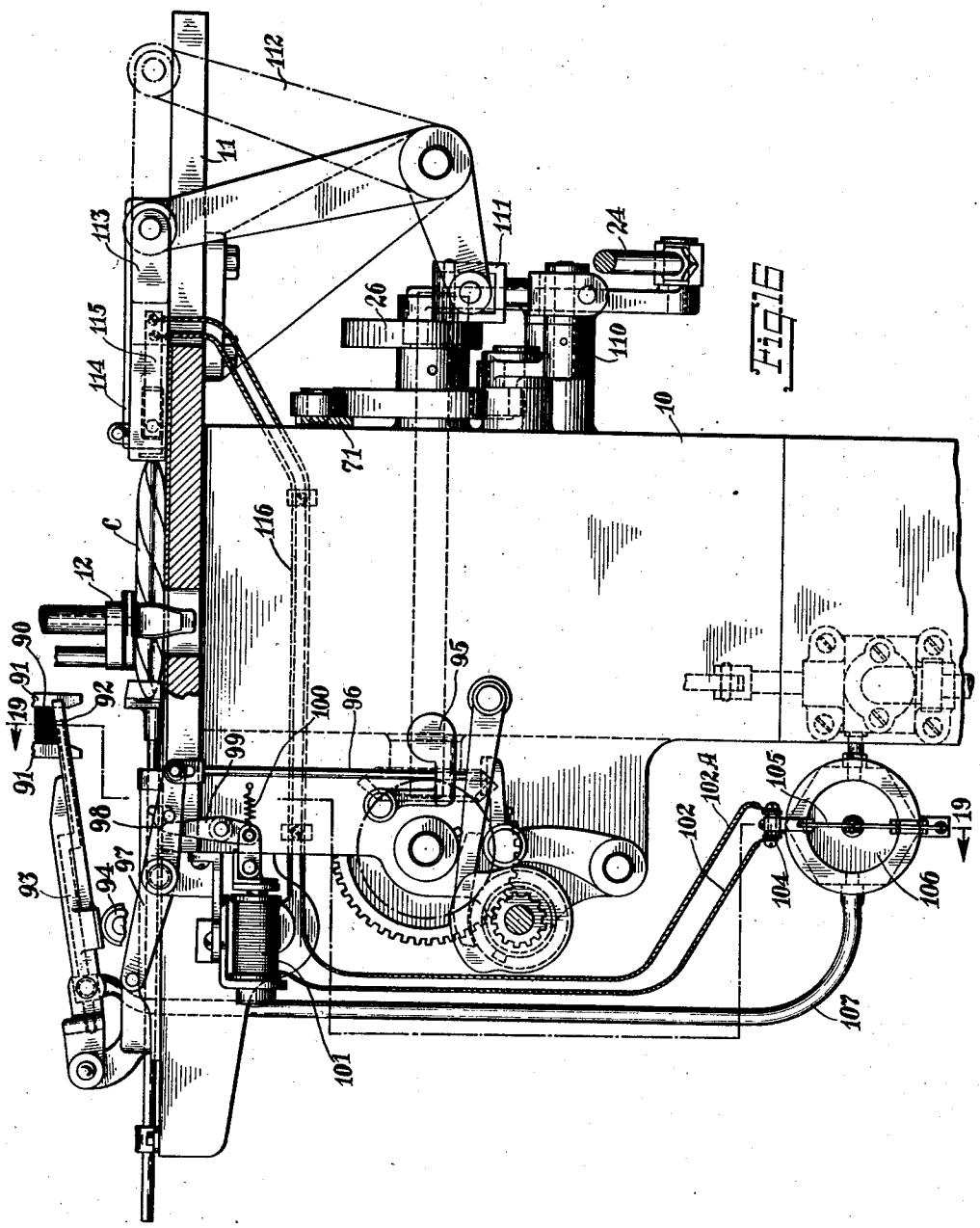


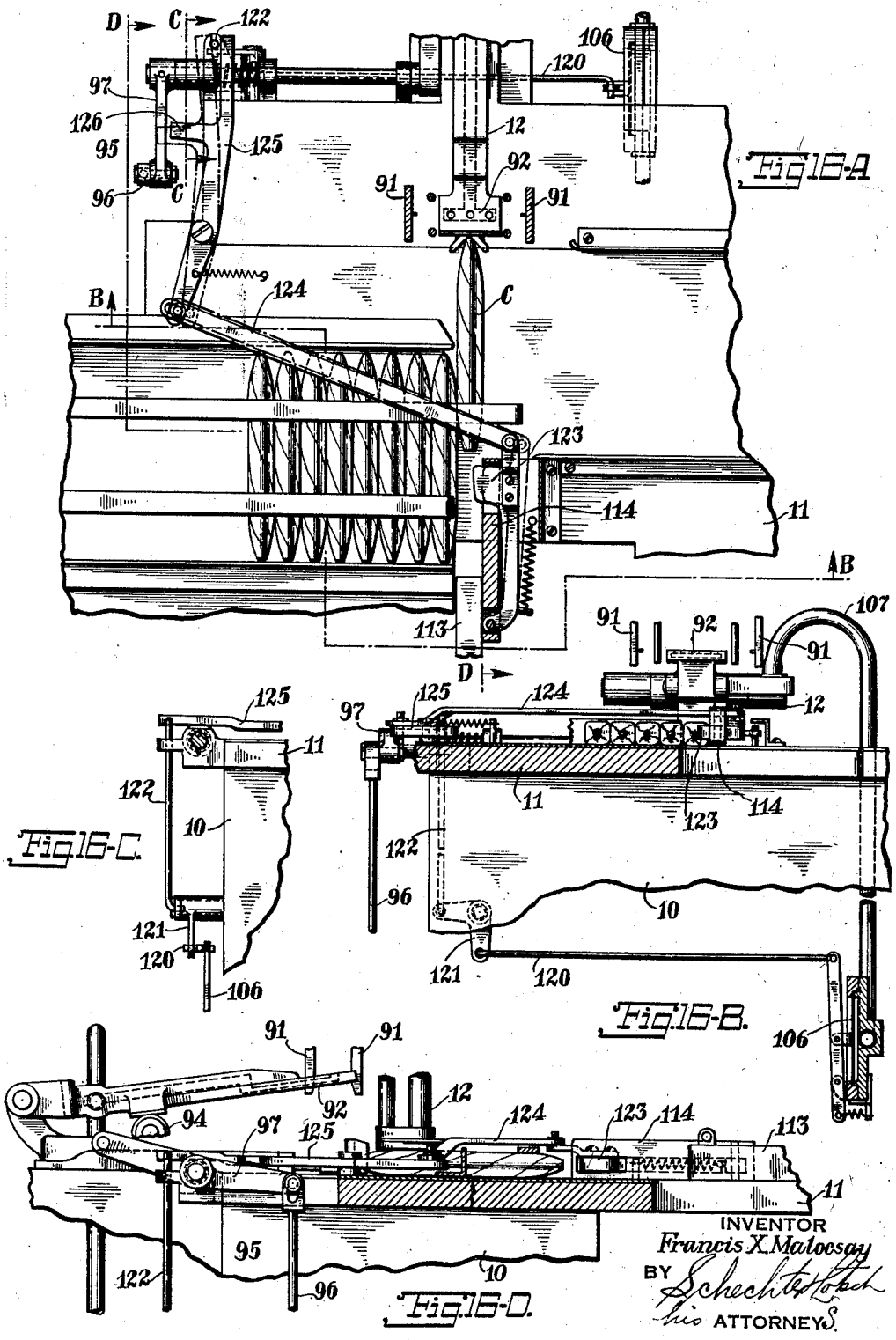
Fig. 15

INVENTOR
Francis X. Malocsay
BY Schachte & Lobel
his ATTORNEYS

June 26, 1934. F. X. MALOCSAY 1,964,640

CIGAR BANDING MACHINE

Filed Oct. 31, 1930 10 Sheets-Sheet 8



INVENTOR
Francis X. Malocsay
BY Schechter & Lotsch
his ATTORNEYS.

June 26, 1934. F. X. MALOCSAY 1,964,640

CIGAR BANDING MACHINE

Filed Oct. 31, 1930 10 Sheets-Sheet 9

Fig. 17

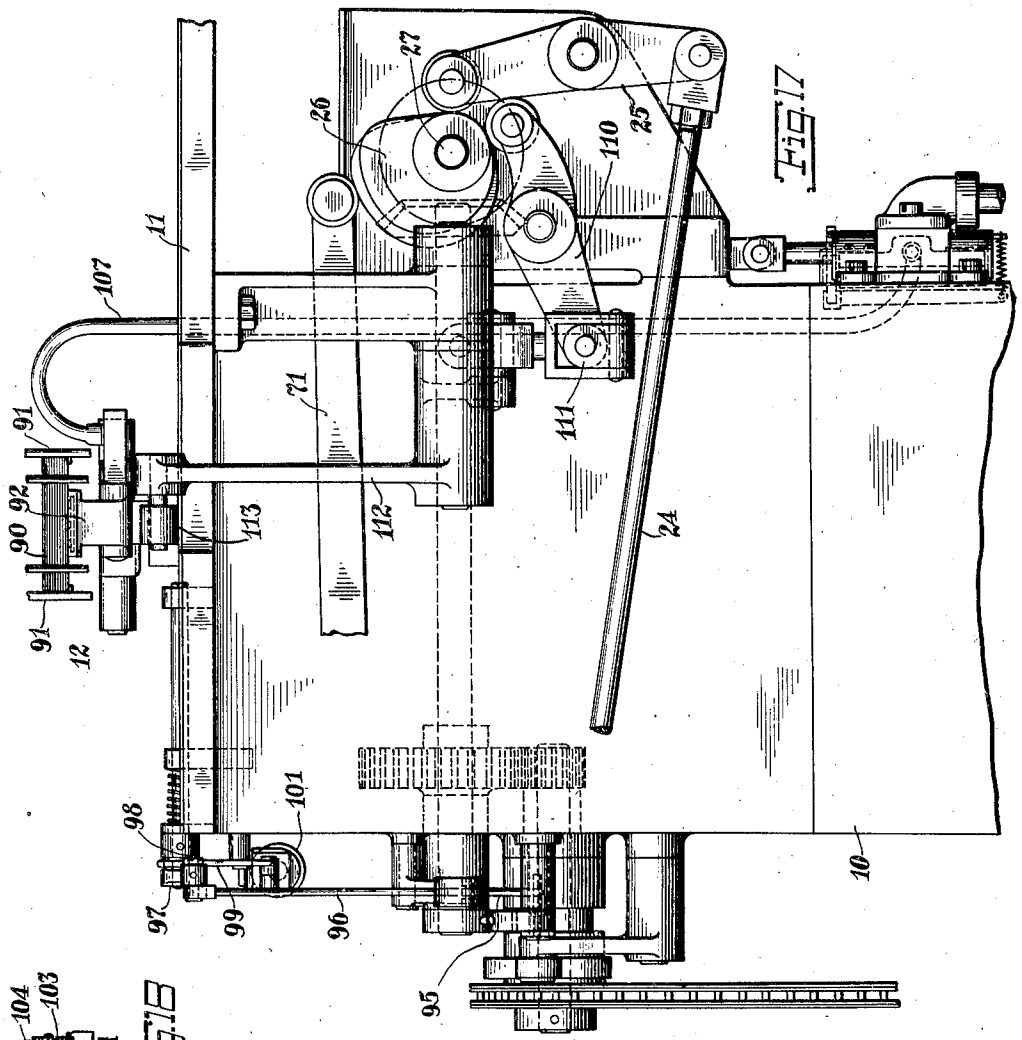
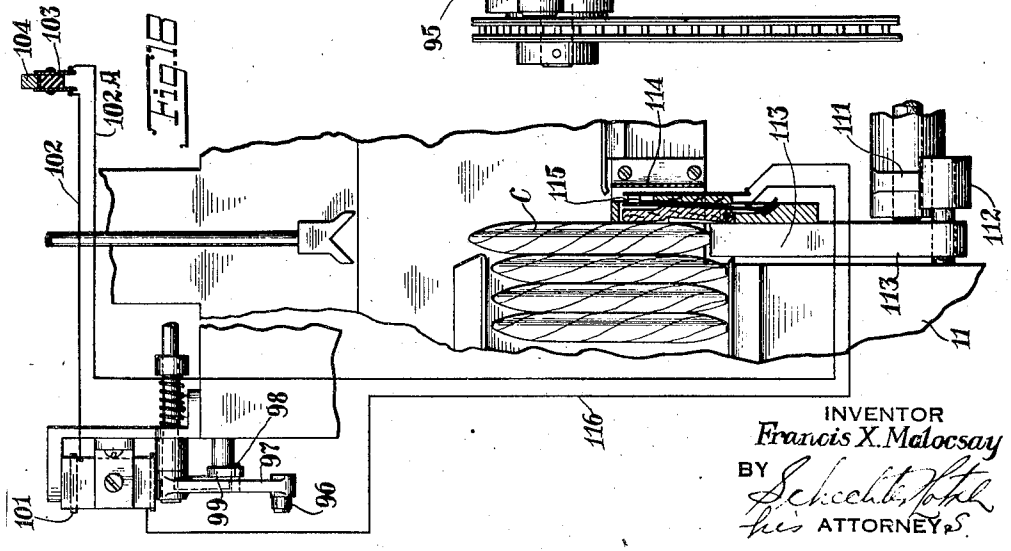


Fig. 18



INVENTOR
Francis X. Malocsay
BY Schroeder, Mottl & Davis
his ATTORNEYS.

June 26, 1934. F. X. MALOCSAY 1,964,640

CIGAR BANDING MACHINE

Filed Oct. 31, 1930 10 Sheets-Sheet 10

Fig. 19

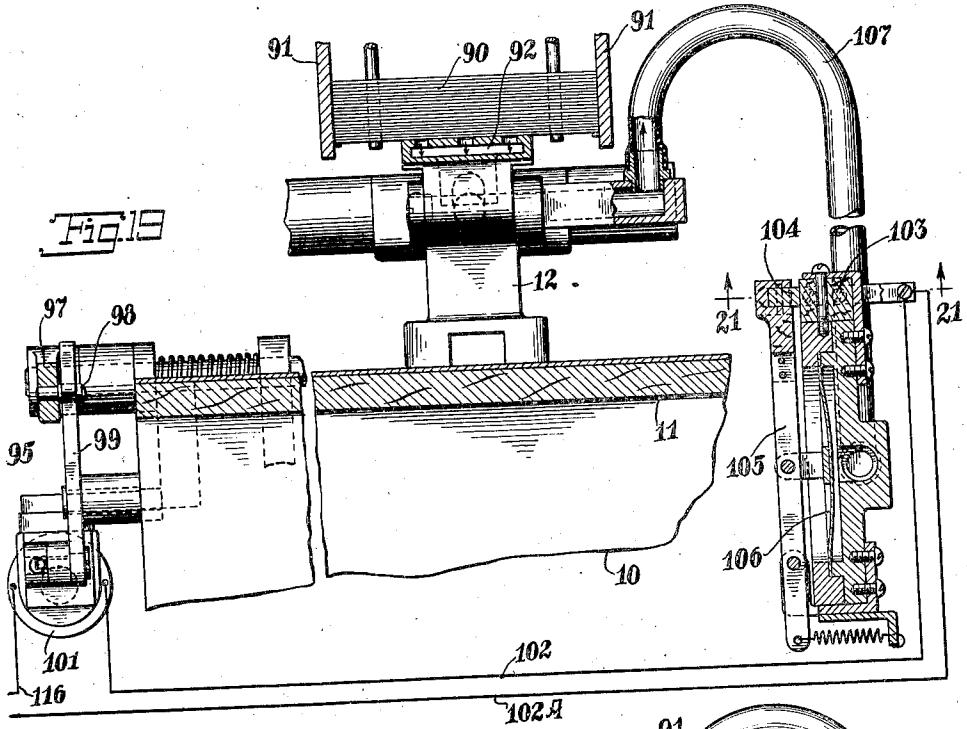


Fig. 21

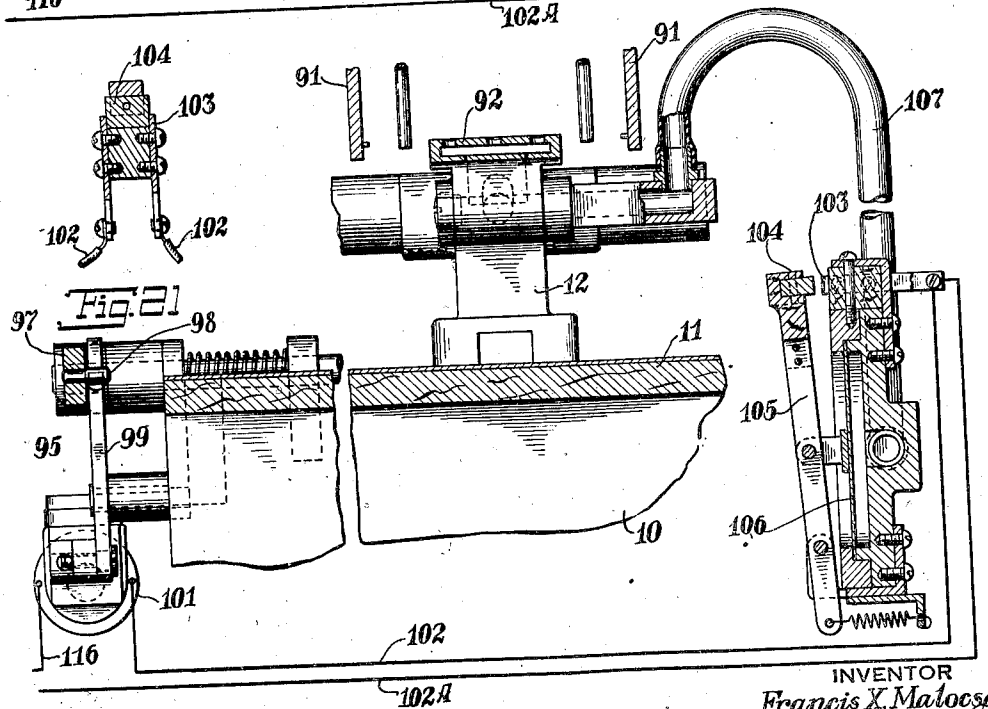


Fig. 20

INVENTOR
Francis X. Malocsay
BY Schechter & Zabel
his ATTORNEYS.

Patented June 26, 1934 1,964,640

UNITED STATES PATENT OFFICE

1,964,640

CIGAR BANDING MACHINE

Francis X. Malocsay, Upper Saddle River, N. J., assignor, by mesne assignments, to Consolidated International Corporation, a corporation of New York

Application October 31, 1930, Serial No. 492,437

48 Claims. (Cl. 131—61)

It is among the general objects of the present invention to provide a cigar banding machine which will be wholly automatic in its operation.

Another object is to provide a banding machine, having automatic means for supplying the cigars from the hopper to a conveyor leading to the band applying mechanism.

A further object is to provide automatic hopper feed mechanism which operates in response to the feed of cigars to the band applying mechanism.

A further object is to provide a banding machine which is adapted to feed cigars to a conveyer belt from either a conventional hopper of loose cigars or from a stack of cigar trays.

Another object of the invention is to provide a banding machine, operations of which are controllable by the cigar bands used and which is arranged to be automatically stopped upon failure of the proper feed of the bands.

Another object is to provide a banding machine, operations of which are controllable by the supply of cigars so that should the cigars fail to reach the band applying mechanism, the apparatus will be stopped.

A further object of the invention is to provide a cigar banding machine which is wholly automatic in operation and in which the various parts are co-ordinated and cooperated in such manner as to eliminate the necessity of manual manipulation of the machine during the banding operation.

Another object of the invention is to provide for the retention of the cigars in a proper conformation, this feature of the invention providing an important commercial improvement by avoiding the usual rounding of cigars by their manipulation in such machine.

Another object of the invention is to provide improved means for supplying cigars from the hopper to the conveying belt thereof, such means acting to raise or tip the belt on the side near which the cigars enter, as cigars are placed thereunder, and thus eliminating the danger of mutilating or injuring the cigars.

A further object of the invention is to provide automatic means which act to automatically supply a row of cigars to the conveyer belt after the last of the previously supplied row has been discharged to the banding mechanism, regardless of the length or number of cigars on a tray, or regardless of removal of cigars from the conveyer.

Another object of the invention is to provide for the feeding of separate rows of cigars to the mechanism from a hopper in which the rows are segregated by shape-retaining boards or trays and for the discharging of the boards or trays from the bottom of the hopper as each row of cigars is supplied to the belt.

A further object is to provide a co-ordination between the control mechanism whereby a single clutch may be utilized to stop the machine upon the failure of either the bands or the cigar supply.

Another object of the invention is to provide electrical or mechanical means operable to control the clutch mechanism in response to the supply of bands or cigars.

Another object of the invention is to provide a wholly coordinated and combined assembly by which the foregoing objects are carried out in a novel, simple and improved manner and thereby increase the production and reduce the cost of applying bands to the cigar.

Another important object of the invention is to provide a cooperating, coordinated assembly which while rendering the machine wholly automatic in its operation, is particularly designed to meet the demand of economic manufacture.

A further object of the invention is to provide a machine adapted to be used in connection with banding machines such as, for example, that illustrated in my Patent No. 1,261,832, dated April 9th, 1918, in which cigars may be removed from the box in which they were originally packed, fed to the banding machine and returned to the box in the same order that they were originally boxed. In this connection a receptacle or hopper may be used for holding the cigars of the type illustrated in my Patent No. 1,653,641, dated December 27, 1927, which form of receptacle or hopper is adaptable for use in connection with my present invention.

Other more specific objects and advantages of the apparatus will appear as the nature of the improvements is better understood, the invention consisting substantially in the novel arrangement and correlation of instrumentalities herein fully described and illustrated in the accompanying drawings wherein similar reference characters are used to describe corresponding parts throughout the several views and then finally pointed out and specifically defined and indicated in the appended claims.

The disclosure made the basis of exemplifying the present inventive concept suggests a practical embodiment thereof, but the invention is not to be restricted to the exact details of this disclosure, and the latter, therefore, is to be understood from an illustrative, rather than a restrictive, standpoint. It will be understood that the

various features of the invention may be separately applicable despite their cooperation herein shown.

In one embodiment of the invention as herein disclosed there is provided a hopper in which rows of cigars may be placed, between which rows spacer boards or trays are used in order to retain the angular cross-section of the cigars. Under the hopper, a reciprocating pusher plate is mounted which discharges the bottom row of cigars from the hopper to the conveyer belt. The pusher assembly includes a pivoted door which acts to discharge from the bottom of the hopper the spacer boards or trays so that they are not supplied with the cigars to the conveyer belt. The pusher assembly also includes means for lifting the upper conveyor belt as the cigars are pushed thereunder so as to avoid mutilation of the cigars during their delivery to the conveyer belt.

Associated with the conveyer belt, a feeler shoe is provided, movement of which is limited by the cigars and which operates to drop when the supply of cigars to the belt is exhausted or when the last cigar of one row has passed thereunder. The shoe controls a clutch mechanism which operates the hopper pusher so that the feed of cigars to the belt is automatically controlled in response to the passage of the cigars through the banding assembly, regardless of the number of cigars in a row or the fact that some may have been removed from the row.

The invention also provides pneumatic circuit controlling means which is associated with the band supply in such manner as to magnetically actuate a clutch mechanism to stop the machine upon failure of band supply. The magnetic means is also associated with a circuit controller actuated by the cigars themselves so that upon exhaustion of the cigars, the clutch mechanism will be operated to stop the machine. Both the band control of the machine and the cigar control is thus cooperated to jointly or severally control the mechanism. The invention also contemplates a modification comprising equivalent mechanical means to accomplish such control.

In connection with the features herein specifically pointed out, it will be understood that the invention is also concerned with the specific mechanical means by which the advantageous functions are achieved, which features combine, cooperate and interrelate in synchronous manner to provide a wholly automatic simple, inexpensive, rugged and durable apparatus.

The inventive idea involved is capable of receiving a variety of mechanical expressions, one of which for the purpose of illustration is shown in the accompanying drawings in which—

Fig. 1 is a front elevation;

Fig. 2 is a top plan view;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2;

Fig. 3—A is a detailed view illustrating a stack of trays which may be used in lieu of the loose cigars in the hopper;

Fig. 4 is a section taken on line 4—4 of Fig. 3;

Fig. 5 is a detailed section taken on line 5—5 of Fig. 4;

Fig. 6 is a section taken on line 6—6 of Fig. 1;

Figs. 7 and 8 are sections similar to Fig. 6 showing different positions of the pusher and its trap door;

Fig. 9 is a detail section on line 9—9 of Fig. 7;

Fig. 10 is a section taken on line 10—10 of Fig. 2, showing position of feeler foot when cigars are in place;

Fig. 11 is a detail plan view taken on line 11—11 of Fig. 10;

Fig. 12 is a detail side elevation similar to Fig. 10, showing position of the feeler foot when supply of cigars is exhausted;

Fig. 13 is similar to Fig. 12 and shows position of the feeler foot when cigars are fed under belt;

Fig. 14 is a section taken on line 14—14 of Fig. 10;

Fig. 15 is a similar view showing the position of parts as shown in Fig. 12;

Fig. 16 is a section taken on lines 16—16 of Fig. 2;

Fig. 16—A is a plan view showing mechanical means for controlling the banding operation;

Fig. 16—B is a sectional view taken on line B—B of Fig. 16—A;

Fig. 16—C is an end elevation of the portion shown in Fig. 16—B taken as indicated by the lines C—C of Fig. 16—A;

Fig. 16—D is a sectional view taken on line D—D of Fig. 16—A;

Fig. 17 is an end elevation of the band applying end of the machine;

Fig. 18 is a fragmentary plan view of a portion of the banding end of the machine;

Fig. 19 is a sectional view of the vacuum control taken on line 19—19 of Fig. 16;

Fig. 20 is a similar view showing the control circuit broken; and

Fig. 21 is a section taken on line 21—21 of Fig. 19.

With particular reference to Fig. 1 of the drawings, it will be noted that while a complete banding machine is illustrated, the conventional operating means and banding assembly per se are shown in lighter lines, whereas the novel features of the present invention are emphasized by the use of heavier lines. The conventional base which houses therein the usual moistening tape operating mechanism and the like is generally indicated by the numeral 10, while the band-applying assembly itself mounted over the table 11 of the machine is generally indicated by the numeral 12. The right hand end of the table is shown as continuing and may be suitably connected with associated apparatus not shown. The left hand end of the table is supported by a suitable vertical support 13 and has mounted thereon the cigar supply box S, the cigar hopper, feeding belts and feed control mechanism as will be hereinafter described in detail.

Figs. 1 to 15 of the drawings illustrate in detail the hopper and feed mechanism, the hopper being formed by a fixed end plate 14 cooperating with an adjustable end plate 15. The plates 14 and 15 are mounted between side plates 16 and constitute an adjustable substantially rectangular hopper trough, the plates 16 being adjustable by the use of the conventional sprocket wheels 17 and chains 18. The sprocket wheels 17 are mounted on the side plate supporting bars which threadedly engage the side boards to adjust them by rotation of the sprockets. The cigars identified by the letter C are positioned within the hopper in rows parallel to the end plates, or in the usual trays T as shown in Fig. 3—A, in which they are originally packed. Spacer boards B of cardboard or the like may be used between rows of loose cigars to retain them in individual tiers and against deformation from their preferred angular cross-section. The use

of either trays T or spacer boards B is not essential and if desired the cigars C may be loosely positioned in the hopper as in present day practice.

Parallel to the hopper a cigar runway extends toward the banding assembly. The runway is provided with a wide lower conveyer belt 19 over which lies a narrower conveyer belt 19—A. These belts are synchronously propelled by respective gear pulley wheels 20 and 21, the pulley 20 of belt 19 being driven by a ratchet assembly 22 connected on its shaft 23. The ratchet pawl is driven by a reciprocating link 24 connected to a rocker arm 25 having cam drive by cam 26 from a main driving shaft 27, the arrangement being such that synchronous drive of the belts with the banding assembly is maintained. Shaft 27 is driven by means of mitre gears 27' from the jackshaft on which the clutch 95 is secured which couples the drive to the main drive of the wrapping machine. See Figs. 16 and 17. As explained later this clutch is controlled both by the cigar supply mechanism as well as the band supply device so that when it is disengaged by the intervention of either means, the belt drive is indirectly stopped simultaneously.

Rows of cigars are ejected from the bottom of the hopper to a position between the belts by a reciprocating pusher plate 30. A belt raiser bar 31 is pivotally mounted at 32 on table 11, the forward end of which engages under the belt 19-A during the forward movement of the pusher to raise or tip the belt and to permit the free positioning of the cigars upon the belt 19 without danger or injury to their fragile wrapper. As shown more clearly in Figs. 4 and 5, the bar 31 is pivoted at 32 on table 11. To the arm 33 fastened to bar 31 is pivoted dog 35 which is pivotally moved by cam plate 36 on the pusher 30. As the pusher 30 moves forwardly in its reciprocation, the dog 35 is moved by cam plate 36 to strike a stop 34 on arm 33 and is then moved upwardly by caming action of plate 36 to raise the bar 31 which engages under the belt and raises it to admit the cigars. As the pusher goes back, the back of plate 36 moves dog 35 to dotted line position of Fig. 4 and raiser 31 thus drops to normal position.

As shown in Figs. 6 to 9 inclusive, the pusher plate assembly engages the bottom row of cigars and the under board or tray thereof, and upon forward movement moves the cigars under the raised belt 19—A. The table includes a pivoted trap door 40 under the hopper, forming the bottom thereof. Near the pivoted edge of the door the table carries a fixed bracket 41. As the cigars are moved forward by the pusher 30, the forward edge of the board B or tray T strikes the bracket 41 and is thus held on the trap door 40 while the pusher moves over it to eject the cigars C to their position between the belts. The door 40 is normally retained flush with the table 11 by a plate 42 mounted along one edge thereof and countersunk to form a flat surface for the trap door. Under the plate 42, the door is rabbeted to form a groove 43 while the plate extends beyond the end of the door, the table having an aperture to permit its downward movement therethrough. The door is normally held flush with the table by a depending ear 44 carried by the pusher member 30 which engages under the plate 42 and rides in groove 43 in the major portion of the advanced movement of the pusher 30. At the end of the forward movement of the pusher 30, the ear 44 reaches the forward edge of the plate 42 and thus moves out from under the plate to disengage the door which is moved to open position as shown in Fig. 6 by an opening impulse delivered thereto through a door operating crank 45, the end of which is received within the lost motion slot 46 of a door operating link 47. The link moves with the pusher 30 and as the end of the pusher stroke is accomplished, the crank 45 strikes the end of the slot 46 and the door is moved to open position, thus discharging therefrom the spacer board B or tray T which drops by gravity through the table.

It will be understood that the machine is applicable for use with either board spaced rows of cigars, trays of cigars or with merely loose cigars; in the latter case the connecting link may be detained from the trap door and the door will not be moved but will merely act as a simple sliding support for the pusher 30.

The pusher 30 is reciprocated at timed intervals in accordance with the rate at which cigars are moved from in front of the hopper and thus normal in accordance with the discharge of cigars from the banding assembly through the medium of a friction clutch, the wheel 50 of which is continuously driven by belt 51 with the banding assembly drive through shaft 53. (See Figs. 1, 2 and 3.) Riding over the wheel 50 is a friction clutch plate 52 to which the wheel applies a continuous turning torque during the banding operation. The plate 52 is mounted on a shaft 53 and so delivers continuous driving torque to a worm 54 which thus tends to continuously drive an enmeshing worm wheel 55. Rotation of the worm wheel is normally prevented by the engagement of a side lug 56 thereof by a pin 57 carried upon a pivoted bell crank 58. (See Figs. 14 and 15.) The wheel 55 is thus normally held stationary as in the position indicated in Fig. 14. Upon release of the wheel 55 it is rotated by the gear 54 at a greatly reduced rate of speed and thus reciprocates a pitman 59 which is intermediately connected to the pusher driving link 60 which is connected to the end of the plate 30, as shown at 61. Thus rotation of wheel 55 gives one slow complete cycle of pusher movement and delivers to the belts a new row of cigars.

For controlling the actuation of the clutch mechanism and thus the pusher movement, there is provided a feeler shoe 70 (see Figs. 10 to 15) which is normally moved up and down by the action of an intermediately pivoted arm 71, one end of which is moved by the cam 26 of the main driving shaft 27. The opposite end of arm 71 has a pin 72 working in a lost motion slot 73 of a vertically dependent link 74 which is connected to an arm 75 pivoted at 76, the outer end of which carries the shoe 70, which rides between the belt 19—A and has side arms which strike the cigars and thus hold the shoe up when no more cigars are required. The link 74 also carries right angularly extending arm 78, the end of which rides upon a toggle-joint formed by links 79 and 80, the fixed end of link 80 being pivoted from the table 11 of the machine by a connecting bar 81, while the opposite end of the link 79 is pivoted to a rigid extension 82 of the bell crank 58. In the operation of the device, the arm 71 tends to oscillate the feeler fingers. When cigars are upon the conveyer, the fingers 77 are prevented from dropping down. If, however, the cigars pass from under the fingers, the fingers will drop, whereby the arm 78 will break the toggle and release the wheel 55, which will then reciprocate the plate 30 and discharge under the belt the next row from

the hopper. For preventing movement of the fingers while cigars are being pushed to the belt there is provided a catch 84 (see Figs. 10, 11, 12 and 13) which is connected by link 85 to be struck by spring finger 86 of the pusher plate as it moves forward. The catch 84 engages under a pin 87 of the arm 75, as illustrated in Fig. 13, so as to hold the feeler fingers against their normal movement when the cigars are being fed under the belt.

From this consideration of the hopper to belt feeding mechanism, it will be seen that the machine automatically performs the required insertion under the belt of an unmutilated row of cigars from the bottom of the hopper and that the machine discharges as incidental to such feedings the spacer board or tray. It will be seen that the cigar supply is automatically co-ordinated with movement of the cigars by the belt and that an overfeeding of cigars from the hopper is impossible as the cigar feed is directly controlled by the passage of the last cigar from under the feeler fingers. The invention will thus clearly be seen to avoid the necessity of manual control of the hopper cigar supply and will automatically conform to the speed at which the cigars are being banded and discharged from the apparatus. While this portion of the invention is disclosed in connection with one preferred structural embodiment thereof, it will be clearly understood that various changes in the mechanical construction and a full use of equivalents may be resorted to throughout without departing from the spirit of the invention.

For stopping the operation of the machine upon failure of the band supply, the mechanism shown in Figs. 16 to 21 is employed. The bands 90 are stacked in the usual guides 91 and are removed therefrom and carried to the banding arm of the banding assembly 12 by a suction plate 92 which is guided by roller 94 and receives its drive from the conventional clutch mechanism indicated at 95. The clutch mechanism 95 normally tends to oscillate a pin 96 which controls the clutch, its upper end having lost motion connection with a lever 97. The arrangement is such that should the pin 96 be released to freely oscillate, the clutch will be thrown out and the machine stopped. The lever 97 carries a pin 98 by which it is normally held down, thus permitting operation of the machine. The pin is engaged by a pivoted catch 99 which is held in the pin engaging position against the tension of its spring 100 by the energization of a magnet 101, the pole of which attracts a keeper head on the catch. The magnet circuit is connected through conductors 102 and 102—A (see Figs. 16, 17, 18, 19, 20 and 21) with a pneumatic circuit controller comprising a fixed contact block 103 and a movable bridging block 104. The block 104 is mounted on an arm 105 connected to a diaphragm 106 which is sucked in by connection with the band feeding suction plate 92 through a pipe 107. When a band is not carried by the plate 92, either by exhaustion of the bands or by a jammed or torn band, or a heavier spacer between bands, the holes of the plate 92 are opened and the diaphragm springs out to the position shown in Fig. 20. The circuit is thus broken, magnet 101 is de-energized, arm 97 is released, and upon the next oscillation of pin 96 it moves up, releasing the clutch and stopping the machine. The lever 97 and pin 96 in Fig. 16 are therefore shown in a clutch releasing position.

For manually controlling the machine, a valve 108 is provided by which the suction to diaphragm 106 may be cut off to stop the operation of either banding or cigar feeding, but still permitting operation of the motor so that it may be moved up and the moistening tape 108—A (see Fig. 1) is properly met. A clutch control button 109 is also provided for independently controlling the clutch.

For feeding cigars from the end of the belts to the banding arms, the double faced cam 26 (see Figs. 17 and 18) operates a rocker arm 110 which is connected by a universal link connection 111 to a rocker 112 which drives the cigar mover 113 back and forth across the table. The cigars C are moved by the belt up to a stop 114 past which the mover 113 works. For controlling the machine operations by the cigar supply, a circuit controller 115 is placed within the stop 114. When no cigars are pressing the controller or switch 115, the contacts are broken and the magnet 101 is de-energized by virtue of its connection through conductors 116. Thus the clutch 95 is also controlled by the cigar feed.

Referring to Fig. 16 it will be noted that the conductor 102 connects to magnet 101 whose opposite end has a conductor 116 leading to circuit controller 115. When connections are therefore made at both the pneumatic label controller and the cigar circuit controller, the circuit is completed through the conductor 102—A.

It will be observed that the banding operation control is positively coordinated with the supply of cigars from the hopper. Should the banding operations cease through the automatic operation of the clutch, the cigars will be carried by the belts 19 and 19—A until the cigars C again make contact at 115. The bell crank 58 will thus be held in engaging position to prevent rotation of the worm wheel 55 and thus prevent further supply of cigars from the hopper.

By reference to Figs. 16—A, 16—B, 16—C and 16—D, it will be seen that the coordinated control by bands and cigars is not limited to electrical means. Equivalent mechanical means which may in some instance be more desirable are herein shown as a modification in which the diaphragm 106 is connected by link 120 and bell crank 121 with a pin 122 which engages the arm 97 to hold it normally against pivotal movement to release the clutch 95. When the diaphragm moves in, the pin 122 is lowered and the clutch thrown out. Cigar movement control is also provided for by a finger 123 which is normally held out by the spring 123—A. When no cigars press the finger 123, it moves under spring tension to push the link 124, moving arm 125 to release the rocker 97, one arm of which normally extends under the projector 126 of the arm 125.

Referring to Figs. 16—A and 16—C, it will be noted that both ends of the arm 125 must be free in order to take a position as shown in dot and dash lines. Should the pin 122 be raised due to the lack of the cigar bands, or the finger 123 have no pressure applied by a cigar, the clutch 95 is automatically thrown out.

It will thus be seen that the invention provides a completely coordinated and wholly automatic control for the banding machine. Should the supply of cigars from the hopper be exhausted, the banding apparatus will continue to function until the cigars are exhausted, at which time the contacts will be separated and the magnet will be disenergized to operate and stop the banding operation. Likewise after the sup-

ply of bands is exhausted, air will be admitted to actuate the diaphragm and thus disenergize the magnet. It will be seen from a consideration of the structure and operation of the invention that the various automatically operating features are free from requirement of frequent attention or adjustment and are in each detail structurally simple and durable.

In accordance with the provisions of the patent statutes, I have described my invention, but I desire it understood that it is not confined to the particular form shown and described, the same being merely illustrative, and that the invention can be carried out in other ways without departing from the spirit of my invention, and therefore, I claim broadly the right to employ all equivalent instrumentalities coming within the scope of the appended claims, and by means of which objects of my invention are attained and new results accomplished; and it is obvious that the particular embodiments herein shown and described are only some of many that can be employed to attain these objects and accomplish these results.

Having now described my invention, what I claim and desire to secure by Letters Patent, is:

1. In a machine of the class described, a cigar hopper, a conveyer for delivering cigars from the hopper to the banding assembly, and automatic means for supplying cigars from the hopper to the conveyer in response to the movement of cigars from the conveyer.

2. In a machine of the class described, a cigar hopper, a cigar conveyer in front of the hopper for moving cigars therefrom, and automatic means to feed cigars from the hopper to the conveyer in response to the movement of cigars from in front of the hopper.

3. In a machine of the class described, a cigar hopper, a conveyer for moving cigars from the hopper, means for delivering cigars from the hopper to the conveyer, and a control for said means operable to actuate said means when only a predetermined number of cigars or less are on the conveyer in front of the hopper.

4. In a cigar banding machine, a cigar hopper, a conveyer belt in front of the hopper, a discharging mechanism for moving a number of cigars from the hopper to the conveyer and controlling means for said belt and discharging mechanism responsive to the removal of cigars from in front of the hopper.

5. A cigar banding machine including a hopper, a conveyer adjacent the hopper, and automatically controlled means for discharging a row of cigars from the bottom of the hopper to the conveyer.

6. A cigar banding machine including a hopper adapted to receive loose cigars or rows of cigars with separation means, a conveyer for moving the cigars, and a discharging apparatus for delivering from the hopper to the conveyer a row of cigars from the bottom of the hopper, said discharge apparatus being adapted to discharge the separation means from the rows of cigars.

7. A cigar banding machine including a cigar hopper, a cigar conveyer, a reciprocating plate movable to deliver cigars from the hopper to the conveyer, means actuated by the plate to move the conveyer to properly receive the cigars, and an automatic controller for the plate comprising means operable by the passage of the last cigar from a predetermined point in the conveyer path to operate the plate to move cigars from the hopper to the conveyer.

8. In a cigar banding machine, a banding assembly, band supplying means for the assembly, and control means for the assembly responsive to the band supply.

9. In a cigar banding machine, a banding assembly, driving connection for the assembly, a clutch for the driving connection, and a clutch controller operable to stop the banding operation upon failure of the supply of bands to the assembly.

10. In a cigar banding machine, a banding assembly, band delivering means for the assembly, a driving connection for the assembly, a clutch for the driving connector, and means for disconnecting the clutch when the band delivering means fails to deliver a band to the assembly.

11. In a cigar banding machine, a banding assembly, pneumatic band delivering means for the assembly, a clutch controlled driving means for the assembly, and a pneumatic clutch controller operable with the pneumatic band delivering means.

12. In a cigar banding machine, a banding assembly, pneumatic band delivering means for the assembly, a clutch controlled driving means for the assembly, and a pneumatic clutch controller operable with the pneumatic band delivering means to stop the banding assembly actuation when there is a failure of the band delivering means.

13. In a cigar banding machine, a cigar supply means, a banding assembly, and wholly automatic coordinated means for controlling the operation of the cigar supply and the banding assembly, said last mentioned means being responsive to the supply of bands to the assembly.

14. In a cigar banding machine, a cigar supply means, a banding assembly, and wholly automatic coordinated means for controlling the operation of the cigar supply and the banding assembly, said last mentioned means being jointly responsive to both the supply of bands and the supply of cigars to the assembly.

15. In a cigar banding machine, a cigar banding assembly, means for supplying cigars thereto, means for driving the assembly and an interconnection between said means for coordinating the operation of one with the operation of the other whereby failure of the cigar supply will stop the operation of the assembly.

16. In a cigar banding machine, a cigar banding assembly, a clutch controlled drive therefor, means for supplying cigars to the assembly and clutch control means operable by the cigar supply to stop the operation of the assembly.

17. In a cigar banding machine, a cigar banding assembly, a clutch controlled drive therefor, means for supplying cigars to the assembly and clutch control means operable by the cigar supply to stop the operation of the assembly, said means including a clutch controlling magnet and a circuit therefor adapted to be broken by failure of cigar supply.

18. In a cigar banding machine, a cigar banding assembly, a clutch controlled drive therefor, means for supplying cigars to the assembly and clutch control means operable by the cigar supply to stop the operation of the assembly, said means including a clutch controlling magnet and a circuit therefor adapted to be broken by failure of cigar supply, said magnet being also controllable by the supply of bands for the assembly.

19. In a cigar banding machine, a cigar hop-

per, a conveyer, discharge means for delivering cigars from the hopper to the conveyer, a banding assembly and coordinated driving means for the discharge means and the banding assembly, and control means for the driving means operable in response to the cigar supply.

20. In a cigar banding machine, a cigar hopper, a conveyer, discharge means for delivering cigars from the hopper to the conveyer, a banding assembly and coordinated driving means for the discharge means and the banding assembly, and control means for the driving means operable in response to the band supply.

21. In a cigar banding machine, a cigar hopper, a conveyer, discharge means for delivering cigars from the hopper to the conveyer, a banding assembly and coordinated driving means for the discharge means and the banding assembly, and control means for the driving means operable in response to both the cigar supply and the band supply.

22. In a cigar banding machine, a cigar hopper, a conveyer, discharge means for delivering cigars from the hopper to the conveyer, a banding assembly and coordinated driving means for the discharge means and the banding assembly, control means for the driving means operable in response to both the cigar supply and the band supply, and manual control means for the driving means.

23. In a cigar banding machine, a cigar hopper, a conveyer for cigars, a banding assembly, driving means for the assembly, and cigar discharge means for the hopper actuated by the banding assembly driving means.

24. In a cigar banding machine, a cigar hopper, a conveyer for cigars, a banding assembly, driving means for the assembly, and cigar discharge means for the hopper actuated by the banding assembly driving means and independently controllable by movement of cigars by the conveyer.

25. In a cigar banding machine, a cigar hopper, a conveyer for cigars, a banding assembly, driving means for the assembly, cigar discharge means for the hopper actuated by the banding assembly driving means, and control means for the driving means responsive to the supply of cigars to the assembly.

26. In a cigar banding machine, a cigar hopper, a conveyer for cigars, a banding assembly, driving means for the assembly, cigar discharge means for the hopper actuated by the banding assembly driving means, and control means for the driving means responsive to the supply of bands to the assembly.

27. In a cigar banding machine, a cigar hopper, a conveyer for cigars, a banding assembly, driving means for the assembly, cigar discharge means for the hopper actuated by the banding assembly driving means, and control means for the driving means jointly responsive to the supply of cigars to the assembly and the supply of bands to the assembly.

28. In a machine of the class described, a banding mechanism including guides for a stack of bands, a control mechanism adapted to render the banding mechanism ineffectual when no band is in the stack.

29. In a cigar banding machine, a cigar hopper, a conveyer belt, a banding assembly, a driving shaft for the assembly, associated driving means for the belt, and feed mechanism for delivering cigars from the hopper to the belt, said mechanism being driven from the driving shaft and being independently and automatically controllable.

30. In a cigar banding machine, a cigar hopper, a conveyer belt, a banding assembly, a driving shaft for the assembly, associated driving means for the belt, feed mechanism for delivering cigars from the hopper to the belt, said mechanism being driven from the driving shaft and being independently and automatically controllable, and control means for the shaft responsive to the supply of cigars to the assembly.

31. In a cigar banding machine, a cigar hopper, a conveyer belt, a banding assembly, a driving shaft for the assembly, associated driving means for the belt, feed mechanism for delivering cigars from the hopper to the belt, said mechanism being driven from the driving shaft and being independently and automatically controllable, control means for the shaft responsive to the supply of cigars to the assembly, and jointly controllable by the band supply for the assembly.

32. In a machine of the class described, a banding assembly including guides for a stack of bands, a cigar supply device for the assembly and a control mechanism adapted to stop both the operations of the assembly and of the device when there are no bands in the guides.

33. In a machine of the class described, a banding assembly including guides for a stack of bands, a cigar supply device for the assembly and a control mechanism adapted to stop both the operations of the assembly and of the device when there are no cigars in operative position to be fed to the banding assembly.

34. In a machine of the class described, a banding assembly including guides for a stack of bands, a cigar supply device for the assembly and a single clutch mechanism adapted to stop both the operations of the assembly and of the device when there are no bands in the guides.

35. In a machine of the class described, a banding assembly including guides for a stack of bands, a cigar supply device for the assembly and a single clutch mechanism adapted to stop both the operations of the assembly and of the device when there are no cigars in operative position to be fed to the banding assembly.

36. In a machine of the class described, a banding assembly including guides for a stack of bands, a cigar supply device for the assembly and an electrical clutch mechanism adapted to stop both the operations of the assembly and of the device when there are no bands in the guides.

37. In a machine of the class described, a banding assembly including guides for a stack of bands, a cigar supply device for the assembly and an electrical clutch mechanism adapted to stop both the operations of the assembly and of the device when there are no cigars in operative position to be fed to the banding assembly.

38. In a machine of the class described, a banding assembly including guides for a stack of bands, a cigar supply device for the assembly and a control mechanism adapted to stop both the operations of the assembly and of the device when there are no bands in the guides or when there are no cigars in operative position to be fed to the banding assembly.

39. In a cigar banding machine, a cigar supplying means, a banding assembly and interconnection therebetween to control the cigar supply in conformity with the working output of the banding assembly.

40. In a machine of the class described, a banding mechanism, a control mechanism adapted to

render the banding mechanism ineffectual when no cigar is in operative position to be fed to the banding assembly.

41. A feeding device for cigars or similar articles which comprises a magazine, a conveyor positioned at one side of the magazine and movable to feed the cigars in single file in a direction transverse to their longitudinal axes, mechanism for feeding a complete layer of cigars out of the magazine in the direction of the longitudinal axis of the cigars and for depositing said layer upon the conveyor, means for feeding the cigars one at a time from the front of said single file, and means correlating the timing of the layer feeding mechanism with the means for feeding single cigars so that a substantially unbroken single file of cigars is maintained.

42. A feeding device for cigars or similar articles which comprises a conveyor for advancing and accumulating a continuous file from successive groups of articles, means for delivering the articles in units from the leading end of the accumulated file on the conveyor to a wrapping or like mechanism, means operative upon actuation to feed and deposit upon the conveyor a group of articles greater in number than the unit of delivery from the conveyor, and means automatically operable in the event of a predetermined degree of depletion of the accumulation of articles on the conveyor to actuate said feeding and depositing means.

43. A feeding device for cigars or similar articles which comprises a conveyor for advancing and accumulating a file of articles, means for delivering the articles in units from the conveyor to a wrapping or like mechanism, means operative upon actuation to feed and deposit upon the conveyor a group of articles greater in number than the unit of delivery from the conveyor, and means responsive to the absence of articles at a predetermined point on the conveyor to actuate said feeding and depositing means.

44. A feeding device for cigars or similar articles which comprises a conveyor for advancing and accumulating a file of articles, means for delivering the articles in units from the conveyor to a wrapping or like mechanism, means operative upon actuation to feed and deposit upon the conveyor a group of articles greater in number than the unit of delivery from the conveyor, and means responsive to the passage of the last article of the preceding group to actuate said feeding and depositing means.

45. A feeding device for cigars or similar articles which comprises a conveyor for advancing and accumulating a file of articles, means for delivering the articles in units from the conveyor to a wrapping or like mechanism, means operative upon actuation to feed and deposit upon the conveyor a group of articles greater in number than the unit of delivery from the conveyor, a continuously driven shaft, a shaft for driving the feeding and depositing means, and means responsive to the absence of articles at a predetermined point on the conveyor for coupling said driven shaft to said drive shaft to actuate said feeding and depositing means.

46. A feeding device for cigars or similar articles which comprises a conveyor for advancing and accumulating a continuous file from successive groups of articles, means for delivering the articles in units from the leading end of the accumulated file on the conveyor to a wrapping or like mechanism, means operative upon actuation to feed and deposit upon the conveyor a group of articles greater in number than the unit of delivery from the conveyor, driving mechanism for said means including a clutch, a feeler positioned to rest yieldingly upon the articles on the conveyor and movable in its position upon the occurrence of a gap in the continuous file of articles, and connecting means between said feeler and the clutch to connect the clutch and thereby cause actuation of the depositing means whenever the feeler moves, due to the occurrence of such a gap.

47. A cigar feeding device for cigar banding machinery comprising a support for a row of cigars, means for moving the row of cigars over said support toward a feeding position, means for moving said cigars from said position to banding position, said means comprising a plunger arranged for movement at right angles to the movement of said row, said plunger having direct connection with the mechanism for operating said banding machine, and electrical switch means positioned in the path of said row of cigars and arranged to become engaged by the advancing end of said row for controlling the operation of the mechanism of said banding machine and said plunger.

48. In a combined cigar feeding and banding machine, a substantially horizontal table for supporting a row of cigars bearing a definite relation to each other, means for advancing said row over said table, an upstanding flange positioned transversely of said table and at one end thereof, said flange serving as a stop for said row of cigars, a reciprocating element arranged for movement along said flange and adapted to dislodge the cigar lying adjacent thereto and for injecting the same into and under the banding head of the banding machine, a rocking switch finger positioned adjacent said flange and the end cigar of said row, an operating shaft for the banding machine and for the actuation of said reciprocating element, power means for effecting the movement of said shaft, a clutch between said shaft and power means, an electro-magnet for effecting the actuation of said clutch, and a circuit between said electro-magnet and said switch finger whereby upon the actuation of the switch finger by the cigars the electro-magnet will function to operate said clutch to stop and start said operating shaft.

FRANCIS X. MALOCSAY.