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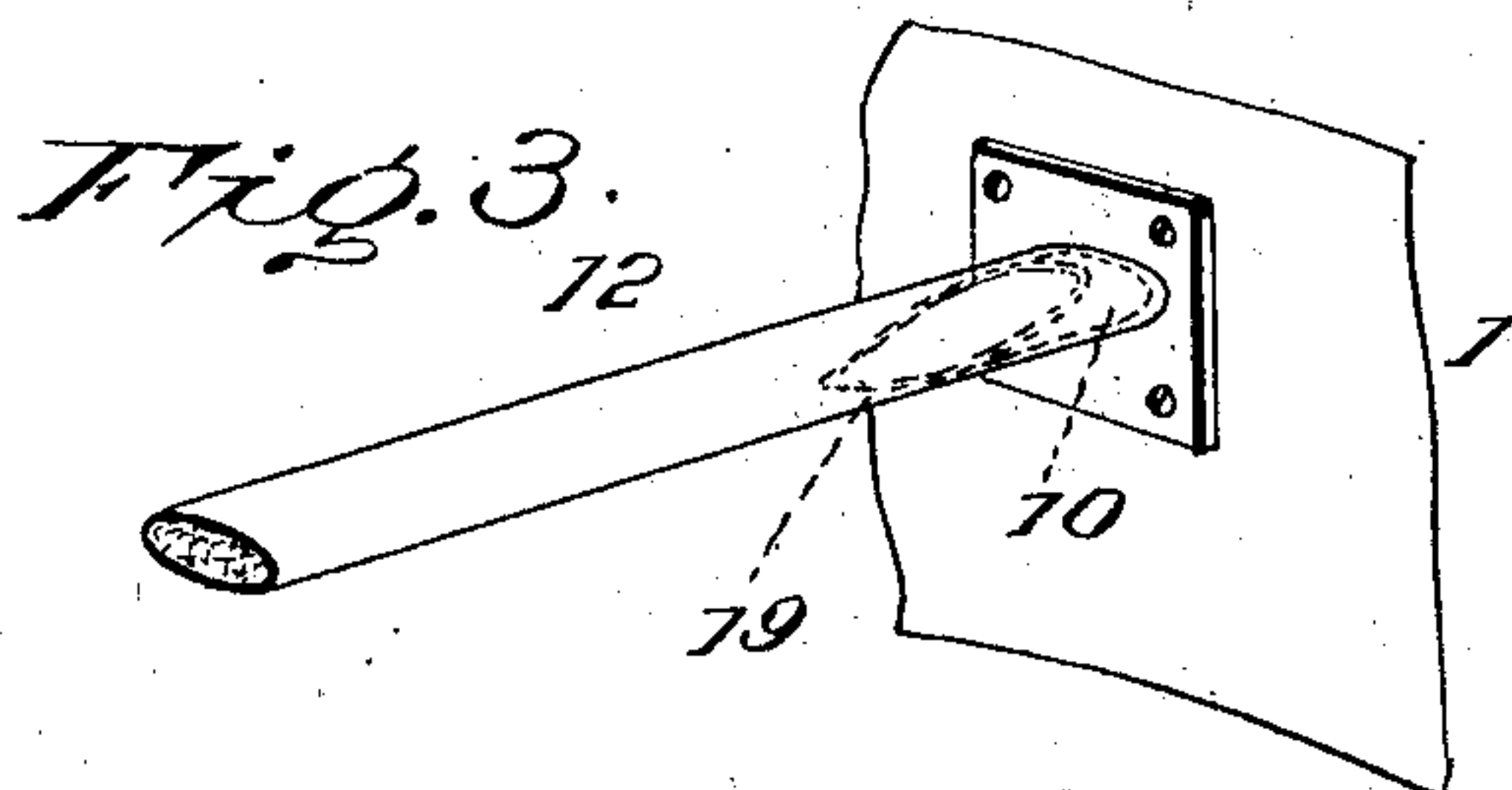
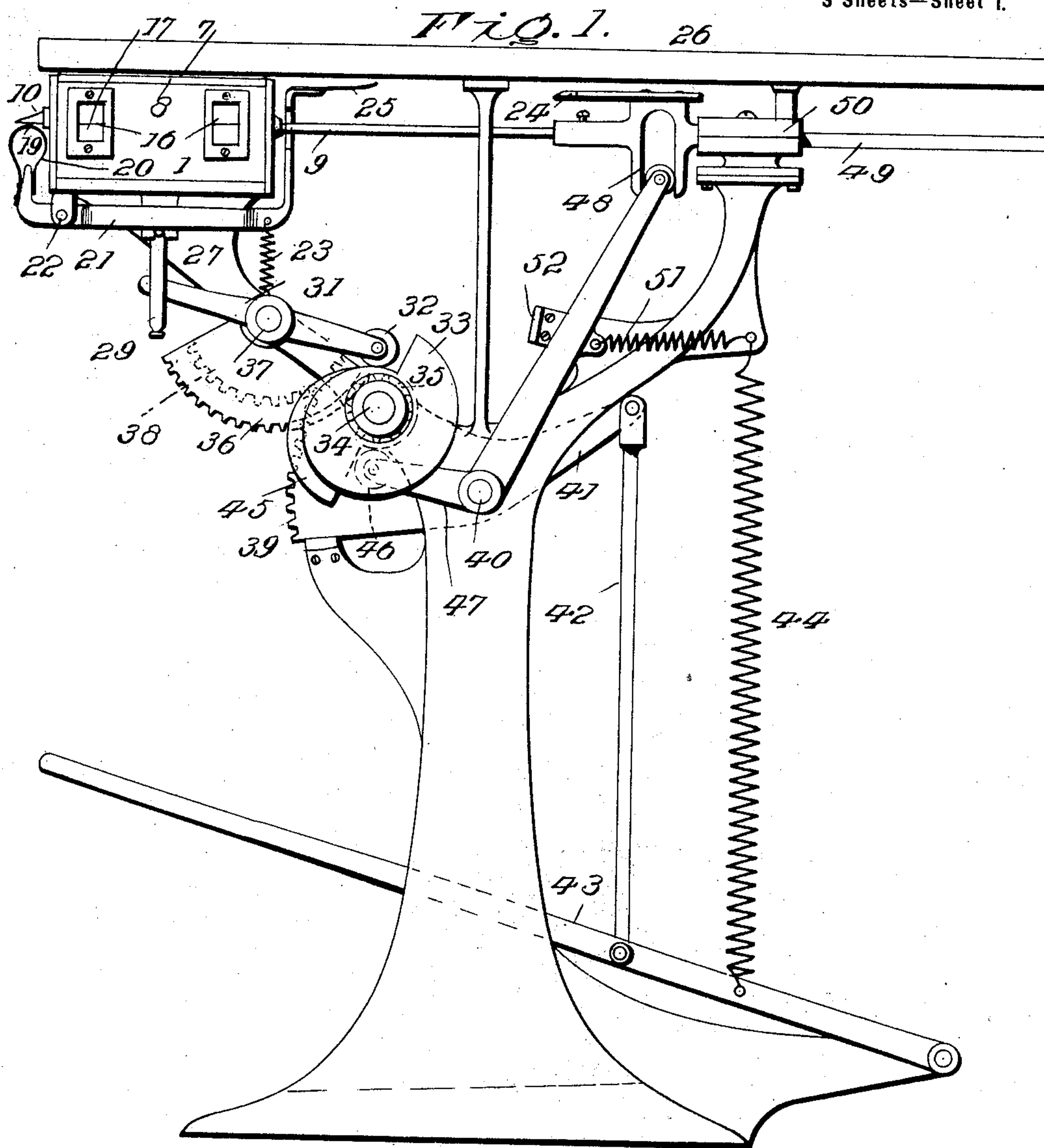
Patented May 20, 1902.

F. STICKER.  
CIGARETTE MAKING MACHINE.

(Application filed May 13, 1901.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses

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Inventor

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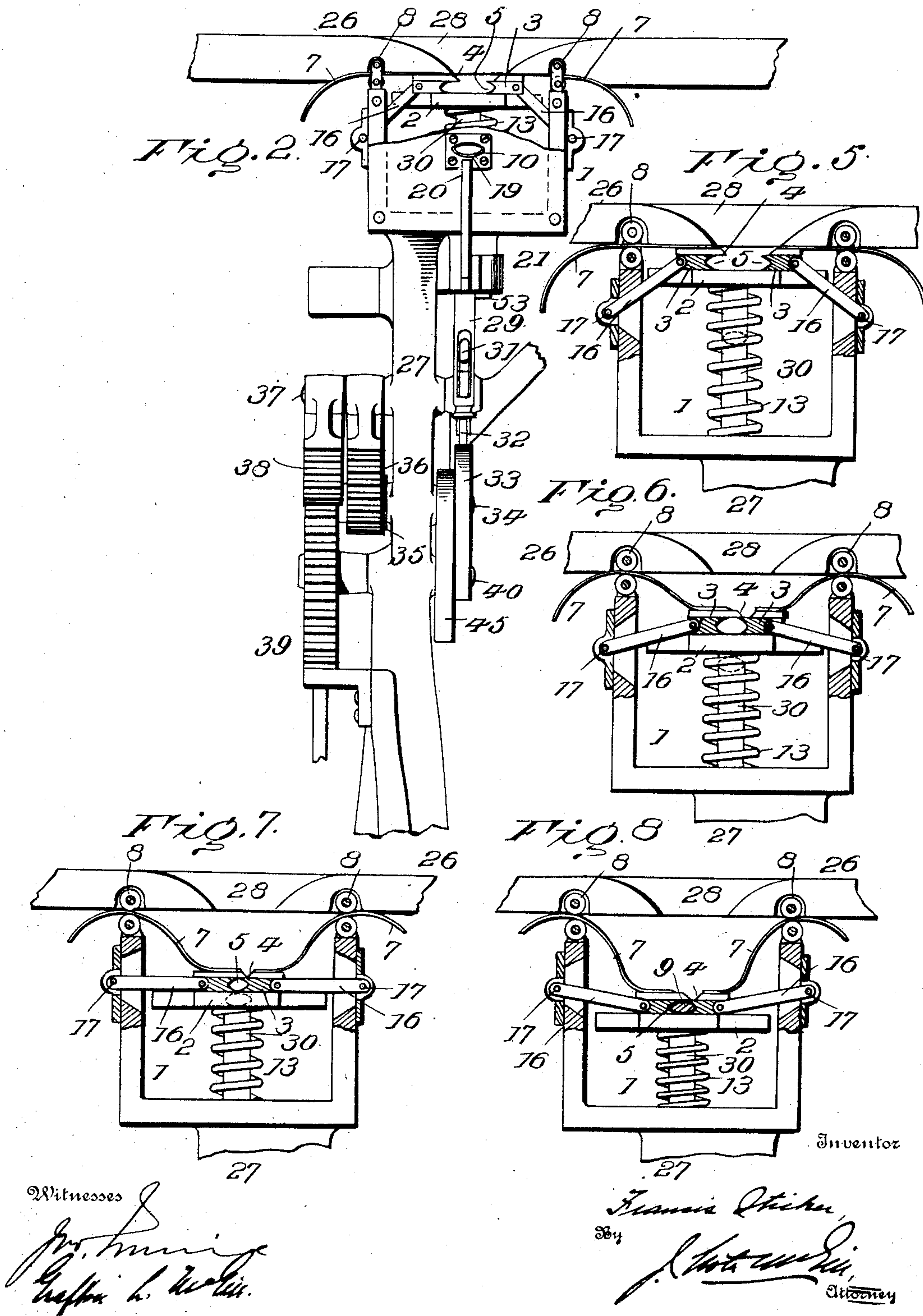
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3 Sheets—Sheet 3.

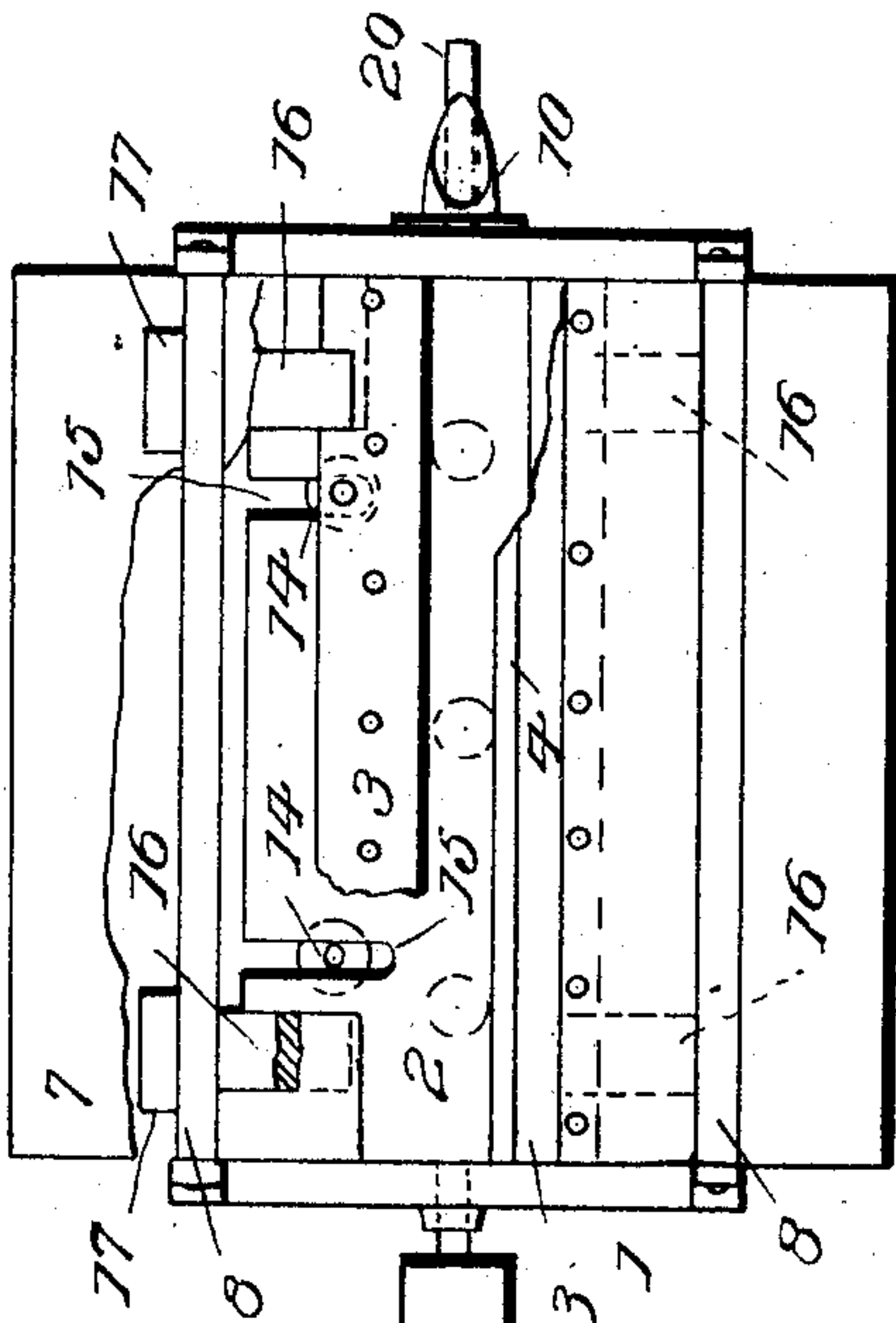


Fig. 4.

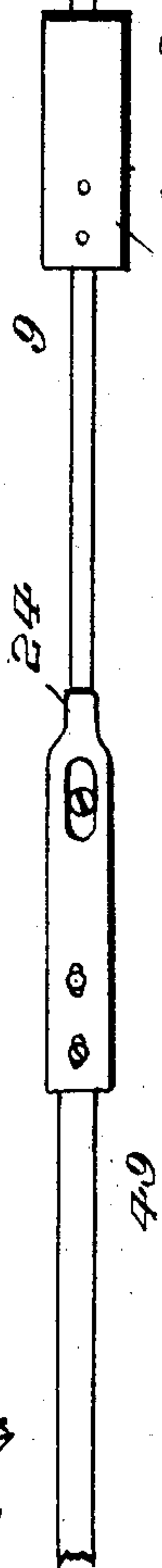


Fig. 9.

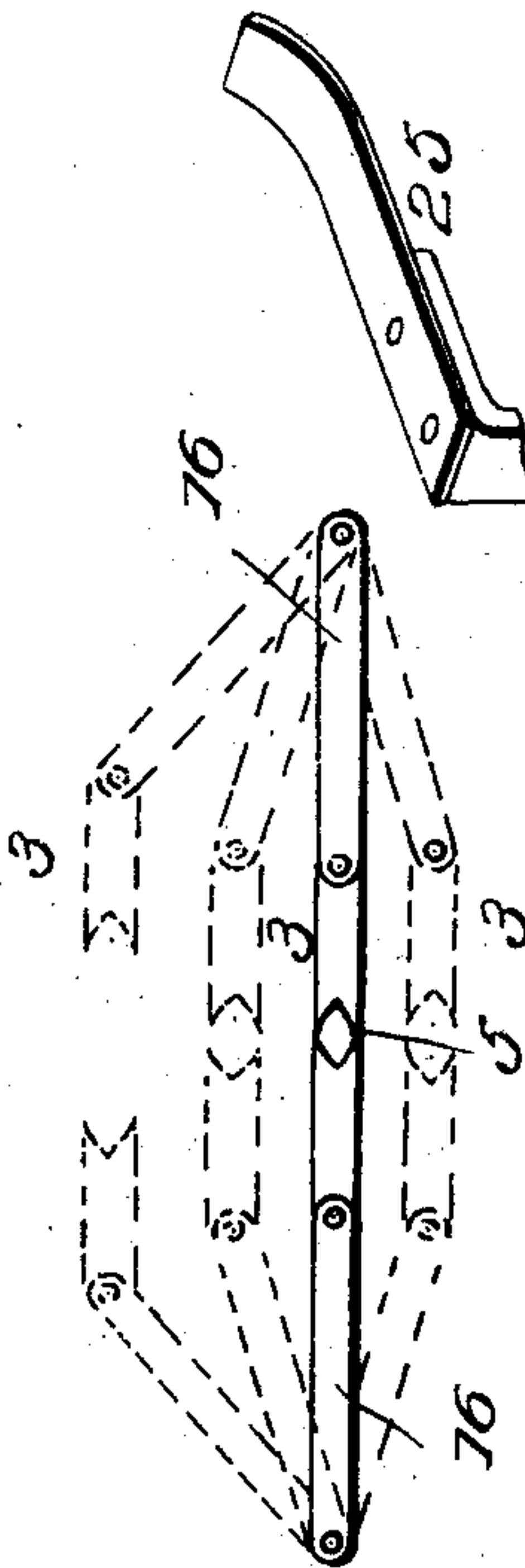


Fig. 10.

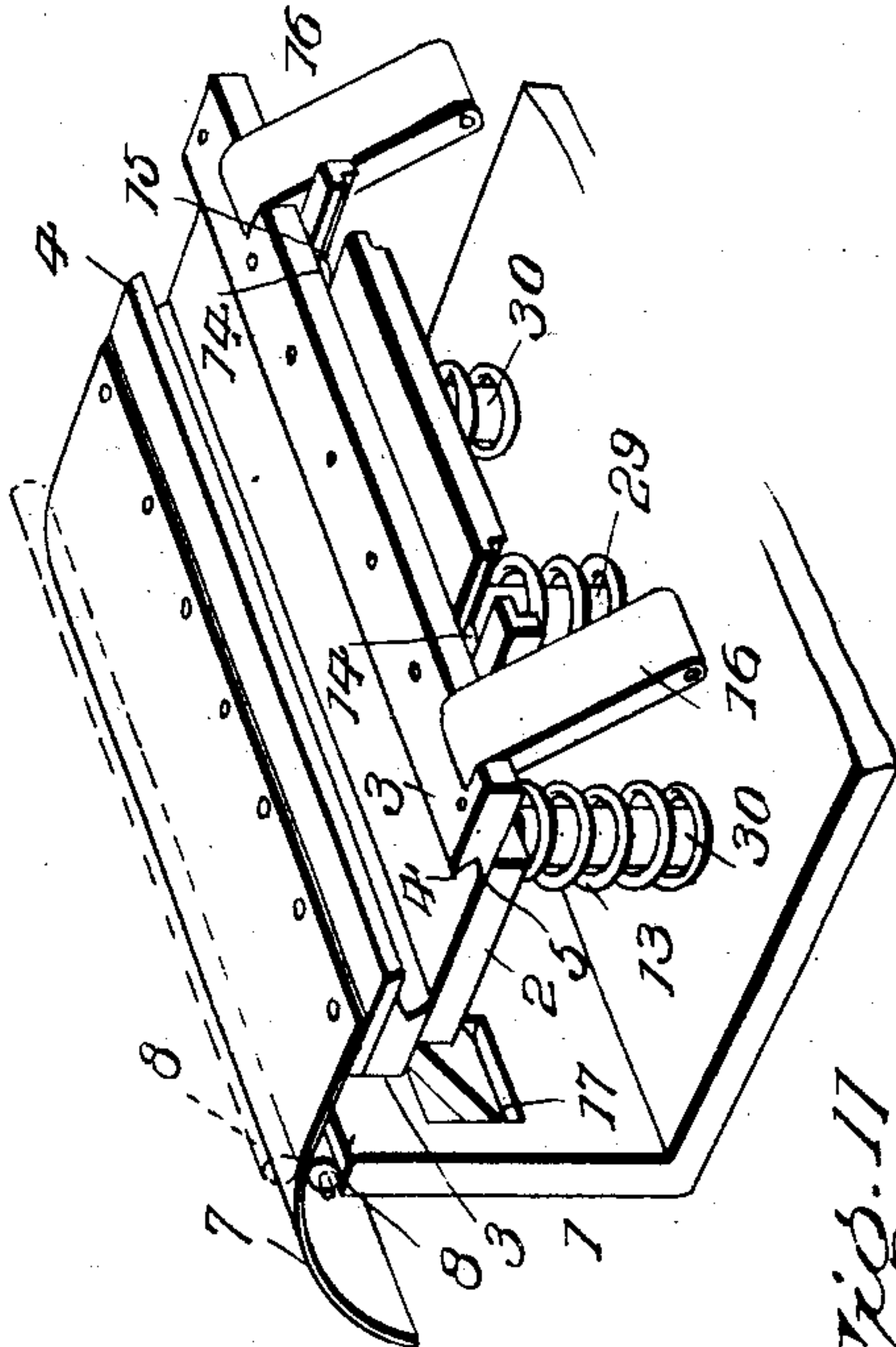


Fig. 11.

Witnesses  
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# UNITED STATES PATENT OFFICE.

FRANCIS STICKER, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO  
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## CIGARETTE-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 700,253, dated May 20, 1902.

Application filed May 13, 1901. Serial No. 60,113. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS STICKER, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Cigarette-Making Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to machines for making cigarettes, being specially designed for the manufacture of that class wherein the tobacco is inserted into ready-made paper tubes and known to the trade as "Egyptian" or "hand-made" cigarettes.

The primary object of the invention is to provide a machine capable of producing cigarettes which will have every appearance of being made by hand and yet possess advantages over the latter in that they are better and perfectly uniform.

Further objects are to provide for the more rapid making of cigarettes of this class, to avoid all waste of the tobacco, which is usually very expensive, to prevent the same coming in contact with any of the operative parts of the machine, to allow the latter to be lubricated without danger of ruining the tobacco, and to provide a machine capable of working various grades or kinds of material, one that can be easily kept clean, and which will not readily get out of order, and which will be simple in construction and operation.

The invention will be hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation. Fig. 2 is a front elevation with parts broken away. Fig. 3 shows a paper tube on the discharge-spout. Fig. 4 is an enlarged plan view of the molder with parts broken away. Figs. 5, 6, 7, and 8 show in end elevation and cross-section the various positions of the molder. Fig. 9 is a diagrammatical view illustrative of these various positions. Fig. 10 is an enlarged view of the device for holding the tube on the outlet-spout. Fig. 11 is a view in perspective of the molder with parts omitted.

The principal feature of the invention re-

sides in the formation of the tobacco into the proper shape preliminary to its insertion in the paper tube.

The molder comprehends oppositely-movable jaws for forming and compressing the tobacco in imitation of handwork, the tobacco being grasped or engaged from all points, (at the sides, above, and below,) securing an even distribution and compression, followed by a relaxation of pressure to permit the molded tobacco to be readily ejected.

*Molder.*—Referring to the drawings, 1 designates the molder-box, wherein is a bed-plate 2, capable of vertical reciprocation, and two jaws 3, which move synchronously with the bed-plate and toward and away from each other. These jaws have knife-like edges 4 and longitudinal V-grooves 5 to give to the tobacco an approximately elliptical shape in cross-section. To the two jaws are secured the inner edges of two flexible guide-plates 7, which latter are passed between and guided in the movements of the jaws by cross-rods 8, which latter are secured at their ends to the front and rear ends of the box. As the molder moves downward the flexible plates follow, forming a guide and support for surplus tobacco. When the desired quantity of tobacco is placed between the jaws, the molder is lowered, and all surplus tobacco is cut off by the knife-edges of the jaws, (see Fig. 6,) and that confined between them is pressed from both sides and above and below, (see Fig. 7,) whereupon the jaws are slightly relaxed (see Fig. 8) to permit an ejector 9 in the form of a long plunger-rod, elliptical in cross-section, to enter the molding space, and traveling longitudinally therethrough force the confined and molded tobacco out through the spout 10 into a ready-made paper tube 12 held on the latter. Thus the making of a cigarette is completed, whereupon the bed-plate 2 will move upward and the two jaws will recede laterally and again open for the insertion of a fresh supply of tobacco for the making of another cigarette. In this upward movement all surplus tobacco remaining on the guide-plates 7 will fall automatically between the jaws, thus avoiding loss. The bed-plate 2 is constantly impelled upward by springs 13. The two jaws are fitted



to slide transversely of the bed-plate, to which they are held by any suitable means, such as headed screws 14, passed up through slots 15. To each jaw are pivoted the inner ends of two toggle-arms 16, pivoted at their outer ends at 17 in the sides of box 1. The upper knife-like edge of one jaw is arranged to overlap and contact with the upper surface of the complementary jaw. (See Figs. 6, 7, and 8.)

It will be noted by reference to Fig. 7 that the greatest compression on the tobacco exists as the opposite toggle-arms are in direct line with one another, and, by reference to Fig. 8, that as the bed-plate 2 is moved farther downward the two jaws are slightly retracted, so as to relax the compression on the tobacco.

The spout 10 is secured to the front of box 1 and is of elliptical shape in cross-section, its bottom 19 being elongated, so as to extend some distance into a paper tube. After the tube is inserted on the spout it is held by a flat-bowed spring 20, mounted on the end of a lever 21, fulcrumed at 22 and actuated to cause the flat spring to bear against the tube on the spout by a spring 23, such spring 23 acting on the lever to allow spring 20 to engage spout 10 as soon as the molder begins its operation. As the ejector 9 is approaching the end of its forward movement through the mold a finger 24, carried by the ejector-moving mechanism, engages a curved extension 25 on the rear end of lever 21, turning the latter on its fulcrum as against the tension of spring 23 to release the hold of spring 20 and permit the now filled paper tube to be removed from the spout. The engagement of the tube-holder occurs as the molder starts on its downward movement and continues, with the exception of the temporary disengagement effected by finger 24, until the molder again resumes its normally upper position, when it is again forcibly disengaged from the spout. The ejector remains stationary until the molder has completed its downward travel, whereupon it is given a rapid longitudinal movement through the mold or tobacco-confining space and is rapidly withdrawn preliminary to the return of the molder to its normal position.

*Operating mechanism.*—It is obvious that various means may be employed for actuating the molder, the ejector, and the tube-holder; but for the purpose of illustration I have shown what I have found to be a very desirable mechanical arrangement for this purpose.

The table 26 is mounted on a supporting frame or standard 27, and in said table is formed a cut-out or opening 28, beneath which molder-box 1 is located. The flexible plates 7 constitute a bottom for this opening, even when the molder is depressed, thus preventing any of the tobacco from contacting with the operative parts of the machine, said plates traveling back and forth between the cross-rods 8. From the under side of bed-plate 2 depends a rod 29 and two shorter rods 30, each

of which is encompassed by one of the springs 13. The rod 29 is engaged by a lever 31, carrying a roller 32, which bears on a cam 33, on the journal 34 of which latter is a gear-pinion 35. With this pinion meshes a spur-gear sector 36, on whose shaft 37 is also fast a second spur-gear sector 38, which meshes with a third spur-gear sector 39, mounted on a shaft 40. An arm 41 of sector 39 is connected by a pitman 42 to a foot-treadle 43, which is normally held raised by a spring 44. On shaft 34 is a second cam 45, with which engages a roller 46 in one end of a lever 47, the other end of which latter works in a slotted head 48 of a guide-rod 49, movable longitudinally in a bearing 50, supported by the standard. It is to this head that the ejector-rod and the finger 24 are secured. The lever 47 is normally held by a spring 51, and its forward movement is limited by a stop 52. The cams 33 and 45 are so constructed that the moment the treadle begins to lower cam 33 will act on lever 31, while the cam 45 will not actuate lever 47 until the molder has reached the downward limit of its movement, and then the action of lever 47 is to impart a rapid motion to the ejector, which movement is guided by rod 49 in addition to the guidance obtained from the elliptical formation of the opening in the rear wall of the molder-box, wherein the ejector is always located. The spring 23, which normally holds the lever 21 in position to retain the cigarette-tube on the spout, is secured at its lower end to lever 31, so that as the latter is turned on its fulcrum (which is the shaft 37) the tension is increased. The rod 29 carries a pin 53, which as the molder rises, completing the cycle of operation, will engage lever 21 and overcome the tension of spring 23 and hold the flat spring 20 away from the spout.

*Operation:* The operator lays a certain quantity of tobacco between the jaws of the molder and places a ready-made paper tube on the spout and thereupon presses down the foot-treadle, immediately releasing lever 21, so that the paper tube will be held in position and through the described train of gearing actuating lever 31 to effect the lowering of the molder as against the tension of springs 13. The tobacco being compressed and molded in the manner hereinbefore specified by the time it is brought in line with the outlet-spout, and the jaws having receded laterally the ejector is through the action of lever 47 forced through the mold to eject the tobacco into the paper tube. As this operation is completed the finger 24 acts on lever 21, as against the tension of its spring 23, to release the hold on the cigarette-tube, whereupon the latter is removed, the cigarette being completed.

From what has been said the advantages of my invention are apparent. In the first place, it will be observed that the conjoint action of the forming and compressing jaws on the tobacco is imitative of handwork, but is more



positive and perfect. There is no unequal side pushing or compression of the tobacco, but a grasping from both sides and above and below, whereby the material is evenly distributed and compressed, insuring a perfect formation of the tobacco in a substantially elliptical form in cross-section. There is no waste of tobacco, since all excess cut off by a knife in the hands of the operator is returned to the machine, and such as may remain on the guide-plates after the jaws are brought together will fall between the latter as they rise after the previously-compressed core has been ejected. There are many other advantages derived from raising and lowering or the vertical movements of the jaws, among which are the following: The line of discharge of the finished tobacco core is below the filling-point, so that all mechanism, including the ejector, may be placed below the table and out of the way. The outlet-spout is below the filling-point, and hence forms no obstruction, and a tube thereon is not liable to injury, and short fibers being cut off by the ends of the box in the lowering of the jaws are prevented from protruding at the ends and interfering with the mechanism or the positioning of the tube or causing wedging of the ejector or the jaws. All the operative mechanism being beneath the working table, there can be no contamination of the tobacco. The parts are simple in their construction and arrangement and are not liable to readily get out of order or be deranged.

I claim as my invention—

1. In a cigarette-making machine, means for forming and compressing the tobacco comprising two complementary members, means for moving both members synchronously toward and away from each other, and means for ejecting the tobacco after it is so formed and compressed and while retained by such members, as set forth.

2. In a cigarette-making machine, a support for the tobacco, means for forming and compressing the tobacco comprising two complementary members mounted on such support, means for moving both members synchronously toward and away from each other transversely of the support, and means for ejecting the tobacco after it is so formed and compressed and while retained by such members, as set forth.

3. In a cigarette-making machine, means for forming and compressing the tobacco, mechanism for actuating the same, means for moving such forming and compressing means downwardly while being actuated by such mechanism, and means for ejecting the tobacco at the termination of the downward movement of such forming and compressing means, as set forth.

4. In a cigarette-making machine, means for forming and compressing the tobacco comprising two complementary members, means for transversely moving both members synchronously toward and away from each other,

means for moving such forming and compressing means downwardly simultaneously with their transverse movement toward each other, and means for ejecting the tobacco at the termination of the downward movement of such members, substantially as set forth.

5. In a cigarette-making machine, a molder comprising complementary forming and compressing jaws, means for synchronously moving both jaws laterally toward and away from each other, and means for ejecting the tobacco from the jaws after it is so formed and compressed and while retained by the jaws.

6. In a cigarette-making machine, a molder comprising forming and compressing jaws normally open, means connected to such jaws for actuating them laterally, means for moving both jaws vertically or at right angles to their lateral movements, said actuating means operating on the jaws during such vertical movements, and means for ejecting the tobacco from the jaws at the termination of the first vertical movement.

7. In a cigarette-making machine, a molder comprising forming and compressing jaws normally open, toggle-arms connected to such jaws, means for moving both jaws vertically, said toggle-arms actuating the jaws during such vertical movements, and means for ejecting the tobacco from the jaws at the termination of the first vertical movement.

8. In a cigarette-making machine, a molder comprising a support, means for moving the same vertically, two forming and compressing jaws movable with said support and also laterally toward and away from each other, and toggle-arms acting on such jaws for effecting the lateral movements thereof during the vertical movements of the support, as set forth.

9. In a cigarette-making machine, a molder comprising forming and compressing jaws normally open, toggle-arms connected to such jaws, a bed-plate on which the jaws are mounted and on which they are designed to move laterally, means for raising and lowering such bed-plate, said toggle-arms actuating the jaws during such movements of the bed-plate, and means for ejecting the tobacco from the jaws at the termination of the lowering movement of the bed-plate, as set forth.

10. In a cigarette-making machine, a molder comprising two jaws normally open, a casing wherein the latter are located, means for moving the jaws vertically, means for moving the jaws toward and away from each other during such vertical movements, an ejector, and means for projecting the same through the casing and jaws when the latter are at the end of their downward vertical movement, as and for the purpose set forth.

11. In a cigarette-making machine, a molder comprising forming and compressing jaws, means for moving both jaws laterally first toward each other and then slightly apart, and means for ejecting the tobacco while the jaws are in the last-mentioned position.



12. In a cigarette-making machine, a molder comprising forming and compressing jaws, toggle-arms secured to such jaws, means for moving the jaws vertically so that the toggle-arms will move them laterally first toward each other and then slightly apart, and means for ejecting the tobacco while the jaws are in the last-mentioned position.

13. In a cigarette-making machine, a molder comprising forming and compressing jaws, means for moving the jaws laterally, first toward each other, and then slightly apart, the ejector conforming in cross-section to the space between the jaws when in the last-mentioned position, and means for moving such ejector longitudinally between the jaws, substantially as set forth.

14. In a cigarette-making machine, a molder comprising forming and compressing jaws having knife-like edges, the edge of one jaw being arranged to overlap the edge of the other, and means for moving said jaws laterally toward and away from each other, substantially as set forth.

15. The combination with the box having openings in its ends, the bed-plate, and the two side jaws, of means for lowering and raising said bed-plate and jaws, the toggle-arms secured to said jaws and to the box for moving the former laterally during their vertical movements, the ejector conforming in cross-section to the space between the jaws when lowered and also to the openings in the box, and means for moving the ejector longitudinally, substantially as set forth.

16. In a cigarette-making machine, flexible guides for the tobacco, jaws beneath and to which such guides are connected, said jaws being normally open, and means for moving the jaws laterally toward and away from each other, as set forth.

17. In a cigarette-making machine, guides for the tobacco, jaws beneath such guides, means for moving the jaws and the guides vertically, means for moving the jaws laterally during such vertical movements, said jaws being opened to receive the tobacco when at the limit of their upward movement, and means with which said jaws are brought in line when at the limit of their downward movement, for ejecting the tobacco therefrom, as set forth.

18. The combination with the box, the bed-plate and the forming and compressing jaws mounted on the latter, of means for synchronously moving said jaws laterally, the flexible plates secured at their inner edges to said jaws, and the guides for said plates at the sides of the box, substantially as set forth.

19. In a cigarette-making machine, the combination with the molder, of the outlet-spout, having a bearing for a paper tube, a lever having a flexible portion, a spring for holding said portion normally in engagement with said spout for retaining a paper tube thereon, an ejector for forcing the tobacco from the molder through the spout, and mechan-

isms for positively disengaging the said flexible portion from the spout, first, as the ejector reaches the limit of its discharge movement, and, second, when the machine is completing the final cycle of its movements, substantially as set forth.

20. The combination with the molder, the spout, and the ejector, of the lever, a spring acting thereon, a flat spring carried by such lever for holding a paper tube on said spout, and mechanism for actuating the ejector and engaging said lever to free said spring from contact with the spout as the ejector reaches the limit of its discharging movement, substantially as set forth.

21. The combination with the bed-plate, and springs normally holding the same raised, of the jaws, means for lowering the bed-plate as against the tension of the springs, said jaws being movable with said bed-plate, toggle-arms connected to said jaws for moving them laterally as they travel with the bed-plate, the ejector-rod, and means for moving the latter longitudinally between the jaws, as set forth.

22. The combination with the table having an opening therein, of the molder located beneath said opening comprising forming and compressing mechanism normally held elevated and open to receive the charge of tobacco, a vertically-movable support for such mechanism, an outlet-spout and ejector located in line beneath the upper or normal level of said mechanism, and means for actuating the ejector when the forming and compressing mechanism is in line therewith, substantially as set forth.

23. The combination with the table having an opening therein, of the molder located beneath said opening comprising forming and compressing mechanism normally open to receive the charge of tobacco, flexible guide-plates secured to such mechanism, means for actuating the latter after the tobacco is received therein, and an ejector and its operating mechanism located wholly beneath the table, substantially as set forth.

24. The combination with the table having an opening therein, and the molder located beneath said opening comprising an inclosure, forming and compressing mechanism therein, flexible guide-plates secured to such mechanism, and means for raising and lowering said mechanism and plates in the formation of the cigarette-core, of an ejector-rod movable longitudinally through said molder on a line beneath the point of charging said forming and compressing mechanism, and mechanism located wholly beneath the table for first actuating the molder and then the ejector, substantially as set forth.

25. The combination with the molder comprising a vertically-movable support and forming and compressing jaws carried thereby, of a lever for actuating said support, means for moving such jaws during such actuation, a cam for operating said lever, a longitudi-



nally-movable ejector-rod located beneath the  
normal upper position of the support, an ac-  
tuating-lever for such ejector-rod, a second  
cam for operating such lever, a foot-treadle,  
5 and mechanism actuated thereby for operat-  
ing said cams, substantially as set forth.

In testimony whereof I have signed this

specification in the presence of two subscrib-  
ing witnesses.

FRANCIS STICKER.

Witnesses:

CHARLES A. DRUCKLIEB,  
ANNA T. MALLON.