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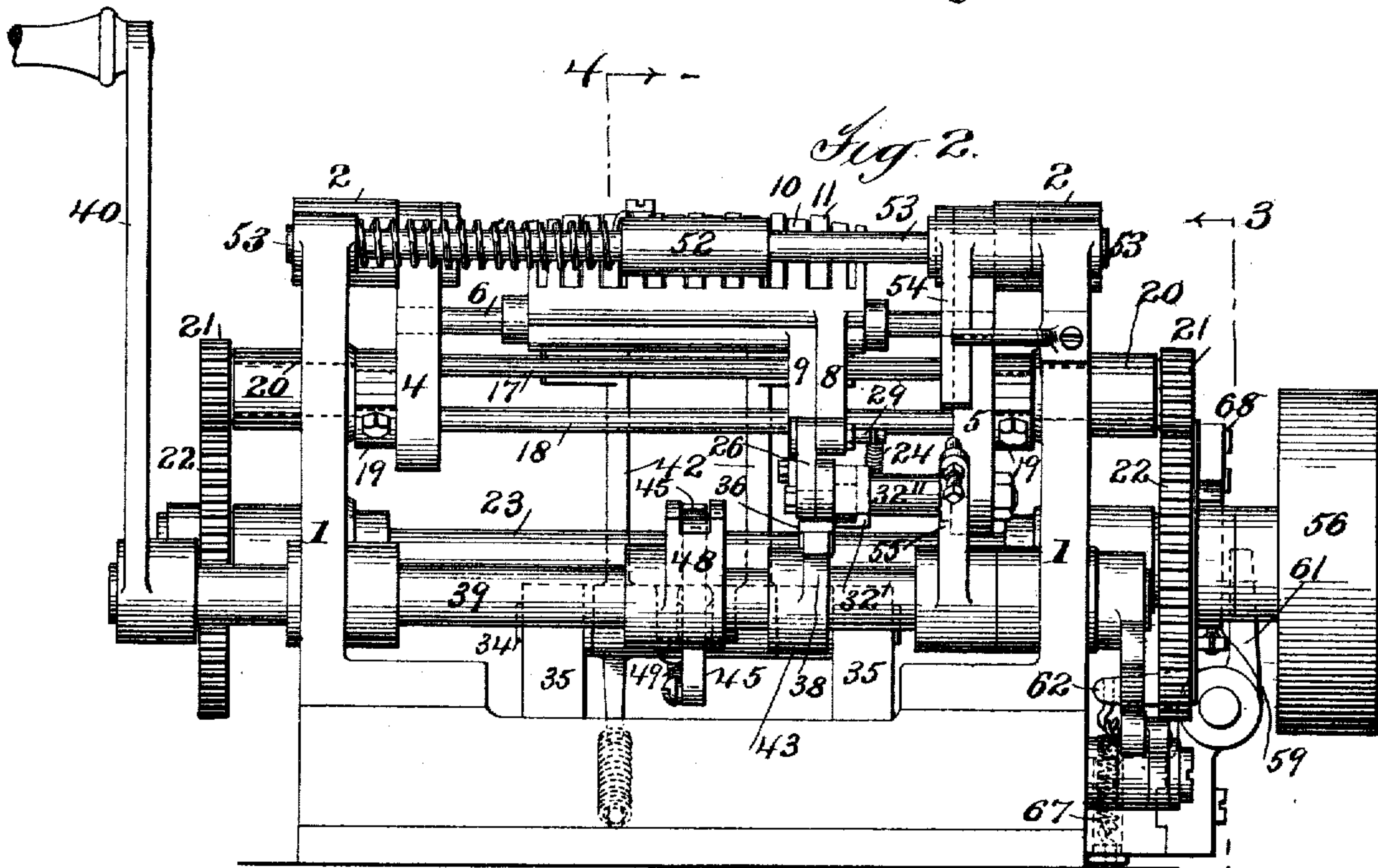
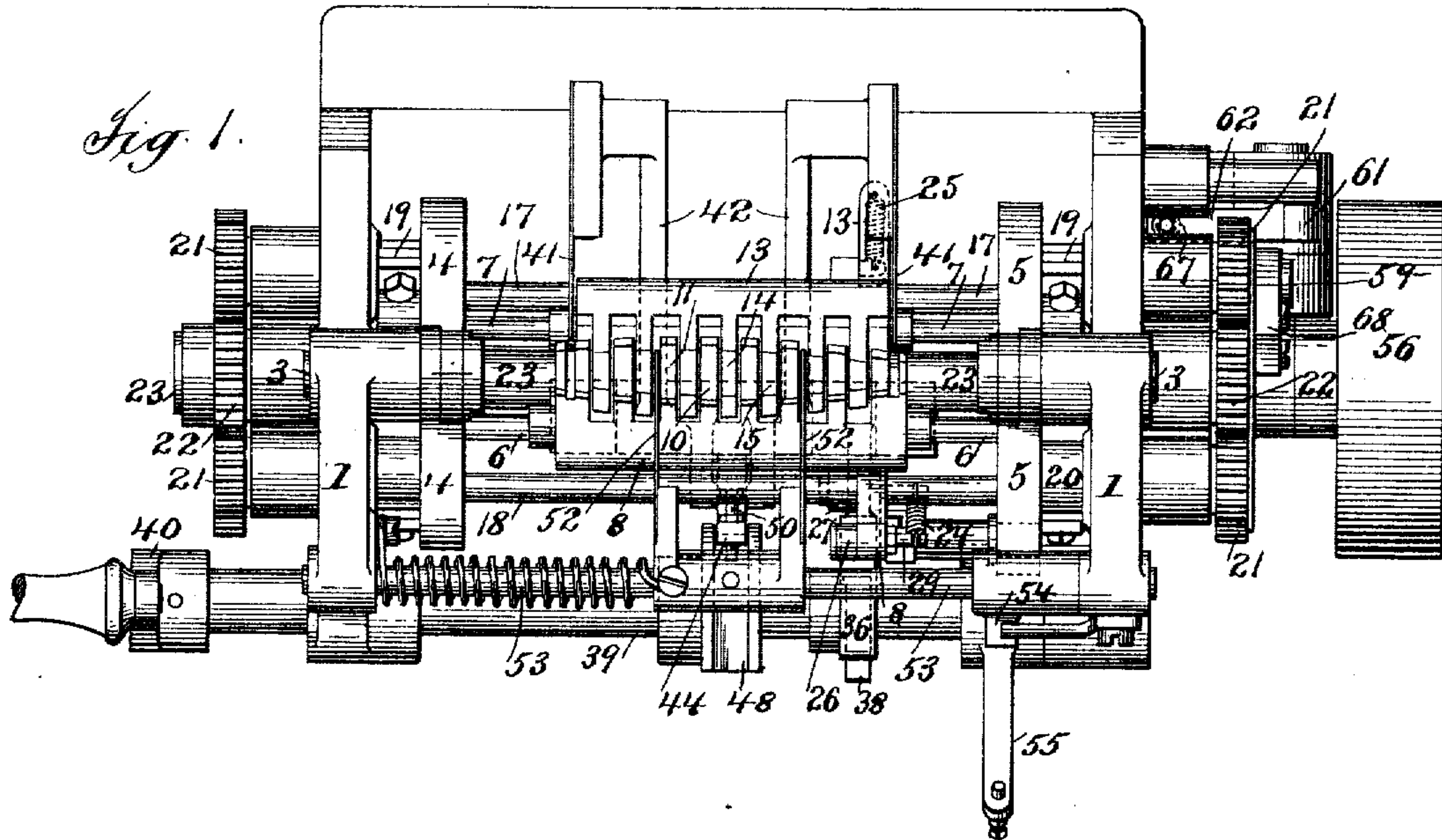
Patented July 24, 1900.

O. TYBERG.  
CIGAR MACHINE.

(Application filed Feb. 5, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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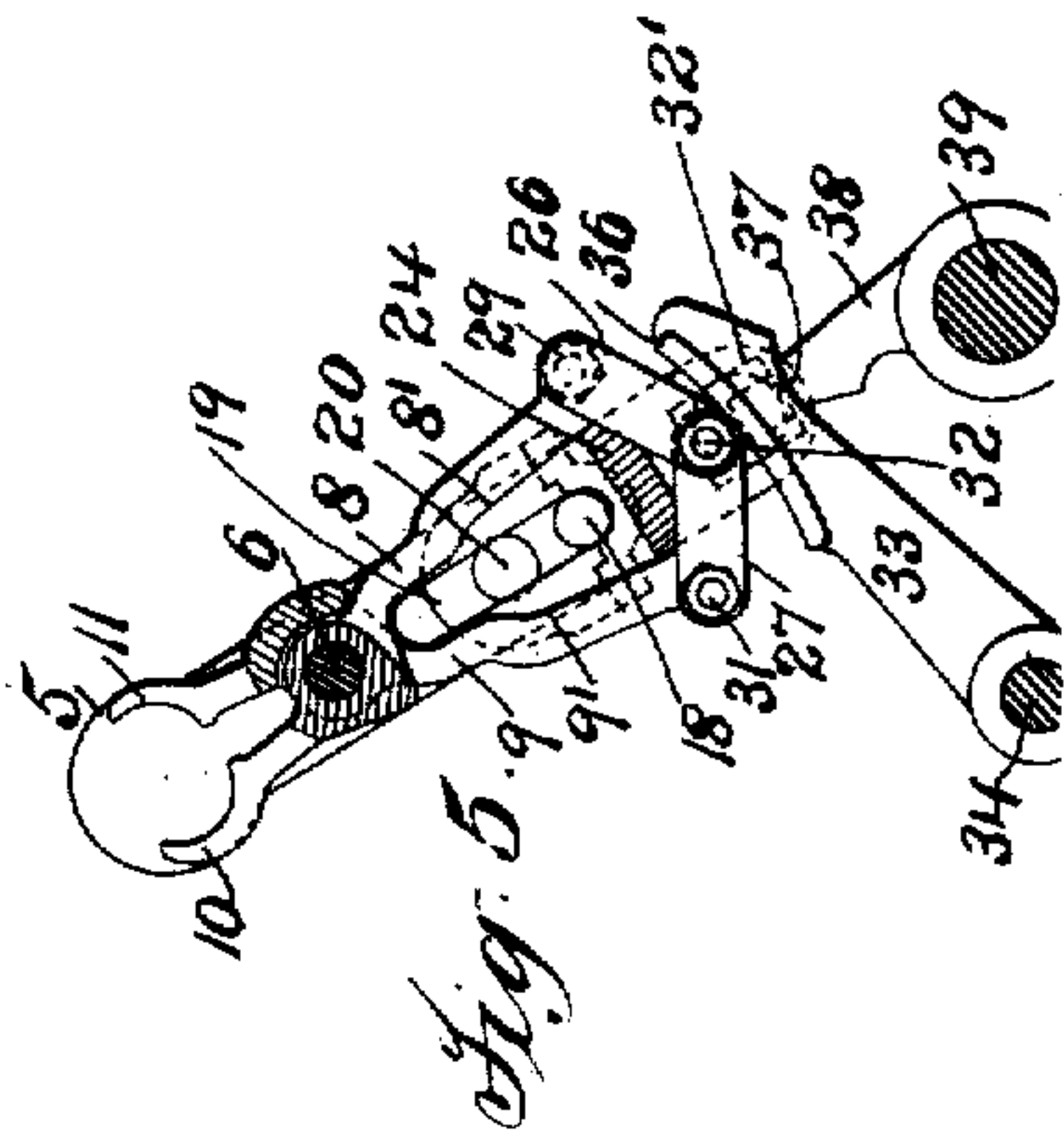
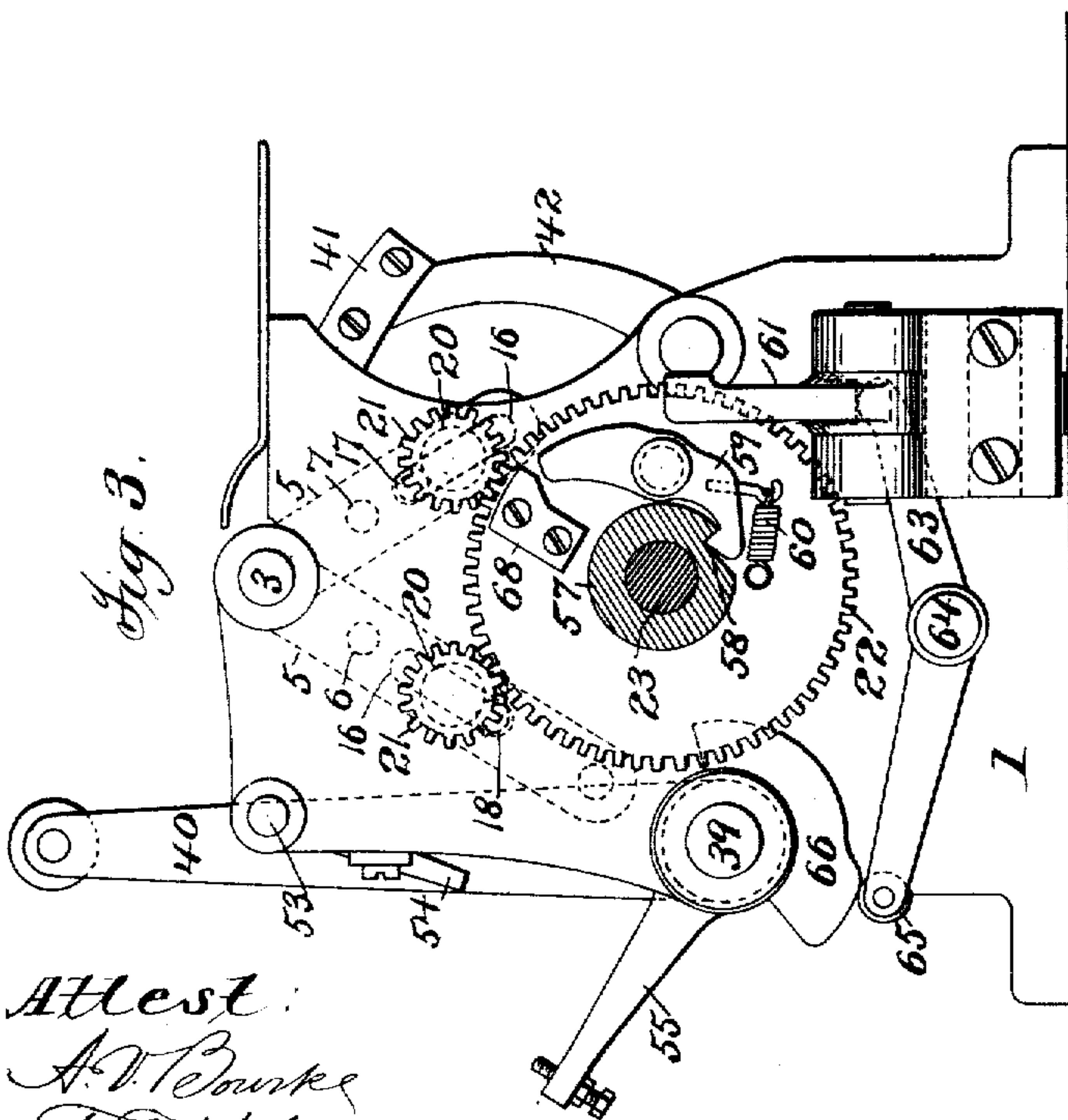
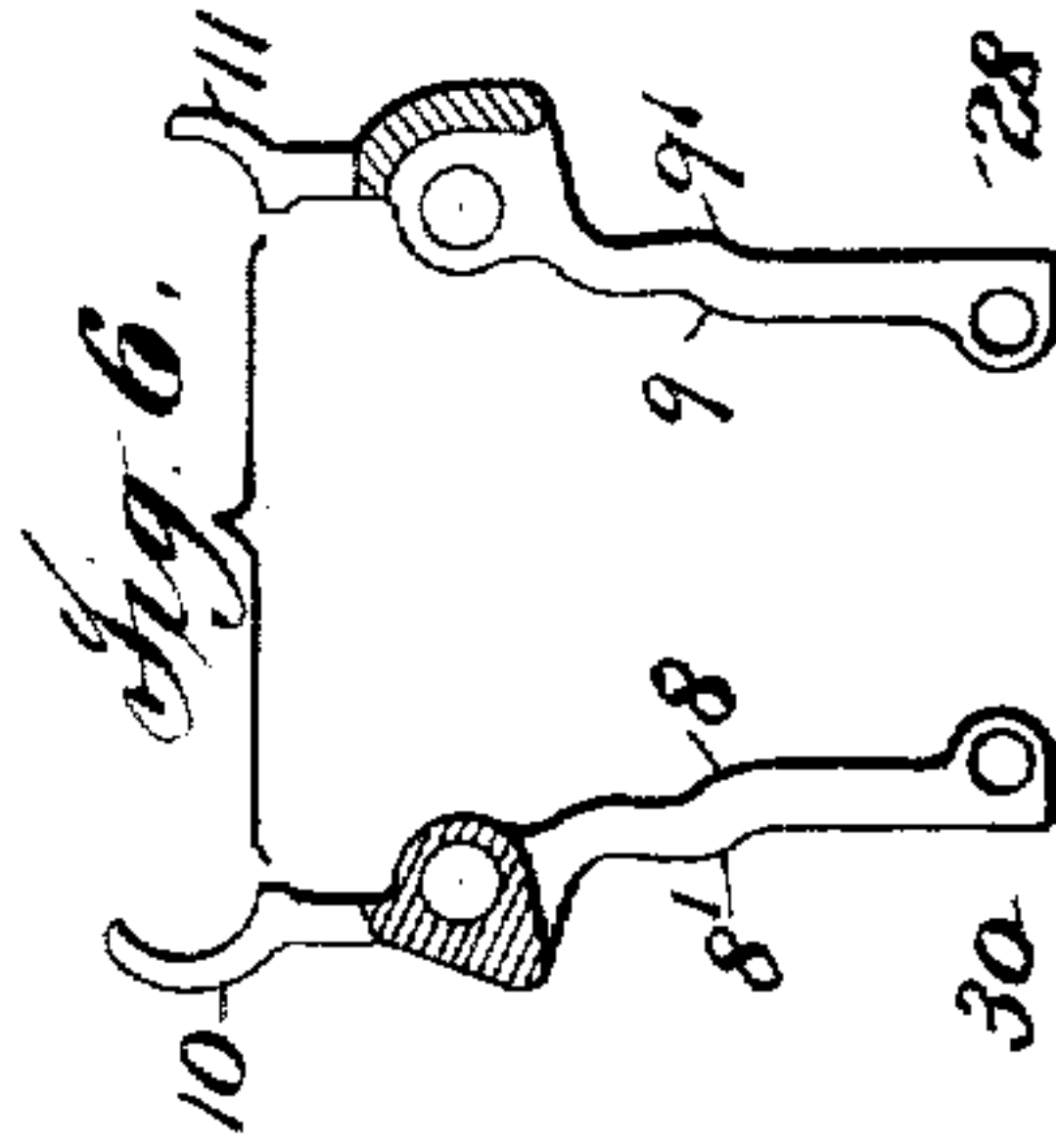
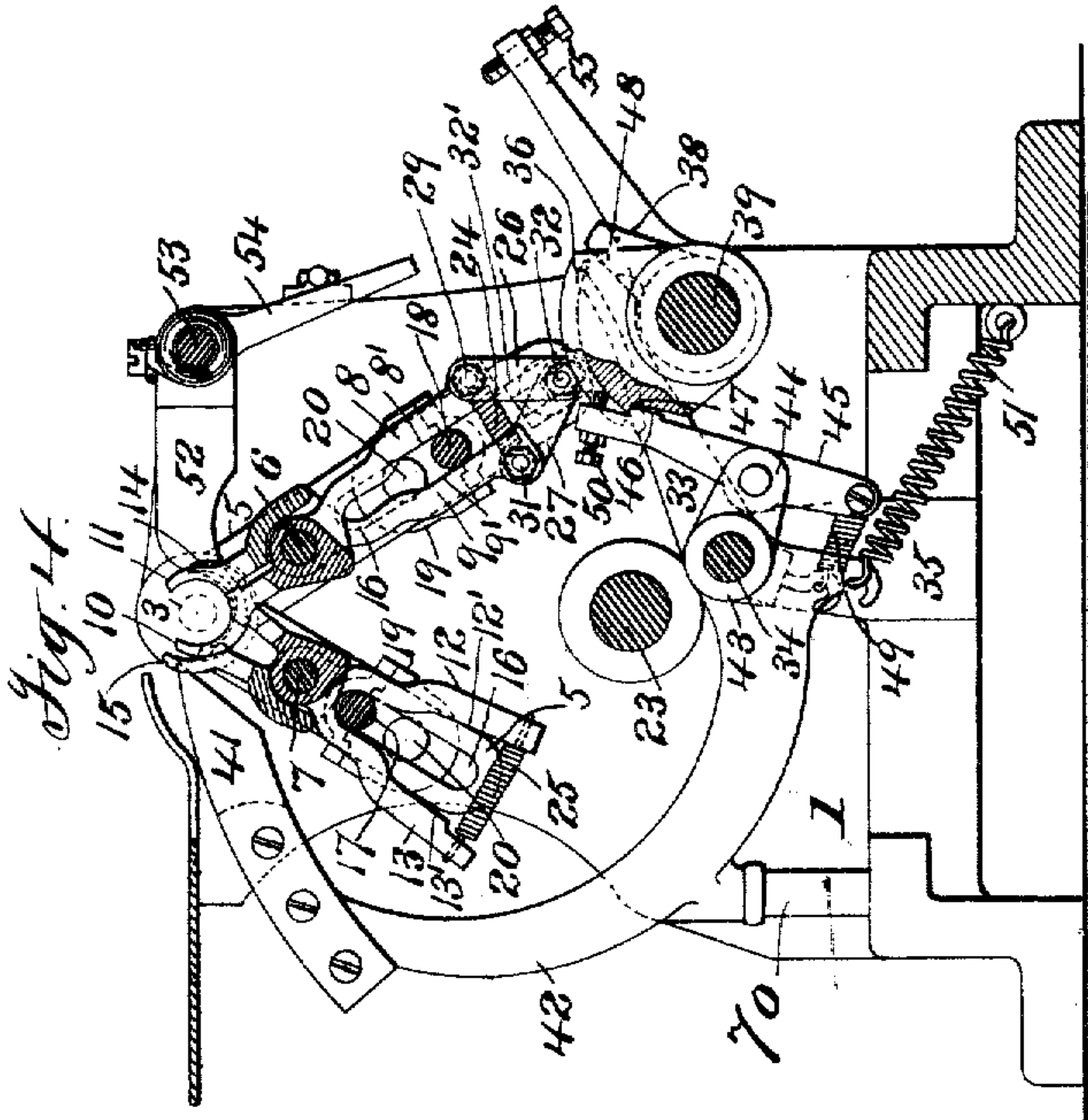
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(No Model.)

2 Sheets—Sheet 2.



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# UNITED STATES PATENT OFFICE.

OLUF TYBERG, OF NEW YORK, N. Y., ASSIGNOR TO RUFUS L. PATTERSON  
AND GEORGE ARENTS, JR., OF SAME PLACE.

## CIGAR-MACHINE.

SPECIFICATION forming part of Letters Patent No. 654,197, dated July 24, 1900.

Application filed February 5, 1900. Serial No. 4,075. (No model.)

*To all whom it may concern:*

Be it known that I, OLUF TYBERG, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Cigar-Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 This invention relates to certain improvements in cigar-machines, and more particularly in cigar-machines of the type disclosed in the patent to J. Reuse, No. 552,447, granted December 31, 1895. In the machine described  
15 in this patent the cigar is rolled by means of manipulators in the form of two sets of pivoted jaws, each set being caused to swing bodily about the axis of the cigar as a center in order to roll the cigar and each set being  
20 swung about its pivot so as to be alternately opened and closed to grasp the cigar. After the cigar is rolled both sets of jaws are opened in order that the cigar may be removed from them by a lifting device attached to the machine. In the machine referred to the sets of  
25 manipulator-jaws are operated through levers which have slotted ends, the said slotted ends being engaged by a rotating operating-rod. This rod working in the slotted ends of the  
30 levers operates not only to give the jaws their bodily swinging movement, but also turns them on their pivots to open and close them. Manipulating-levers having slotted ends of the character described are difficult and ex-  
35 pensive to construct, inasmuch as the slots in which the operating-rods operate must be formed with the greatest nicety in order to secure a successful operation of the levers. Furthermore, inasmuch as the rods operate  
40 in the slots both to open and close the manipulator-jaws, the said jaws are given a positive movement in closing and always close a definite amount. The effect of this positive closing movement is that if the bunch varies in  
45 size, as will often happen, satisfactory results are not attained. If the bunch be large, the jaws will close too far upon it and crush it, and if, on the other hand, the bunch be small, it will sometimes happen that it will not be  
50 grasped by the jaws with sufficient firmness to enable it to be successfully rolled. Fur-

thermore, in the machine referred to, when both sets of manipulator-jaws are to be opened to deliver the cigar already rolled and to receive a fresh bunch, the machine is stopped 55 in such a position that one set of jaws is open. The other set of jaws is then opened by forcing the jaws and the pivot-rod upon which they are carried downward away from the axial line around which the cigars are rolled. The 60 operating-rod for the jaws, which is at this time stationary, acts, in connection with the lower forked ends of the manipulator-levers, to force the jaws apart, exercising in this operation a cam action on the jaws. The mech- 65 anism for accomplishing this function is in the machine referred to complicated and expensive, and, furthermore, requires the use of the expensive slotted manipulator-levers before referred to. 70

It is one of the objects of this invention to so construct the levers through which the manipulator-jaws in machines of the class described are operated as to render it unnecessary to fork or slot them, as has been heretofore done, thus considerably decreasing the 75 cost of manufacturing these levers.

A further object of the invention is to do away with the positive closing mechanism which has been heretofore used and to substitute therefor closing devices which permit 80 a variable closing movement, thereby insuring effective action of the manipulator-jaws when the bunches vary in size.

A further object of the invention is to simplify and improve the mechanism for opening the manipulator-jaws and also to simplify the mechanism by which the manipulator-levers are operated and controlled. 85

With these and other objects in view the invention consists in certain constructions and in certain parts, improvements, and combinations, as will be hereinafter described, and more particularly pointed out in the 90 claims hereunto appended. 95

In the accompanying drawings, which form a part of this specification, and in which like characters of reference indicate the same parts, Figure 1 is a top plan view of a machine constructed in accordance with the invention. Fig. 2 is a rear elevation. Fig. 3 100 is a sectional view on the line 3 3 of Fig. 2



looking in the direction of the arrow 3. Fig. 4 is a sectional view on the line 4 4 of Fig. 2 looking in the direction of the arrow 4. Fig. 5 is a detail sectional view illustrating the action of the jaw-opening device. Fig. 6 is a detail elevation, partly in section, of the manipulator-jaws and their levers.

Referring to the drawings, which illustrate a preferred form of the invention, 1 1 indicate the end frames, in which the operating parts of the machine are mounted. These frames are formed to provide bearings 2, in which are mounted short studs 3. One of these short studs serves to support a pair of swinging guides 4 4 and the other stud a pair of similar guides 5 5, each pair of these guides being thus located at opposite ends of the machine. These guides are pivoted on the studs 3, and thus have an axial movement about the studs. Mounted in these guides 4 4 and 5 5 and preferably wholly supported by them are longitudinal rods 6 and 7, the rod 6 being carried by one guide of each pair and the rod 7 by the other guide of each pair. While the rods 6 and 7 are preferably so mounted as not to turn in the guides, they may of course be journaled in bearings therein, so as to have an axial movement, if desired. In any event, however, they will be so mounted as not to have any play or sidewise movement with respect to the guides. These rods 6 and 7 serve to support the manipulator-jaws and their operating-levers, as will be hereinafter described.

Mounted on the rod 6 are a pair of manipulator-jaws 10 and 11, these jaws being provided with operating-levers 8 and 9. In the machine shown the levers are formed integral with the manipulator-jaws; but it is obvious that they may be separate therefrom and secured thereto if thought desirable. The manipulator-jaws 10 and 11 are preferably mounted on the rod 6, so as to turn about it, the rod 6 thus serving as the pivot for this set of jaws. While in the preferred construction both jaws are pivotally mounted on the rod, it is of course obvious that one of the jaws might be fixed on the rod, in which case the rod would turn in bearings in its supporting-guides. In the same manner the rod 7 serves to support the pair of manipulator-jaws 14 15, these jaws being also provided with operating-levers 12 13, said levers being also preferably formed integral with the manipulator-jaws.

The means by which the sets of manipulator-jaws are swung about their pivots to roll the cigar-bunch may be widely varied. In the machine shown the guides 4 are provided with slots 16, and the guides 5 have similar slots. Passing through the slots 16 of the guides 4 5 are operating-rods 17 and 18. These operating-rods are mounted so as to have a rotating movement. While this rotating movement may be accomplished in various ways, it is preferably effected by

mounting the ends of the rods in crank-arms 19, these crank-arms being secured to short shafts 20, which extend through the side frames of the machine. There are preferably four of these short shafts 20, two at each end of the machine, and each of these shafts is provided with an operating-pinion 21. These operating-pinions 21 preferably mesh with gears 22, mounted on the main shaft 23 of the machine, which shaft also finds its bearings in the side frames, before referred to, the gears operating to turn the pinions at each end of the machine in opposite directions. With the construction so far described it is obvious that as the pinions 21 and the shafts 20 of the operating-rods 17 18 rotate the rods will be carried around in circular paths and will cause a swinging movement of the guides 4 4 and 5 5 about their pivots 3, this movement being permitted by the slots in the guides before referred to, through which the operating-rods pass. Inasmuch as the supporting pivot-rods for the manipulator-jaws are carried in the guides 4 4 and 5 5, it is obvious that they will also have a swinging movement, and the manipulator-jaws are so arranged that said swinging movement takes place about an axial line which passes substantially through the center of the space inclosed by the closed manipulator-jaws.

It will be noted that the manipulator-levers 8 9 and 12 13, instead of being forked, as in the patent referred to, are formed with a single leg or extension, the inner sides of said legs or extensions being provided with cam-faces 8', 9', 12', and 13'. The levers 8 9 are located on opposite sides of the operating-rod 18, before referred to, and in the same manner the levers 12 13 are arranged on opposite sides of the operating-rod 17. By forming the operating-levers 8 9 and 12 13 with a single leg or extension in the manner described and providing them with cam-faces it will be seen that as the operating-rods 17 18 in their revolution operate the guides 4 5 4 5, in which the rods 6 7 are mounted, they will in their upward movement come in contact with the cam-faces 8' 9' 12' 13' and force the levers apart, thus opening the manipulator-jaws carried by the levers. The levers 8 9 12 13 yield to the action of the operating-rods by reason of the fact that they are pivotally mounted, and it is obvious that the amount of this yielding action must be properly controlled. While this result may be effected in various ways, it will preferably be done by connecting the lower ends of the levers of each set of jaws by springs. In the machine shown the levers 12 13 are connected by springs 25 and the levers 8 9 by springs 24. These springs thus control the amount of opening movement of the jaws and hold the cam-faces of the levers snugly against the operating-rods. As, therefore, the operating-rods 17 18 in their revolution move away from the rods 6 7 the springs 24 25 will operate to close the



manipulator-jaws upon the cigar-bunch which has been placed therein. By substituting this yielding closing action for the positive action before used the manipulator-jaws are

5 enabled to close to a greater or less degree, the amount being determined by the diameter of the cigar-bunch. The manipulator-jaws will thus always firmly grasp the bunch, even though the bunch varies in size.

10 When a fresh bunch is to be placed in the machine or a bunch already rolled is to be removed therefrom, both sets of manipulator-jaws must be opened. While this may be accomplished by mechanism which varies

15 widely in construction, the machine shown is arranged, through mechanism which is to be hereinafter described, to always stop so that one set of jaws—namely, the jaws carried by the levers 12 13—will be open. Mechanism

20 must therefore be provided to open the other set of jaws. While this mechanism may also be varied widely in character, this operation will preferably be effected by a mechanism which is independent of the other devices for

25 operating the jaws. In the preferred form the levers 8 and 9 of the set of jaws 10 and 11 has connected thereto a pair of pivoted links 26 27. The lever 8 is provided with an eye 28, through which passes a bolt 29, the

30 said bolt thus serving to pivotally connect the link 26 to the lever. In the same way the lever 9 is provided with an eye 30, and the link 27 is pivotally connected to it by means of a bolt 31. The two links 26 27 are pivoted

35 together at their outer ends by a bolt 32, said links thus forming a toggle. It is obvious that pressure in an upward direction upon the ends of the links 26 27 will cause the toggle formed by the links to straighten and the

40 levers 8 and 9 to be spread apart, thus opening the set of jaws 10 and 11, controlled by them. The end of the bolt 32 which secures the toggle-arms together moves in a grooved block 32', which is mounted on a stud 32'',

45 carried by one of the arms 5. Accurate movement of the toggle is thus secured.

Pressure may be brought upon the links 26 27 by any suitable or desired mechanism. The machine is, however, preferably pro-

50 vided with an arm 33, said arm being pivoted upon a short shaft 34, which finds its bearings in blocks 35, rising from the bed-plate of the machine. The arm 33 has a bearing-shoe 36 (see Fig. 5) secured thereto or formed

55 integrally therewith and has its under side provided with a curved bearing-surface 37. The curved bearing-surface 37 of the arm 33 is arranged to be struck by a small striker-arm 38, said arm being secured to a way cam-

60 shaft 39, which finds its bearing in the frame of the machine and is provided with any suitable operating means—as, for instance, a crank-handle 40. When the shaft 39 is operated through the crank-handle 40, it will

65 be seen that the striker-arm will force the arm 33 against the toggle formed by the links 26 and 27, thus breaking the toggle, forcing

the levers 8 and 9 apart, and opening the jaws 10 and 11. An operating mechanism for the jaws is thus formed which is entirely

70 independent of the other operating mechanism for the jaws. By thus opening the jaws by an independent mechanism a much simpler device can be used to effect the opening, and at the same time the rods on which the

75 jaws 10 and 11 are mounted can be made stationary in the carrying-guides 4 5 instead of moving therein, as in the former constructions.

Any suitable means may be used for trim-

80 ming the ends of the formed bunch. Inasmuch as the machine shown is intended for making cheroots, two trimming-knives 41 are preferably provided, one for each end of the bunch. These knives 41 are carried on

85 curved arms 42, said curved arms being secured to a sleeve 43, which is mounted on the short shaft 34, before referred to. The sleeve 43 has projecting therefrom a pair of short arms 44, said arms having pivoted between

90 them a lever 45. This lever 45 has a projection 46 thereon, said projection being arranged to be engaged by the edge 47 of a cam 48, secured on the cam-shaft 39. The lever

95 45 is held in position so that its projection will be struck by the edge 47 on a cam 48, mounted on the shaft 39, by means of a spring 49. Mounted in the outer end of the lever

45 is a screw 50, which runs on the surface of the cam 48, the purpose of the screw being

100 to determine the length of time during which the edge 47 remains in contact with the projection 46, and thereby the throw of the knife-carrying arms 42. After cutting the cigar the knife-carrying arms are retracted by

105 means of a spring 51, a suitable stop, as 70, being provided to limit the backward movement of the arms.

The rolled cigar-bunch may be removed from the manipulator-jaws either by hand or

110 in any suitable manner. In the machine shown a pair of lifting-arms 52 are shown, these arms being normally located beneath the manipulator-jaws and being mounted in a shaft 53, which is supported in the side

115 frames. The shaft 53 is provided with an arm 54, which is in the path of and struck by an arm 55 and mounted on the shaft 39.

The main shaft 23 of the machine, and consequently the gears 22, may be rotated in any

120 suitable manner and its rotation stopped in any suitable manner after the rolling of the bunch is completed. In the machine shown the main shaft is provided with a belt-pulley 56, which is loosely mounted on the said shaft,

125 and the hub 57 of which is provided with a notch 58. This notch is arranged to be engaged by a pawl 59, pivoted to one of the gear-wheels 22, said pawl being normally held in engagement with the notch 58 by means of a

130 spring 60. Located in suitable bearings on the side of the machine is a bell-crank 61 62, the arm 61 of which is arranged to be normally out of the path of rotation of the pawl



59, but which whenever it is desired to stop the machine can be thrown into the path of rotation and act upon the tail of this pawl, thus disengaging the pawl from the notch 58.

5 In order to effect the movement of the bell-crank, its arm 62 is in the path of a lever 63, said lever being pivoted to the side frame of the machine at 64. The other end of the lever 63 is preferably provided with a friction-roll  
10 65 and is in the path of a cam 66, which is mounted on the cam-shaft 39. The cam 66 operates to normally hold the inner end of the lever 63 against the arm 62 of the bell-crank, and thus hold the arm 61 out of the  
15 path of the pawl 59. A spring 67 is connected to the arm 62, the said spring operating in opposition to the lever 63. When, however, the cam 66 is rotated, thus allowing the lever 63 to move, the spring 67 throws down the  
20 inner end of the arm 62, thus forcing the arm 61 into the path of the pawl and disconnecting the belt-pulley from the shaft. A stop 68 is secured to the gear 22, which stop is arranged to come into contact with the end of  
25 the arm 61, and thus stop the rotation of the said gear and the movement of the parts of the machine operated therefrom.

It is to be understood that the mechanisms by which the operations before described are  
30 effected may be widely varied, that some of the improvements may be used without the others, and that such independent use of some of the features of the invention is contemplated. The invention is not, therefore,  
35 to be limited to the constructions and mechanisms hereinbefore described.

What I claim is—

1. In a cigar-rolling machine, the combination with a pair of pivoted manipulator-jaws,  
40 of means for swinging said jaws on their pivot about a common center, means for opening said jaws, said means including a pair of levers each having a single leg or extension, which extensions are provided with cam-faces  
45 on their inner sides, a rotating part cooperating therewith, and means for closing the jaws, substantially as described.

2. In a cigar-rolling machine, the combination with two pairs of pivoted manipulator-jaws, said jaws with their pivots being mounted to swing about a common center, a pair of  
50 rotating rods for swinging said jaws and their pivots about the said center, a pair of levers for operating each pair of jaws, each of said  
55 levers having a single leg or extension, the said legs or extensions being arranged on opposite sides of the operating-rods, whereby rotation of the operating-rods not only swings the jaws about a common center but also rocks them  
60 on their pivots in one direction, and means for rocking them in the opposite direction, substantially as described.

3. In a cigar-rolling machine, the combination with a pair of pivoted manipulator-jaws,  
65 said jaws being mounted to swing about a common center, a pair of levers for controlling the jaws, a rotating rod operating on the le-

vers, and a spring connecting the levers, substantially as described.

4. In a cigar-rolling machine, the combination with a frame, of two pairs of guides pivotally mounted therein, two pivot-rods carried by the guides, a set of manipulator-jaws mounted on each pivot-rod, a rotating rod for swinging the guides on their pivots, levers extending from each set of jaws and arranged  
75 on opposite sides of the rod, and spring connections between the levers, substantially as described.

5. In a cigar-rolling machine, the combination with a frame, of two pairs of guides pivotally mounted therein, two pivot-rods carried by the guides, a set of manipulator-jaws mounted on each pivot-rod, rotating rods for swinging the guides on their pivots, levers extending from each set of jaws and arranged on  
85 opposite sides of each rod, said levers having cam-faces on their inner sides, and spring connections between the levers, substantially as described.

6. In a cigar-rolling machine, the combination with a pair of pivotally-mounted manipulator-jaws having lever extensions, of means for swinging said jaws and their pivot about a common center and for opening the jaws,  
95 devices independent of the swinging and opening means for also opening the jaws, and means for closing the jaws, substantially as described.

7. In a cigar-rolling machine, the combination with a pair of pivotally-mounted manipulator-jaws having lever extensions, of means for swinging said jaws and their pivot about a common center and for opening the jaws,  
100 devices independent of the swinging and opening means for also opening the jaws, and means for yieldingly closing the jaws, substantially as described.

8. In a cigar-rolling machine, the combination with a pair of pivoted manipulator-jaws,  
110 of means for swinging said jaws and their pivot about a common center and for opening the jaws, a toggle mechanism for also opening the jaws, and a spring for closing the jaws, substantially as described.

9. In a cigar-rolling machine, the combination with a pair of pivoted manipulator-jaws having lever extensions, of means for opening the jaws, means for closing the jaws, and an independent mechanism for also opening  
120 the jaws, substantially as described.

10. In a cigar-rolling machine, the combination with a pair of pivoted manipulator-jaws having lever extensions, of means for opening the jaws, means for yieldingly closing the jaws, and an independent mechanism for also opening the jaws, substantially as described.

11. In a cigar-rolling machine, the combination with a pair of pivoted manipulator-jaws, means for swinging the jaws and their pivot about a common center, said means consisting of a rotating operating-rod, levers  
130 connected to the jaws and arranged on oppo-



site sides of the operating-rod, a spring for closing the jaws, and means acting independently of the operating-rod for opening the jaws, substantially as described.

5 12. In a cigar-rolling machine, the combination with a pair of swinging guides, of a pivot-rod carried by said guides, an operating-rod working in slots in the guides, a pair of manipulator-jaws mounted on the pivot-rod, levers connected to said jaws and located on opposite sides of the operating-rod, said levers having cam-faces on their inner sides, a spring connected to the levers, a toggle mechanism also connected to the levers, and an  
10 operating device for the toggle mechanism, substantially as described.

13. In a cigar-rolling machine, the combination with a pair of pivoted manipulator-levers, of means for swinging the levers and  
20 their pivot about a common center and for opening the levers, means for closing the levers, a pair of links connected to the levers and forming a toggle mechanism, and a striker-arm for operating the toggle mechanism, substantially as described.

14. In a cigar-rolling machine, the combination with a pair of pivoted manipulator-levers, of means for swinging the levers and their pivot about a common center and for  
30 opening the levers, means for yieldingly closing the levers, a pair of links connected to the levers and forming a toggle mechanism, and a striker-arm for operating the toggle mechanism, substantially as described.

15. In a cigar-rolling machine, the combination with a pair of pivoted levers, means for swinging the levers and their pivot about a common center and for opening the levers, means for closing the levers, a toggle mechanism for also opening the levers, a striker-arm for operating the toggle mechanism, and  
40

a second arm for operating the striker-arm, substantially as described.

16. In a cigar-rolling machine, the combination with two pairs of pivoted guides, of  
45 pivot-rods carried by said guides, pairs of manipulator-jaws mounted on the pivot-rods, levers for operating the jaws, a rotating operating-rod for each pair of jaws, the levers for the jaws being arranged on opposite sides  
50 of the rods, cam-faces on the inner sides of said levers, springs connecting the levers, a toggle mechanism connected to the levers of one pair of jaws, means for stopping the machine so that one pair of jaws will be open  
55 and the other closed, and a mechanism independent of the operating-rods for opening the closed pair of jaws, substantially as described.

17. In a cigar-rolling machine, the combination with two pairs of pivoted guides, of  
60 pivot-rods carried by said guides, pairs of manipulator-jaws mounted on the pivot-rods, levers for operating the jaws, a rotating operating-rod for each pair of jaws, the levers for the jaws being arranged on opposite sides  
65 of the rods, cam-faces on the inner sides of said levers, springs connecting the levers, a toggle mechanism connected to the levers and one pair of jaws, means for stopping the machine so that one pair of jaws will be open  
70 and the other closed, a toggle mechanism for opening the closed pair of jaws, and means for operating the toggle mechanism, substantially as described.

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

OLUF TYBERG.

Witnesses:

A. L. KENT,  
A. A. V. BOURKE.