No. 770,427. PATENTED SEPT. 20, 1904.

A. GODFREY.

APPARATUS FOR FEEDING, WRAPPING, AND PACKING CIGARETTES OR LIKE SOFT GOODS.

APPLICATION FILED FEB. 17, 1903.

NO MODEL. 9 SHEETS—SHEET 1.

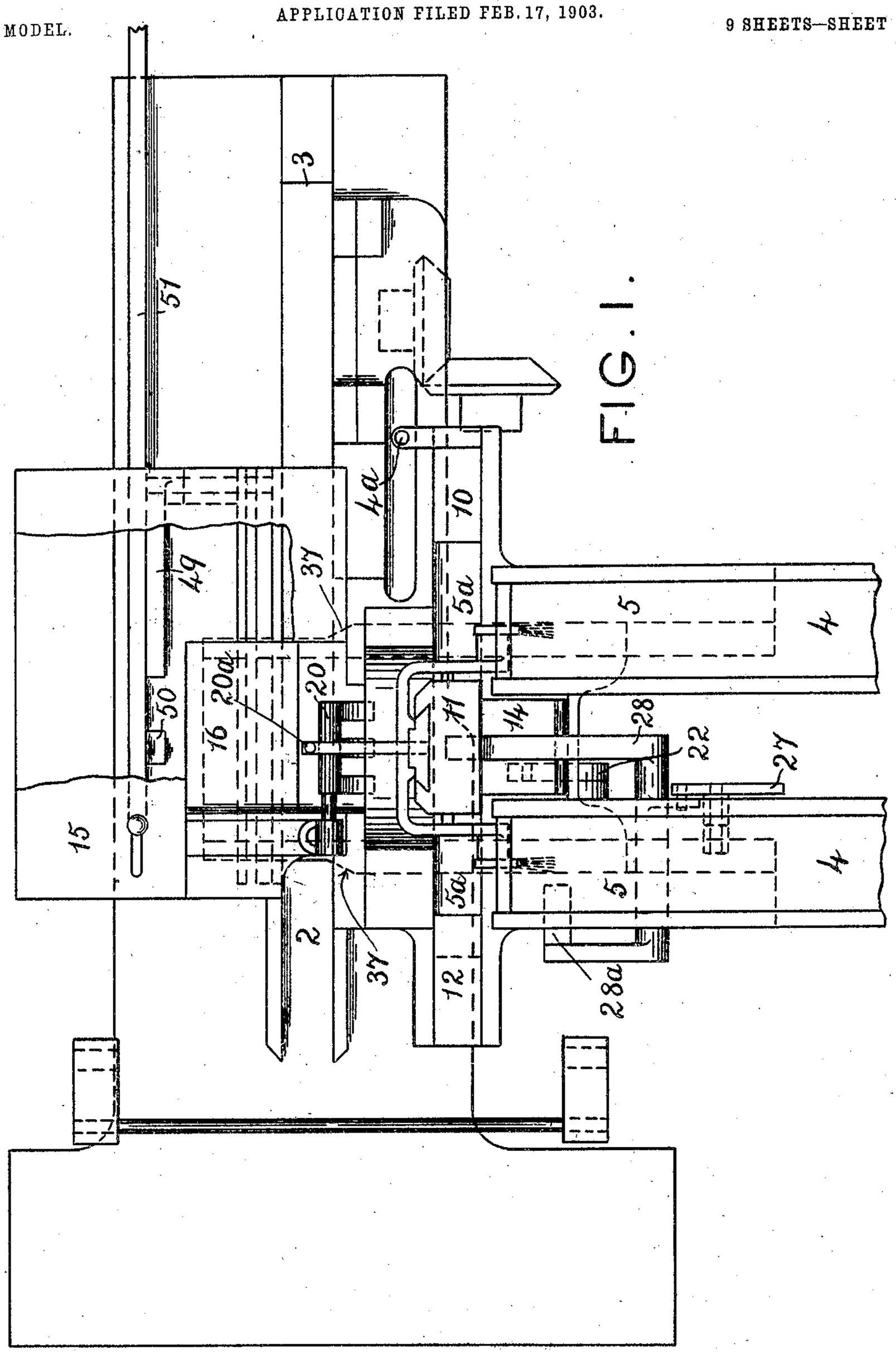

FIG. 1.

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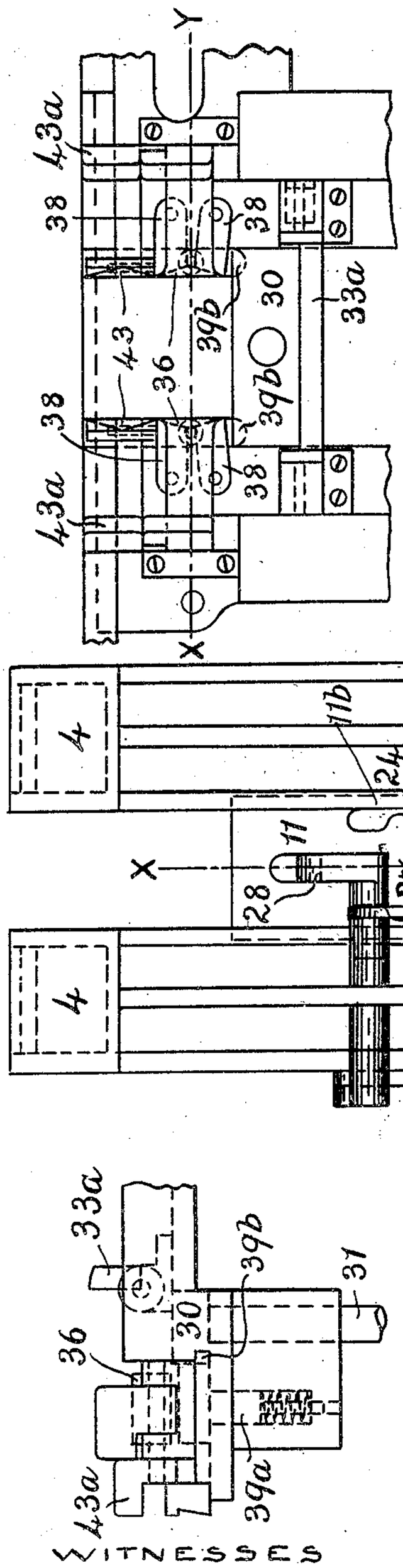

FIG. 4.

FIG. 2.

FIG. 3.

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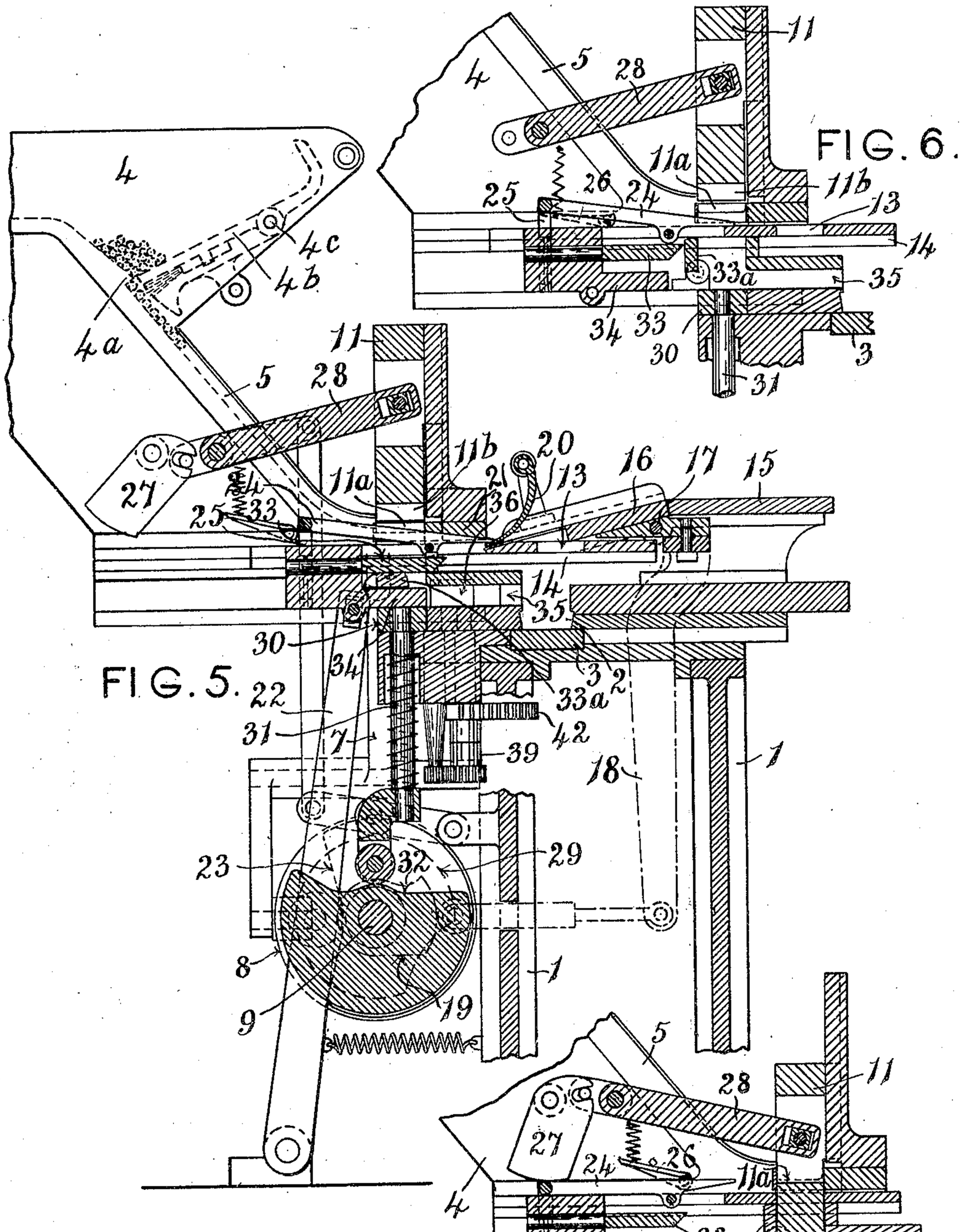

FIG. 6.

FIG. 5.

FIG. 7.

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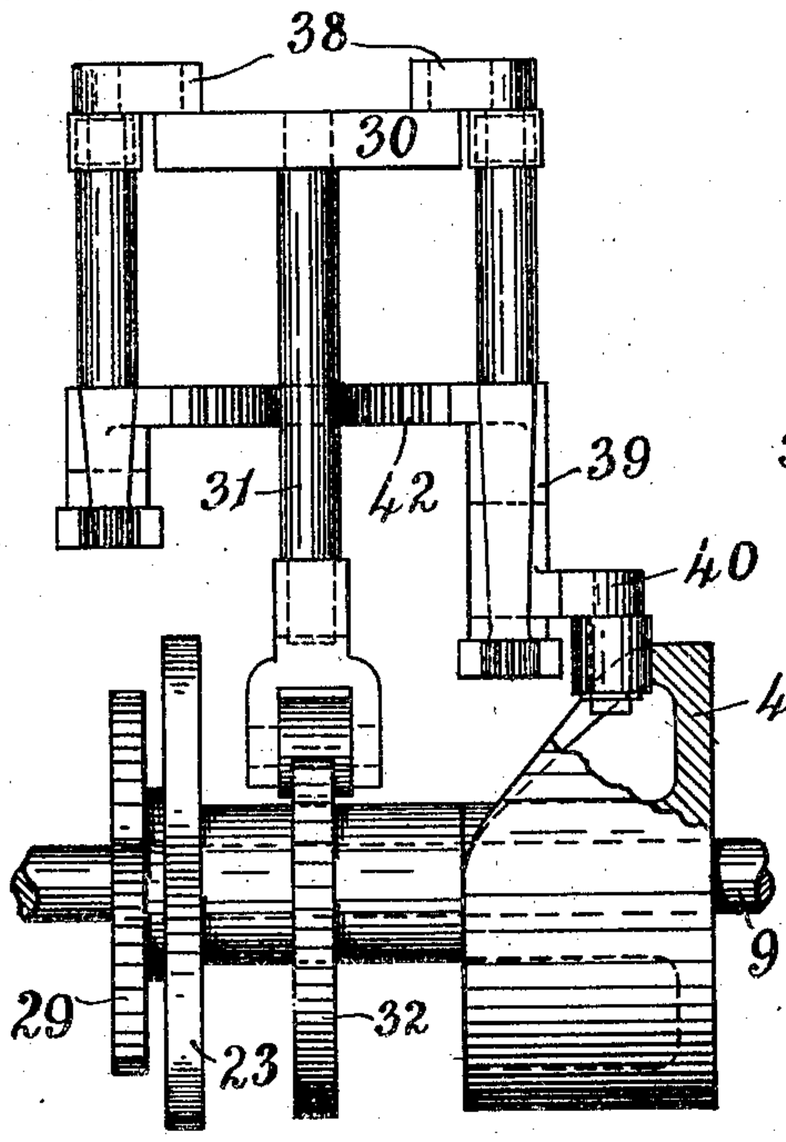

FIG. 8.

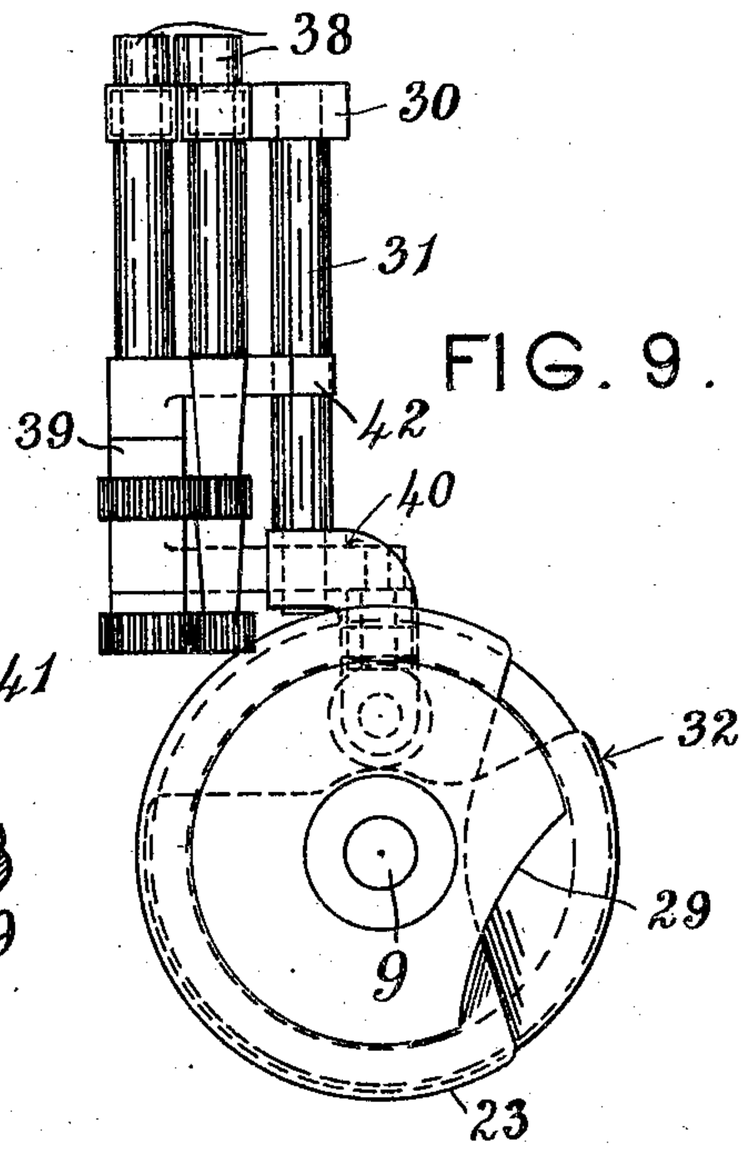

FIG. 9.

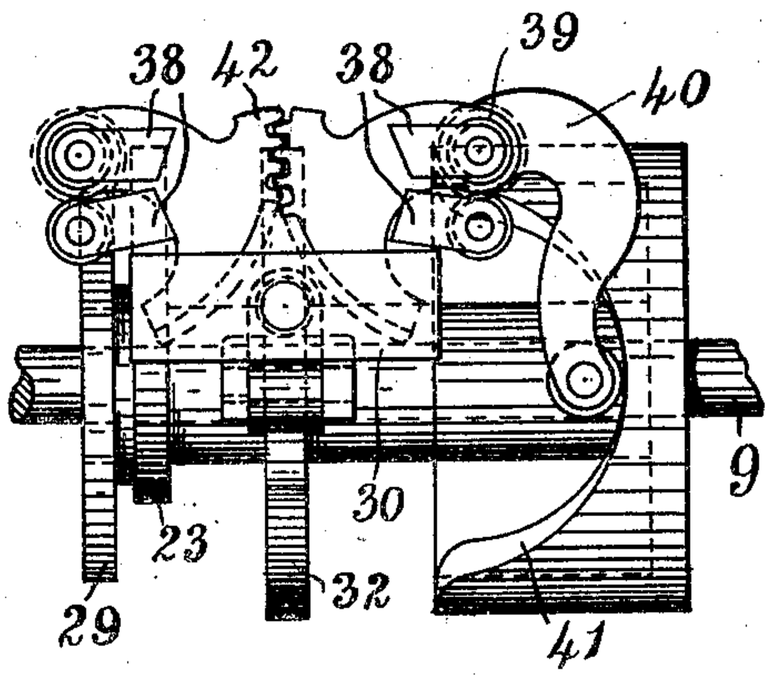

FIG. 10.

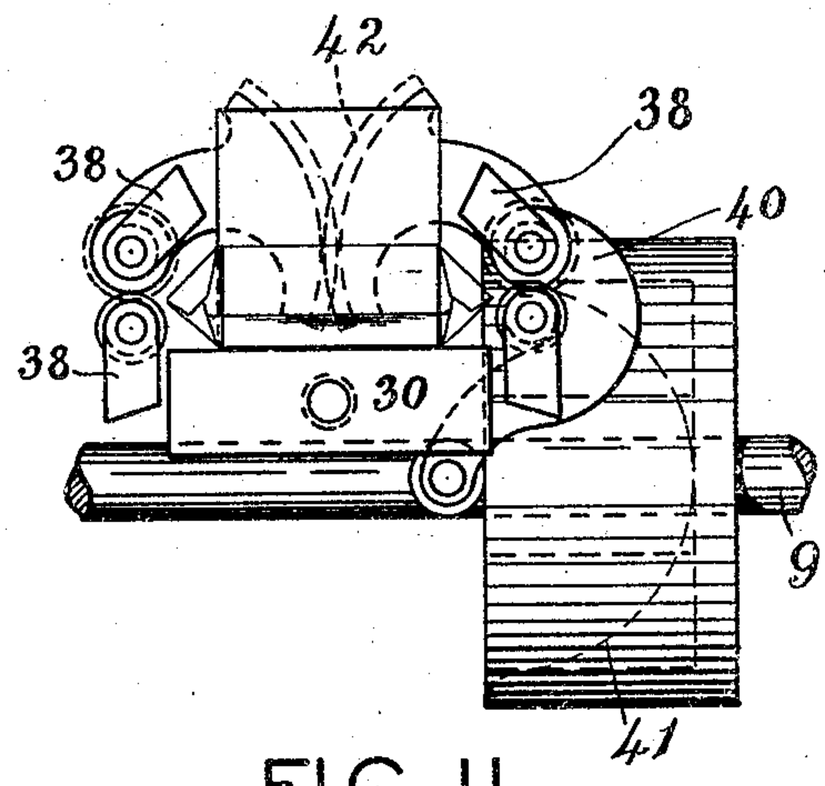

FIG. 11.

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NO MODEL. 9 SHEETS—SHEET 5.

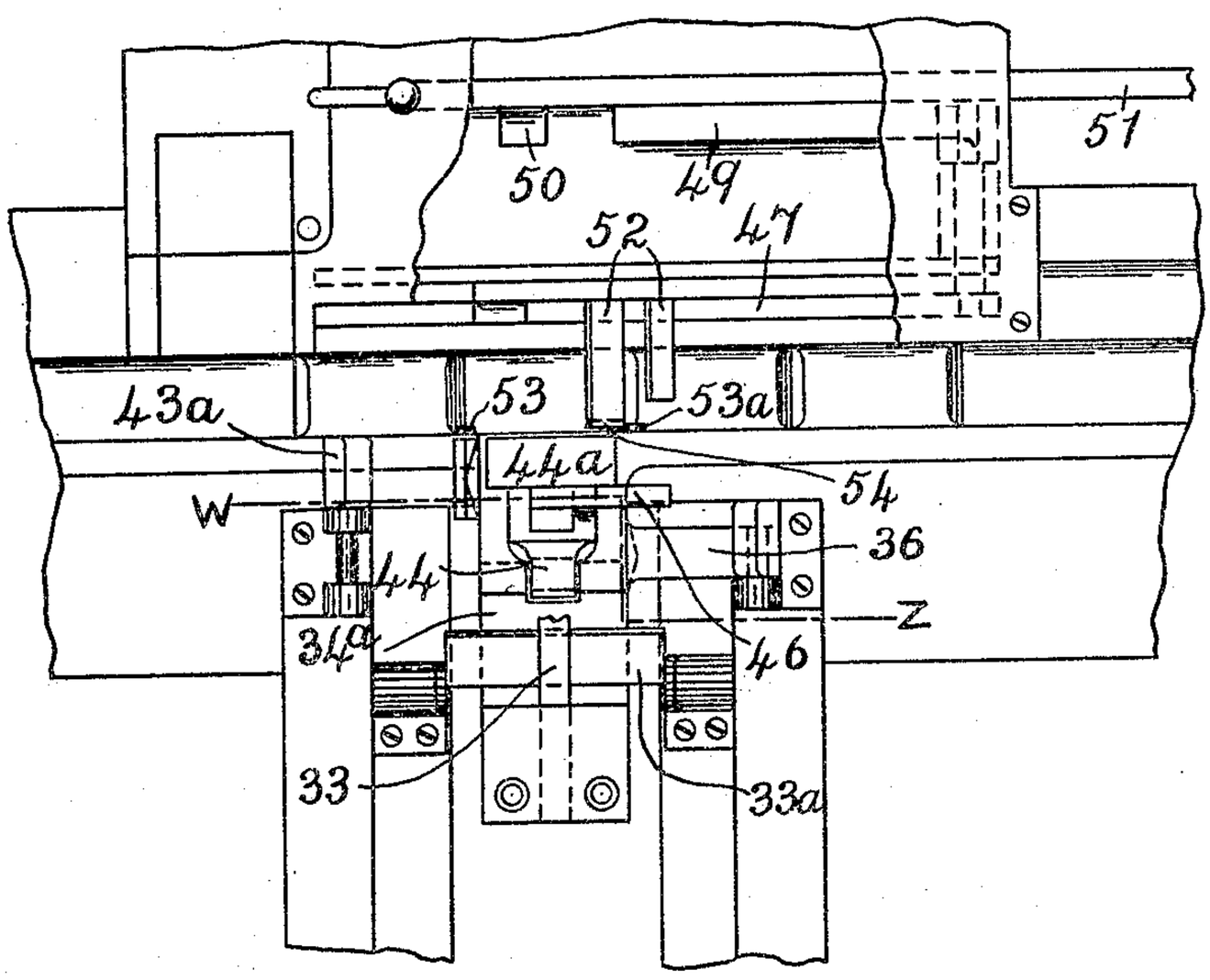

FIG. 12.

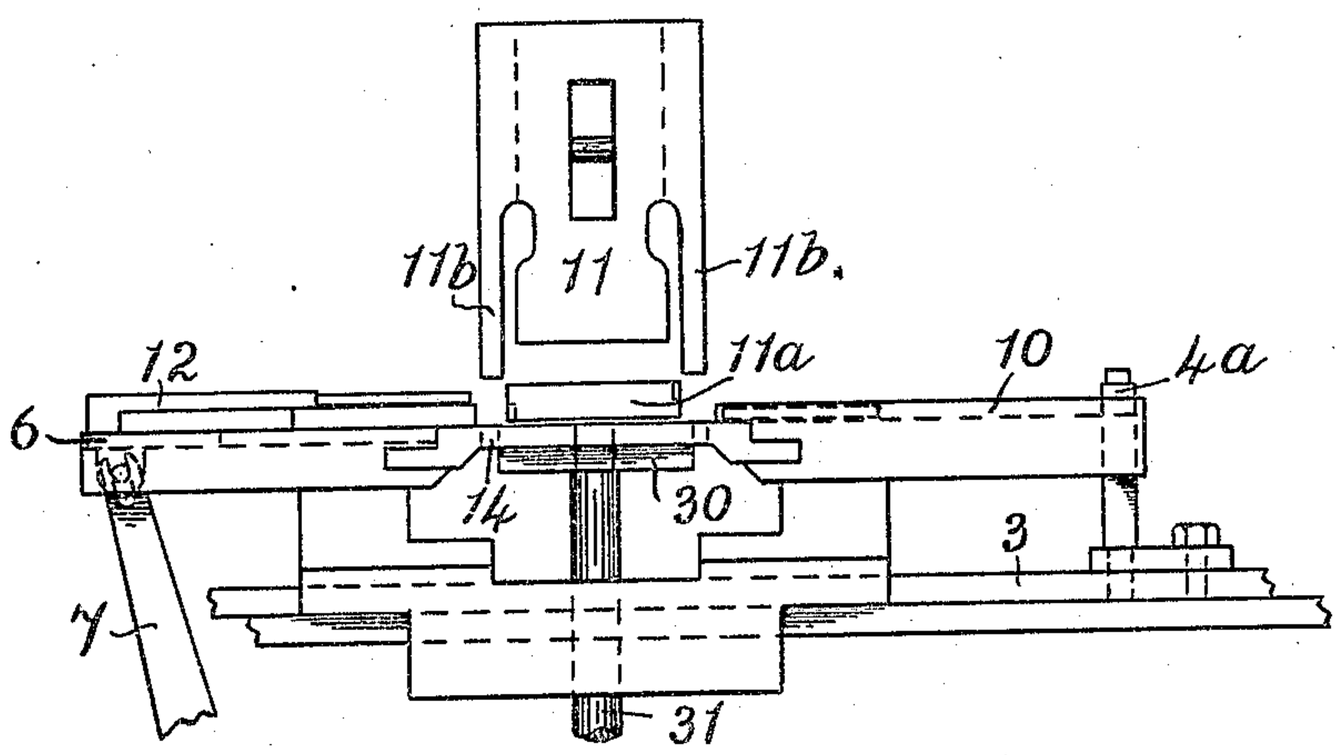

FIG. 12a.

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NO MODEL. 9 SHEETS—SHEET 6.

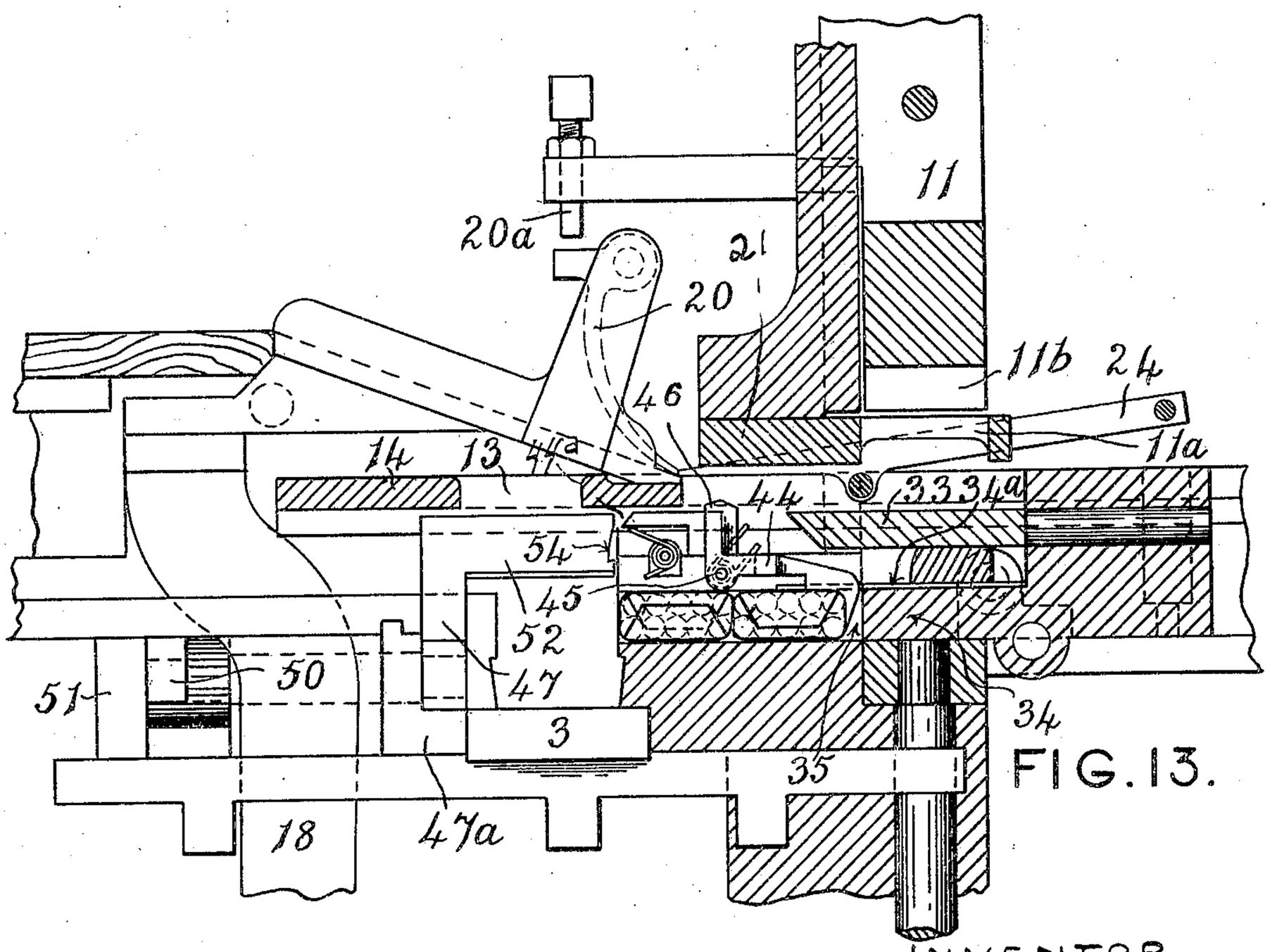

FIG. 13.

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NO MODEL. 9 SHEETS—SHEET 7.

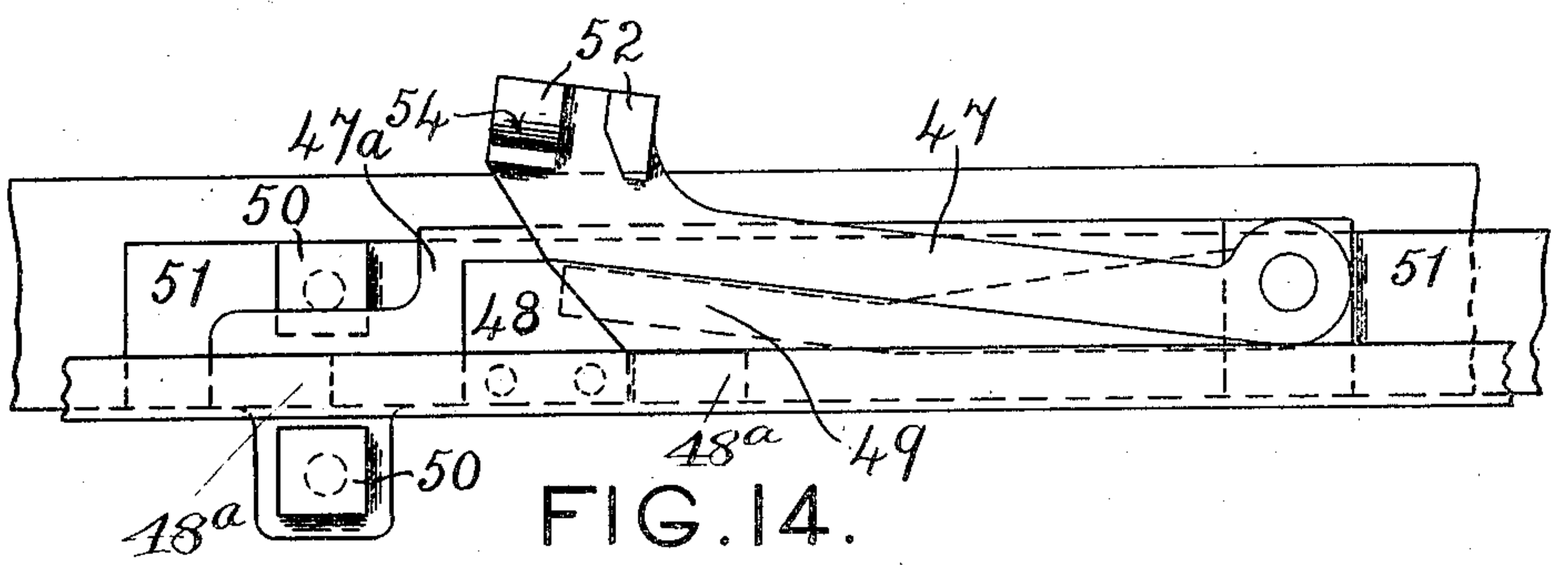

FIG. 14.

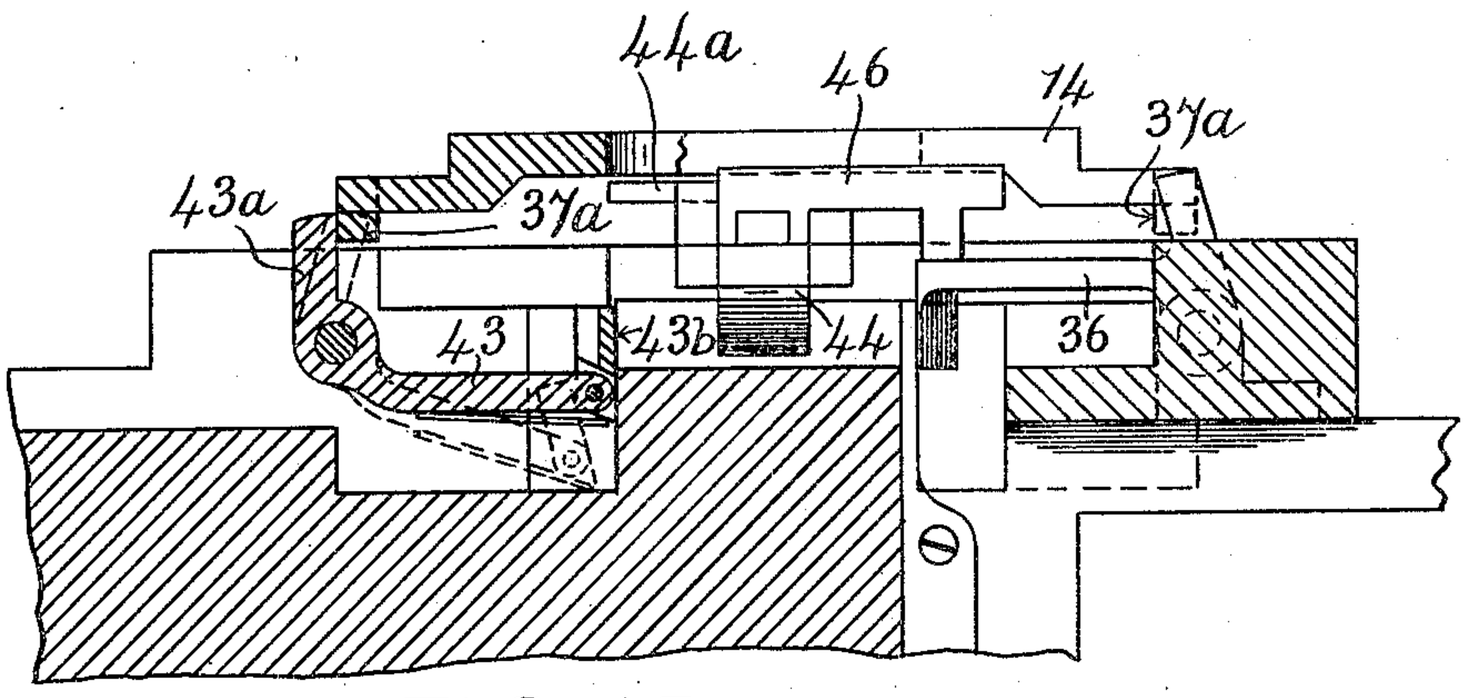

FIG. 15.

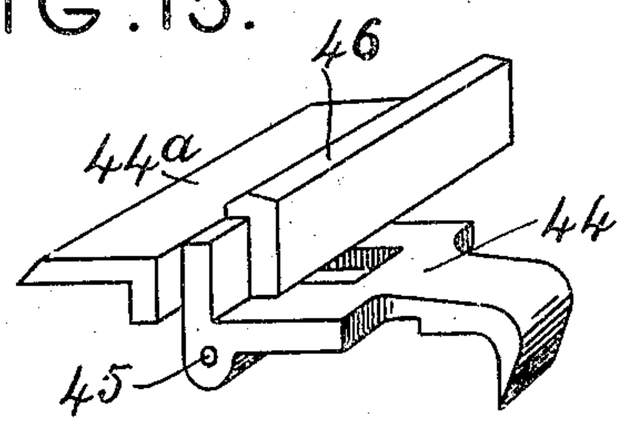

FIG. 15a.

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NO MODEL. 9 SHEETS—SHEET 8.

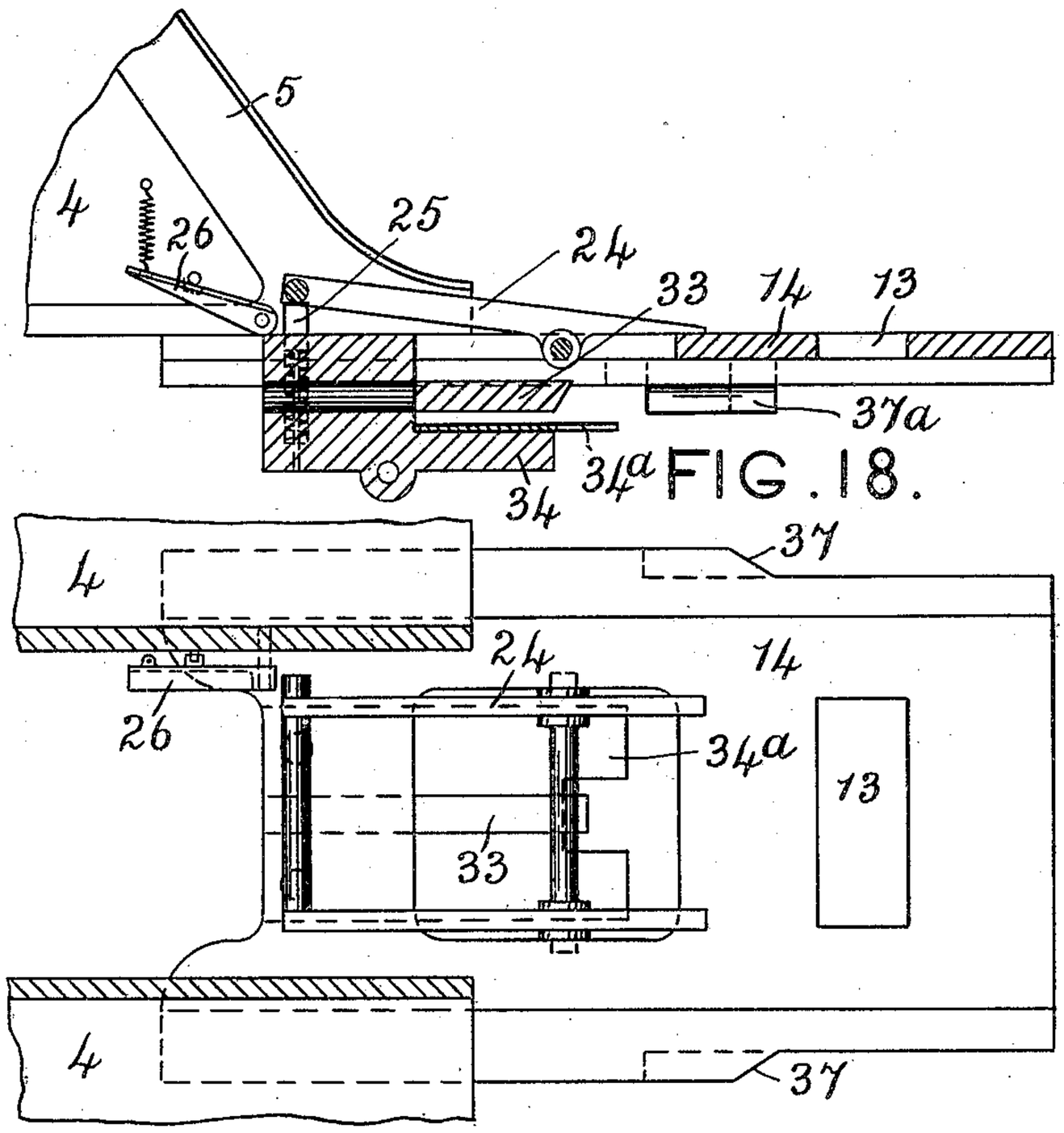

FIG. 18.

FIG. 19.

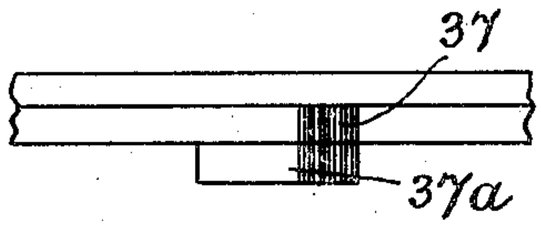

FIG. 19a.

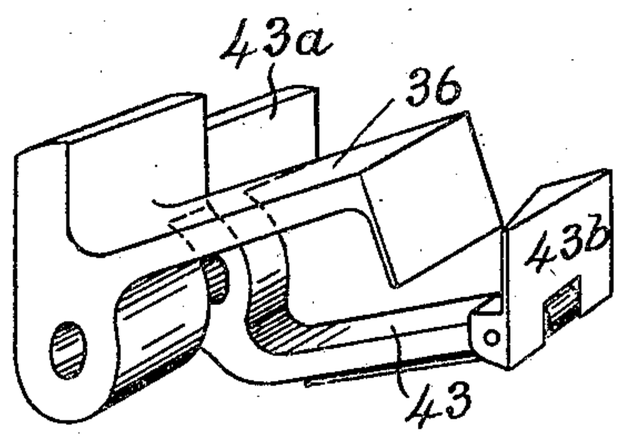

FIG. 16.

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APPLICATION FILED FEB. 17, 1903.

NO MODEL. 9 SHEETS—SHEET 9.

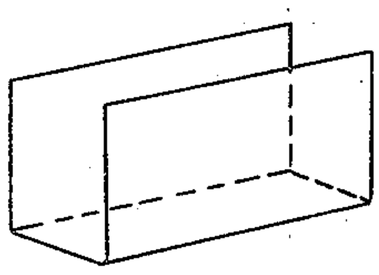

FIG. 22.

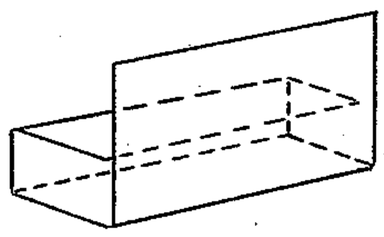

FIG. 23.

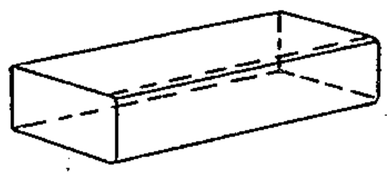

FIG. 24.

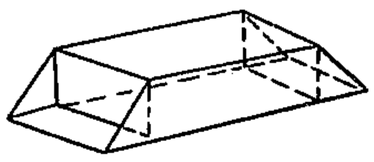

FIG. 25.

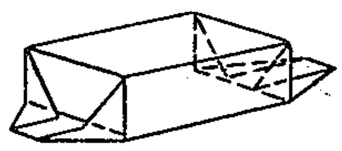

FIG. 26.

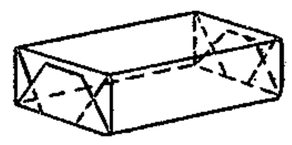

FIG. 27.

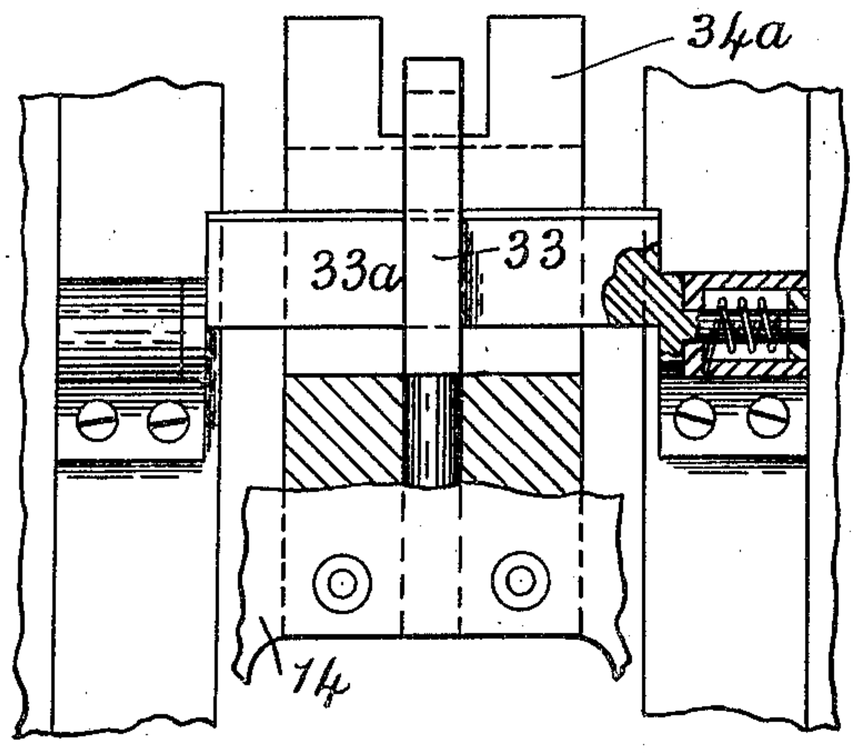

FIG. 20.

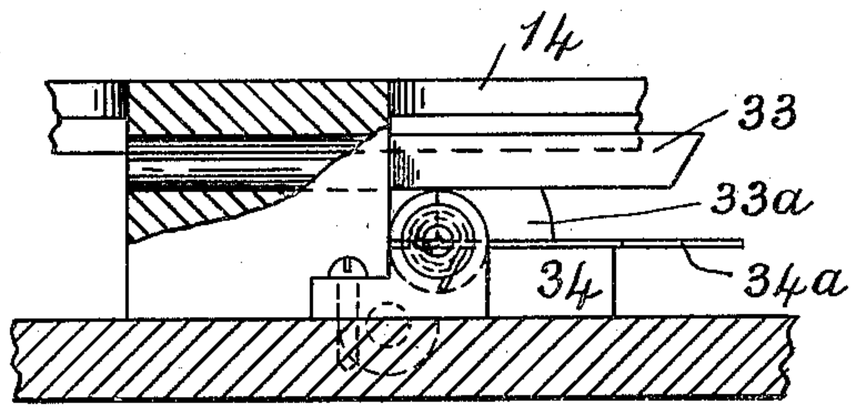

FIG. 21.

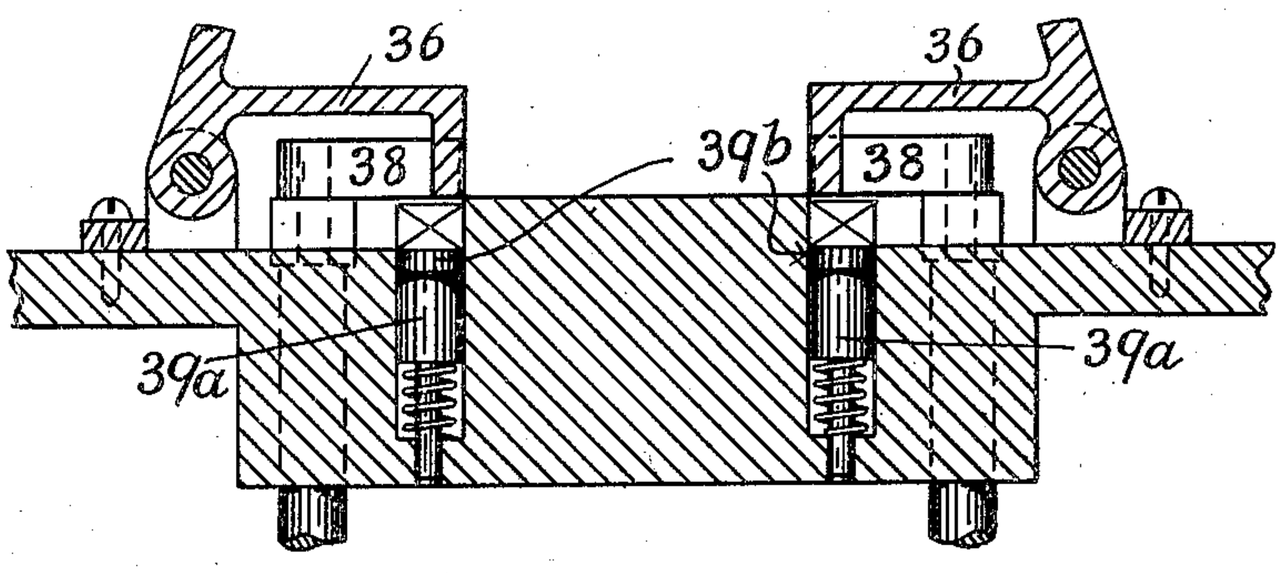

FIG. 17.

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No. 770,427. Patented September 20, 1904.

UNITED STATES PATENT OFFICE.

ALFRED GODFREY, OF LONDON, ENGLAND.

APPARATUS FOR FEEDING, WRAPPING, AND PACKING CIGARETTES OR LIKE SOFT GOODS.

SPECIFICATION forming part of Letters Patent No. 770,427, dated September 20, 1904.

Application filed February 17, 1903. Serial No. 143,827. (No model.)

To all whom it may concern:

Be it known that I, ALFRED GODFREY, a subject of the King of Great Britain and Ireland, residing at London, England, have invented a certain new and useful Improved Apparatus for Feeding, Wrapping, and Packing Cigarettes or Like Soft Goods, of which the following is a specification.

This invention relates to apparatus for feeding, wrapping, and packing cigarettes or like soft goods, and has for its object the automatic feeding of cigarettes or like goods in determined number and in a double or single layer into a wrap of tin-foil or other material, the automatic wrapping of the tin-foil or other material about the said cigarettes or like soft goods without injury by undue pressure upon them, and the delivery in succession of such wrapped goods to a tray or slide of cardboard or other other material, which may thereafter be packed within an outside shell of cardboard or like material, or the wrapped cigarettes may be delivered onto a receiving-board.

I have already made application in the United States of America, under date of February 3, 1902, Serial No. 92,404, for a combined machine for making the interior slides or trays and exterior shells of cardboard or like material and for packing cigarettes in determined numbers naked in the said open trays or slides and thereafter packing the same in enveloping shells and delivering the same packed for the market; but where it is desired to wrap the said cigarettes or like soft goods in tin-foil or other material before placing the same in the open trays or slides or for any other purpose the present apparatus has been devised to deal with the said cigarettes between their automatic delivery in selected numbers from feed-hoppers and their delivery to the open slides or trays or otherwise.

Figure 1 is a plan of the wrapping apparatus situated between the feed-hoppers and the channel of a machine in which the slides are prepared and fed successively toward the shells. Fig. 2 is an elevation of the same. Fig. 3 is an end elevation of the rocking tuckers, on an enlarged scale. Fig. 4 is a plan of the same. Fig. 5 is a transverse section on X Y, Fig. 2, through the operative mechanism for wrapping. Fig. 6 is a vertical section through the die-plate in mid-travel. Fig. 7 is a similar vertical section through the die-plate at extreme travel from the feed-board. Figs. 8, 9, and 10 are details in front elevation, side elevation, and plan, respectively, of the side-folding mechanism of the ends of the wrappers. Fig. 11 is also a plan of the said side-folders in an open position. Fig. 12 is a plan of the wrapping device with parts removed to show the feeler-bar and other details. Fig. 12[a] is a detached elevation of the packer-plunger and pusher-feeds. Fig. 13 is a transverse section through operative parts in the bed-plate, on an enlarged scale. Fig. 14 is a detached elevation, to enlarged scale, of the feeler-bar. Fig. 15 is a sectional view, through the line W Z on Fig. 12 to an enlarged scale, of the tucker-levers and clamp, with die-plate in position in part section. Fig. 15[a] is a detached detail of the clamp in perspective. Fig. 16 is a perspective detail of the end-tuckers. Fig. 17 is a section on the line X Y of Fig. 4 through the tucker mechanism. Fig. 18 is a sectional elevation, and Fig. 19 is a plan, of the die-plate and gripper-fingers, to a larger scale. Fig. 19[a] is an outside elevation of the operative wedge-faces on the die-plate. Figs. 20 and 21 are a plan and elevation of the flapper, to a larger scale. Figs. 22 to 27 show the various stages in which the package is wrapped.

1 is the main frame of a machine such as that described in my copending patent application in the United States of America, dated February 3, 1902, Serial No. 92,404, in which open cardboard trays or slides are made and are advanced intermittently in the channel 2 upon a reciprocating pusher-bed 3 in that channel.

4 4 are automatic cigarette-feeding hoppers, such as those described also in the above-mentioned copending application, by which streams of cigarettes are caused to flow down inclined chutes 5 5 and are arrested on suitable platforms 5[a] 5[a] at the foot of the chutes, respectively, at different levels.

6 is a reciprocating plate which is operated by a rocking lever 7 and a face-cam 8 upon

the first-motion shaft 9 of the combined machine and has a pusher-plate 12 fixed to it and above it. (See Fig. 12ª.)

10 is a pusher-plate at a lower level at the foot of the other chute and is operated by a stud 4ª on the reciprocating bed under the tray-channel 2 of the combined machine. In an extreme position to one hand of the said pusher-plate 10 a charge of a definite number of cigarettes is received upon the platform from one chute, and the said charge is pushed by the pusher-plate 10, Fig. 12ª, under the head of the plunger 11 into an open-frame chamber 11ª, Figs. 5 and 12ª, provided as a fixture under the plunger for the purpose, the sides of the pusher-plates 10 and 12 preventing any further cigarettes from flowing from the chute until the return travel of the pusher-plates. A similar charge of cigarettes is received from the other cigarette-chute at a higher level than the former, and the second layer or charge of cigarettes is pushed by the pusher-plate 12, operated by a pin 4ª of the reciprocating bed, onto the former layer of cigarettes lying in the chamber under the plunger 11.

All the devices so far mentioned are similar to devices for the same purpose described in the aforesaid copending United States application for a patent.

The double layer of cigarettes under the plunger 11 are received upon a sheet of tin-foil lying over an aperture 13 in a die-plate 14, (see detail Figs. 18 and 19,) which has a reciprocating motion under the plunger 11 at right angles to the movement of the plate 6. The method by which the sheet of tin-foil is brought under the plunger 11 is as follows: 15, Fig. 5, is a feed-table on which are placed the cut sheets of tin-foil of the proper size for a wrapper. The sheets are fed by hand one by one onto a sloping feed-board 16, hinged at 17. The hinged feed-board is operated by the tail-lever 18 and the cam 19, so that it rises and falls through a small angle and remains stationary for a time at its highest and lowest position. At its highest position the tail of the smoothing-fingers 20 comes against an adjustable stop 20ª, (see Fig. 13 for detail,) so that the fingers are raised, and the foil is fed forward by hand under the smoothing-fingers 20 up to a fixed stop 21. The feed-board then drops, the fingers 20 drop by their own weight upon the foil, and the edge of the tin-foil is carried below the stop 21 and rests upon the die-plate 14, before referred to, which has a reciprocating motion to and from the feed-board operated by the lever 22 and cam 23 of the first-motion shaft of the combined machine. The said die-plate 14 carries upon it a pair of pivoted grippers 24 24 on either side, (see detail Figs. 18 and 19), closed normally by springs and plungers 25, Fig. 5, but which are held open during the forward movement of the die-plate 14 toward the foot of the feed-board by an overhead pivoted spring-switch 26. In the travel of the die-plate 14 with integral pivoted grippers toward the tin-foil the tail of the grippers pass under the said spring-switch 26 and is thereby depressed, opening the grippers until they are over the projecting corners of the tin-foil at the extremity of the stroke, when the tail has passed the switch and the grippers close on the foil ready for the return stroke, withdrawing the foil from the feed-board with the die-plate 14. On this return stroke the tail of the grippers passes over the overhead switch 26 and is thus not depressed, the grippers and the die-plate 14 thus retaining the foil up to the end of its return stroke away from the feed-board, where it is released from the grippers by a cam movement 27, operated by the plunger-lever 28. (See Fig. 7.) The foil is thus spread over the die-plate 14 and the aperture therein and is brought by the movement of the die-plate 14 under the plunger 11, where the aperture 13 of the die-plate 14 is filled by the rising of the head of an under-plunger hereinafter described and is then ready for the reception of one or more layers of cigarettes fed from either side into the chamber 11ª under the plunger. The plunger 11 is provided with side bearers 11ᵇ, (see Fig. 12ª,) which on the downward motion of the plunger produced by a lever 28, link 28ª of rocking shaft 28ᵇ, Figs. 2 and 5, and cam action 29 from the first-motion shaft press upon the head 30 of a lower reciprocating plunger 31, which at the upward extremity of its travel forms a table in the aperture 13 of the die-plate 14 under the tin-foil and the cigarettes. This lower plunger 31 is operated in unison with the other parts by a cam action 32, also on the first-motion shaft. The upper plunger 11 now descends by the action of the lever 28 and cam 29 on the first-motion shaft, passing through the open frame of the chamber 11ª and carrying down with it the cigarettes (which are protected from undue pressure by the bearers 11ᵇ of the said plunger) and also carrying down the tin-foil resting on the under table 30 of the lower plunger 31, which descends to a lower stage or position, as in Fig. 7, and there remains for some time. The sides of the tin-foil sheet are thus by this descending action through the aperture 13 of the die-plate 14 folded upward on either side of the packet of cigarettes, as in Fig. 22. The die-plate 14 now begins to move back to the feed-board for a further sheet of tin-foil. This plate carries a finger 33, Figs. 6, 7, and 18, which as the plate advances strikes a revolving flapper 33ª against a spring reaction (see detail Figs. 20 and 21) about its axis, which thus folds down one upstanding side of the foil over the cigarettes, as in Fig. 23. The die-plate 14 also carries a plunger 34, Figs. 6, 7, and 18, which, if the foil or wrapping is thin and liable to crumple, may carry a thin plate

34ª, Fig. 13, projecting beyond its end and which may thus pass over the tin-foil and under the flapper 33ª. As this is not necessary with stout foil, this plate is omitted in Figs. 5, 6, and 7 for clearness. The plunger 34 after the above folding and smoothing down of one upstanding side pushes the packet of cigarettes into a closed channel or tunnel 35, thus closing down the other upstanding side of the foil, as in Fig. 24. Four sides of the cigarette-packet are now wrapped, with the ends still open. The plunger 34 now retires; but where the foil or wrapper is slight and the plate 34ª is used previous to such retirement a clamp 44, Figs. 13, 15, and 15ª, pivoted at 45 in a recess in the roof of the tunnel 35, with spring-pressure normally pressing it down, falls upon the upper surface and end of the package to prevent the foil or the package being drawn back by the retiring plate 34ª of the plunger 34. This clamp is raised out of the way when a package is being pushed into the tunnel 35 by means of a finger 46, also freely pivoted at 45, Figs. 13, 15, and 15ª, which finger is spring-pressed, so as normally to project vertically above the fixed bed, and therefore in the way of the sliding die-plate 14. As the apertures in this die-plate pass over the finger in one direction the edge of the aperture depresses this finger without effect; but in the other direction the depression of the finger 46 lifts the clamp out of the way until a second aperture allows the clamp to fall upon the packet, as above described. As this clamp and releasing device is not always necessary with stout foil, they are not shown in Figs. 5 and 6 for clearness. After the travel of the packet into the first stage of the tunnel, where the packet stops and waits, two pivoted tuckers 36, Figs. 2, 16, and 17, one on each side of the packet, are allowed to press down past the ends of the packet by spring-pressure when released by wedge-faces 37, Figs. 1, 15, and 19, on the die-plate 14, thus making a first fold at the ends of the packet, as in Fig. 25. Simultaneously or immediately after the downward action of the tuckers 36 two pivoted fingers 38 at each side of the packet (shown in detail in Figs. 8, 9, 10, and 11) close in together upon the partially-folded ends of the foil, bringing the fold to a triangular point, as in Fig. 26. At this point, with all these tuckers and fingers in place and at rest, a spring-plunger 39ª, Figs. 3 and 17, on each side is released by the ascent of the platform-plunger 30, the latter engaging with ears 39ᵇ on the said plunger, and these complete by pressure a fold in the triangular end of the tin-foil under the said tucker and fingers. The after descent of the platform-plunger with a further packet pushes the spring-plungers 39ª out of action until required again. These fingers 38 receive their motion through a vertical shaft 39 with arm and roller 40, following a cam-race 41, also on the first-motion shaft of the combined machine, Figs. 8, 9, 10, and 11. The finger so operated is directly geared to its neighbor and geared by a segmental gearing 42 across to one of the opposite pair of fingers, which latter pair are also geared together. Thus the partial rotary movement of the shaft 39 is communicated to all the fingers 38 simultaneously, which thus close and open simultaneously. In the meantime a further packet of cigarettes has been wrapped in its first stage with a further sheet of tin-foil and is now pushed into the tunnel 35, displacing the packet almost completely wrapped to a further onward stage in the tunnel. Here there are situated duplicate tuckers 43, Figs. 2, 4, 15, and 16, revolving freely on the same shaft with the first tuckers 36, but separate from these latter and reversed to fold or tuck upward on the return stroke of the die-plate 14. This upward movement is effected by projections 37ª, Figs. 15, 18, 19, and 19ª, on the under side of the die-plate 14 pressing outward the tails of the tucker-levers 43ª against spring recoil, and thus the triangularly-folded ends of the wrapper are tucked upward against the ends of the packet and the wrapper is finished, as in Fig. 26. The pressing-face 43ᵇ of this tucker 43 (see Figs. 15 and 16) is pivoted with back spring to its tucker-lever, so that it only closes up hard on the packet as it completes its upward travel, so as not to tear the tin-foil, and is finally pressed home on the packet by the action of the adjacent pivoted fingers 38 as they open outward. On the next introduction of a partially-wrapped packet into the tunnel 35 the completely-wrapped packet is ejected either into one of the trays or slides awaiting it in the tray-channel 2 of the slide-making machine or onto a receiving plate or table, as may be preferred. In order to be sure that a packet is discharged into the tray or onto a table or that a proper number of cigarettes are being supplied and wrapped and also that the package by any accident is not more bulky than is desired, I provide a feeler in the shape of a bar 47, Figs. 12, 13, and 14, pivoted on a frame 47ª, sliding in a race parallel to the sliding bed 3 of the tray-channel 2, and this frame has a reciprocating motion with a period of rest at each end of its stroke produced by means of the engagement of the base of the step 48 of sliding bed with a pair of projecting pins or projections 48ª on the sliding frame situated on either side of the base of the step 48 of the sliding frame with lost motion between them. The fixed step 48 passes also under the bar 47 by the return motion of the sliding bed, while the feeler is at rest at its extreme stroke. In this way the feeler 47 is caused to lift and is then returned lifted with the sliding bed to a point opposite to the tunnel to permit a packet to pass under it from the tunnel from which

the packet of wrapped cigarettes is delivered to the tray. The step 48 then passes from under the feeler 47 by the forward movement of the sliding bed and the feeler falls, so that its fingers rest upon the top of the packet in the tray. The feeler 47 carries a push-bar 49, which when the feeler and its supporting-frame 47ª makes its final travel with the sliding bed just misses a detent or detents 50, passing between them when the feeler has dropped exactly upon a packet of proper size and thickness; but should the feeler not drop far enough by reason of a packet of abnormal size or drop too far by the absence of a packet at all in the tray then the push-bar 49 will strike one or other of the detents 50, Figs. 1, 12, and 14, and will operate a sliding bar 51, to which the detents are affixed to throw out a clutch of any suitable kind upon the first motion shaft, and thus stop the machine. The feeling-fingers 52 of the feeler-bar 47 are divided, so that in falling they embrace the upstanding flaps of a full and an adjacent empty tray. As the trays and the feeler-bar continue their travel the feeler-bar before it lifts and leaves these upstanding flaps pushes over the flap of the empty tray behind a stud 53, Fig. 12, in the side of the tray-channel, so that the empty tray is thus well opened to receive the next incoming packet, the rear flap being also held back by a similar stud 53ª in the tray-channel in a suitable position. Further, the end of the tail 44ª of the clamp 44, Figs. 12, 13, and 15, previously described, enters into a recess 54 in the end of one of the feeling-fingers 52 of the feeler-bar 47 when the clamp 44 is in its highest and disengaged position, such engagement preventing the feeler-bar 47 from dropping to its normal position, and thus stopping the machine until the clamp 44 has descended into its proper position over a packet in the tunnel 35. If, therefore, the clamp 44 has not been able to drop over a packet into its proper position, notice is thereby given by the feeler-bar 47 of any irregularity in the packets of cigarettes passing through the tunnel 35, as well as of irregularities of packets passing through the trays in the tray-channel 2, as before described.

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

1. Apparatus for wrapping cigarettes consisting of in combination, feed devices for cigarettes or like goods, a vertically-reciprocating packing-plunger adapted to receive charge of cigarettes, a matrix thereunder having a reciprocating floor, a horizontal die-plate intermittently reciprocating between the said plunger and matrix, a sheet-wrapper feed integral with the said die-plate, means for the intermittent ejection and folding of partially-wrapped packets horizontally from the depressed floor of the matrix, and means for further folding and tucking the sides and ends of the wrappers as the package is delivered to open trays or to a table.

2. In combination, feed devices for cigarettes or like goods, a vertical reciprocating packing-plunger, reciprocating means at foot of feed-chutes to convey charges of cigarettes to said vertical plunger, a reception-chamber in packing-plunger to receive charges of cigarettes and to prevent pressure thereon during descent of plunger, a matrix thereunder having a reciprocating floor, a horizontal die-plate intermittently reciprocating between the said plunger and matrix, a sheet-wrapper feed integral with the said die-plate, and means for the ejection of partially-wrapped packets from the floor of the matrix and for further folding and tucking of the sides and ends of the wrappers.

3. In combination, feed devices for cigarettes or like goods, a reciprocating packing-plunger, means for charging the plunger-chamber with cigarettes from feed-chutes, a horizontal die-plate intermittently reciprocating between the said plunger and matrix, a pivoted inclined feed-board for sheet wrappers, touching said die-plate, feed-grippers mounted on said die-plate adapted to seize and draw the wrapper over the die-aperture, and means for the ejection of partially-wrapped packets from the floor of the matrix and for the further folding and tucking of the sides and ends of the wrappers.

4. In combination, feed devices for cigarettes or like goods, a reciprocating packing-plunger, reciprocating means at foot of feed-chutes to convey charges of cigarettes to the packing-plunger, a matrix thereunder with reciprocating floor, a horizontal die-plate intermittently reciprocating between the said plunger and matrix, a sheet-wrapper feed integral with the said die-plate, a pivoted flapper operated by said die-plate to fold first upper edge of wrapper, and means for the ejection of partially-wrapped packets from the depressed floor of the matrix, and for further folding and tucking of the sides and ends of the wrappers.

5. In combination, feed devices for cigarettes or like goods, a reciprocating packing-plunger, reciprocating means at foot of feed-chutes, to convey the charges of cigarettes to the packing-plunger, a matrix thereunder with reciprocating floor, a die-plate intermittently reciprocating between the said plunger and matrix, a sheet-wrapper feed integral with said die-plate, means for folding first upper edge of the wrapper after descent into matrix, a horizontal tunnel-way from the lower level of the matrix-floor, a horizontal plunger integral with the die-plate and adapted to push the packet from the matrix into the said tunnel, thus folding the second upper edge of the wrapper, a clamp operated by the die-plate to retain the packet on return of the plunger,

and means for further folding and tucking the ends of the wrapper as it intermittently traverses the said tunnel for delivery.

6. In combination, feed devices for cigarettes or like goods, a reciprocating packing-plunger, means for charging layers of cigarettes from feed-chutes to the packing-plunger, a matrix thereunder with reciprocating floor, a die-plate intermittently reciprocating between the said plunger and the matrix, a sheet-wrapper feed integral with said die-plate, means for folding the first upper edge of the wrapper after descent into the matrix, means for ejection of the packet from the matrix into a tunnel folding second upper edge, pivoted tucker-plates in the side of the tunnel operated by the movement of the die-plate, and folding in the ends of the wrapper, side-closing fingers at each side of the tunnel, mutually geared and simultaneously operated by a cam, adapted to form the triangular points to the end of the wrapper, and upwardly-ascending pivoted tucker-plate, at a further point in the tunnel, operated by the movement of the die-plate, to complete the upward fold of the triangular ends of the wrapper.

7. In combination, feed devices for cigarettes or like goods, a reciprocating packing-plunger, means for charging layers of cigarettes into the plunger, a matrix thereunder with reciprocating floor, a reciprocating die-plate, feed devices for wrapper integral therewith, means for folding and tucking the sides and the ends of the wrapper, means for ejecting the packet from the matrix through a tunnel, a channel containing open trays traversing the end of the said tunnel, a reciprocating pusher-bed in the said channel, a feeler-bar mounted on the sliding frame operated by the said reciprocating pusher-bed, and a sliding rod 51 adapted to be operated by a pusher-bar 49 of the feeler-bar 47 when in an abnormal position so as to arrest the machine in consequence of the inexactitude or the absence of a packet in one of the said trays.

8. In combination, in a cigarette-wrapping machine a vertical packing-plunger 11, a reception-chamber 11[a] for cigarettes under the said plunger, adapted to allow the plunger to pass through it, feed-chutes 5 for cigarettes, one situated on either side of the said plunger, and reciprocating pushers 10, 12 at different levels, traversing the ends of the said feed-chutes, adapted to feed charges of cigarettes in two layers in succession into the said reception-chamber.

9. In combination in a cigarette-wrapping machine, a vertically-reciprocating plunger; a matrix below the said plunger; a horizontally-reciprocating die-plate adapted to pass between the said plunger and matrix; feed-grippers pivotally supported on said die-plate; means for reciprocating the said die-plate and feed-grippers therewith; an inclined feed-board hinged to fixed bed; means for lifting and lowering the said feed-board up to a fixed stop and down to the surface of the said die-plate passing beneath it; smoothing and retarding fingers pivotably supported on said feed-board; and a fixed adjustable stop lifting the said smoothing-fingers upon the rise of the feed-board.

10. In a cigarette-wrapping machine the combination with a matrix, a plunger, and a horizontal tunnel leading from said matrix, of a pivoted flapper situated at the side of the matrix, operated by a projection on the plunger for forming the first fold of one upper edge of the wrapper after the packet has been carried to its lowest point in the matrix, said plunger pushing the packet of cigarettes into the said tunnel, thus forming the second fold of top edges of the wrapper.

11. In combination, in a cigarette-wrapping machine, a vertically-reciprocating packing-plunger, a matrix thereunder, a horizontally-reciprocating die-plate passing between the said plunger and the matrix, a reciprocating floor in said matrix, a horizontal tunnel through bed of machine at lowest level of matrix-floor, and a horizontally-moving plunger, integral with the said die-plate, adapted to move a partially-wrapped packet of cigarettes from the matrix into the said tunnel, effecting the second fold of top edges of the wrapper.

12. In combination, in a cigarette-wrapping machine, a vertical packing-plunger, a matrix with reciprocating floor thereunder, a horizontally-reciprocating die-plate passing between the said plunger and matrix, a horizontal tunnel in the bed of the machine, situated at the lowest level of the matrix-floor, a plunger integral with the said die-plate having a slotted smoothing-plate projecting over the upper surface of the packet, and adapted to move the partially-wrapped packet into the said tunnel, and a pivoted clamp in the roof of said tunnel spring-pressed to fall through slot over the top of the packet to prevent its withdrawal with returning pusher-plunger, and adapted to engage means for stopping the machine, should the clamp not fall freely.

13. In a cigarette-wrapping machine the combination with a tunnel traversed by the packet of cigarettes, of a pivoted tucker-lever situated at the side of the said horizontal tunnel, a pivoted upstanding tucker-plate at the extremity of said tucker-lever, a spring adapted to hold the said tucker-plate away from the end of the packet at the first part of the upward stroke, a pair of side-closing fingers adapted to press the tucker-plate home onto the end of the packet and means for operating the said tucker-lever.

14. In combination in a cigarette-wrapping machine, a tunnel for the discharge of folded packages of cigarettes; a pivoted downwardly-moving tucker-plate situated at each side of the said tunnel, a pair of pivoted fingers, situated so as to close upon the back of each

tucker-plate; gearing connecting the said pair of fingers to one another; and a cam device and connections to operate the said end-closing fingers simultaneously.

15. In combination in a cigarette-wrapping machine a tunnel for the discharge of folded packages of cigarettes; a channel 2 passing at right angles under the end of such tunnel and containing a series of trays; a reciprocating bed 3 in the said channel; a sliding frame 47[a] adjacent to the said bed; a feeler-bar 47 pivoted on the said sliding frame; having an end formed with feeling-fingers adapted to fall upon and gage the presence and dimensions of a packet of cigarettes in one of the said trays; a step or projecting piece 48 on the bed 3 and pins or projections 48[a] on the sliding frame for the communication from the said sliding bed of a reciprocating motion to the said sliding frame with lost motion at either end of the travel; a push-bar 49 on the same axis as the feeler-bar; and stops or detents 50 upon a sliding rod 51 adapted to be struck by the said push-bar when in abnormal position to disengage the shaft of the machine from its source of power.

16. In combination in a cigarette-wrapping machine, a tray-channel 2 with reciprocating bed 3; a feeler-bar 47 pivoted upon a sliding frame 47[a] adapted to receive a sliding movement from the said bed 3 with lost motion at either end of such travel; two divided fingers 52 at the end of said feeler-bar, adapted to fall over and embrace the two upstanding flaps of two adjoining open trays and to move them into an oblique position and a stud 53 in the side of the tray-channel, adapted to retain the upstanding flap of the tray in said oblique position.

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

ALFRED GODFREY.

Witnesses:
RICHARD A. HOFFMANN,
CHARLES CARTER.