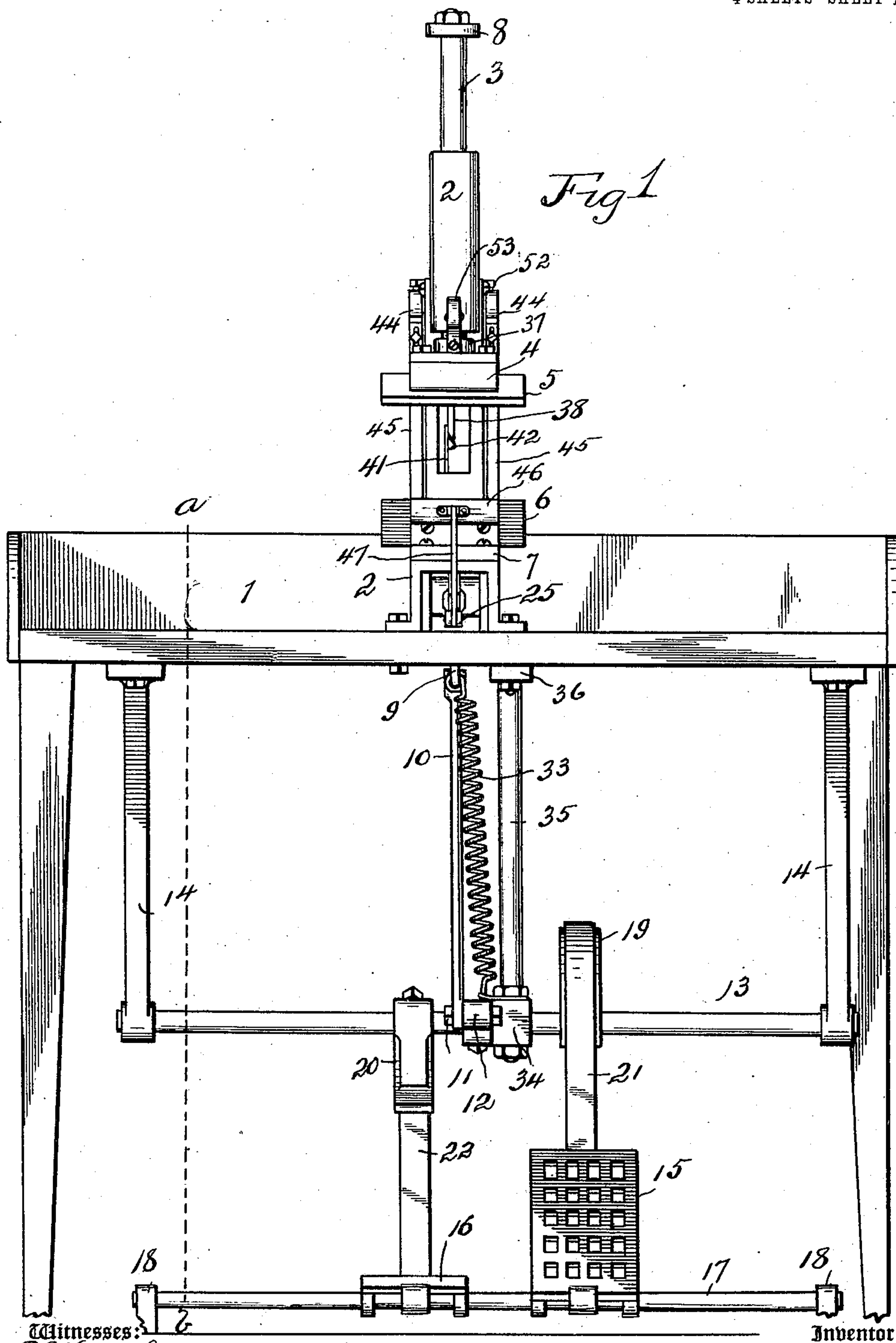


No. 896,219.

PATENTED AUG. 18, 1908.

E. J. LAKE.  
CIGAR FORMING MACHINE.  
APPLICATION FILED SEPT. 24, 1906.

4 SHEETS—SHEET 1.



Witnesses:  
*R. Hamilton*  
*E. B. House*

By His

Attorney.

*Edwin J. Lake*  
*Warren D. House*

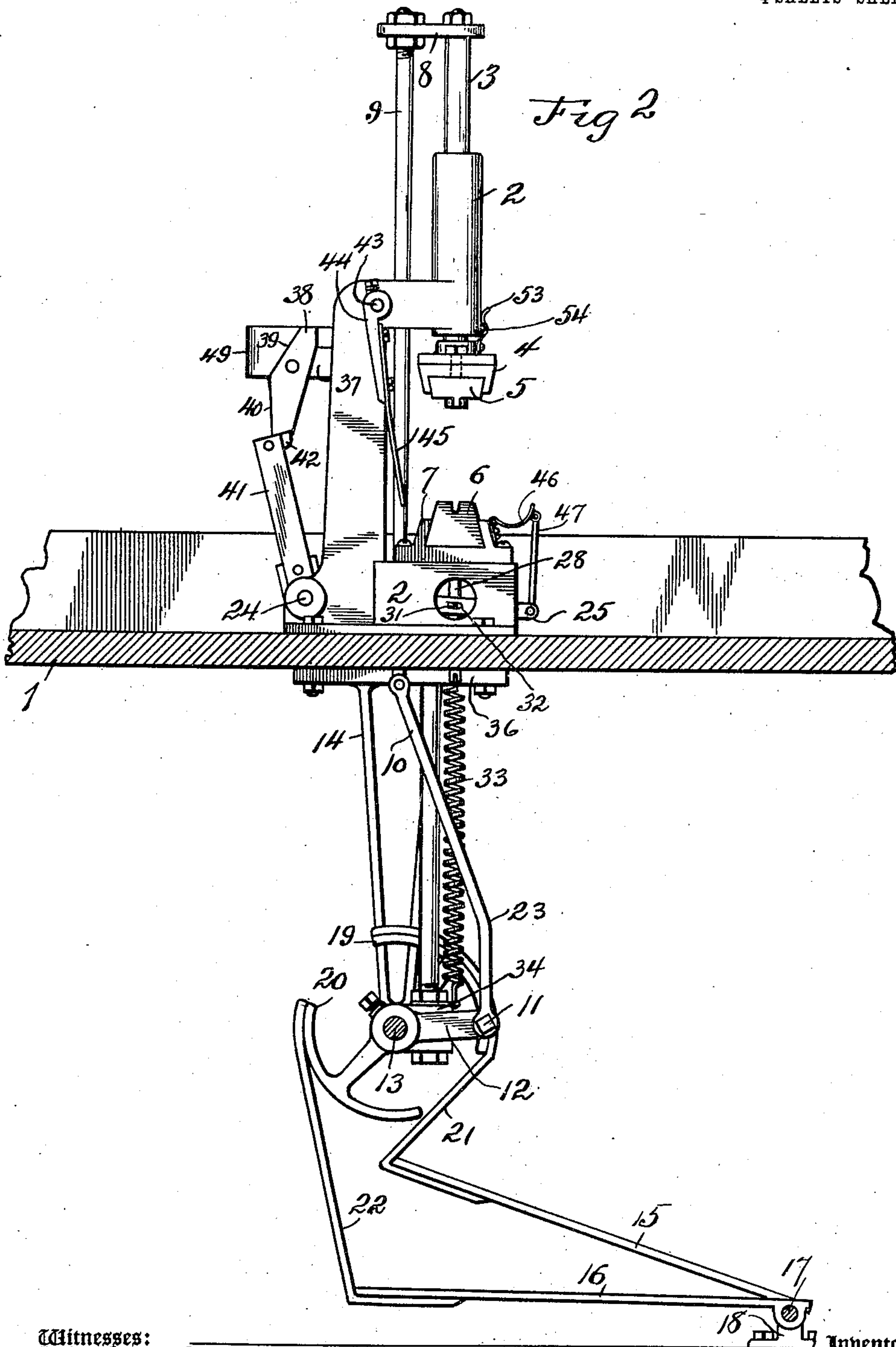
Inventor

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4 SHEETS—SHEET 2.



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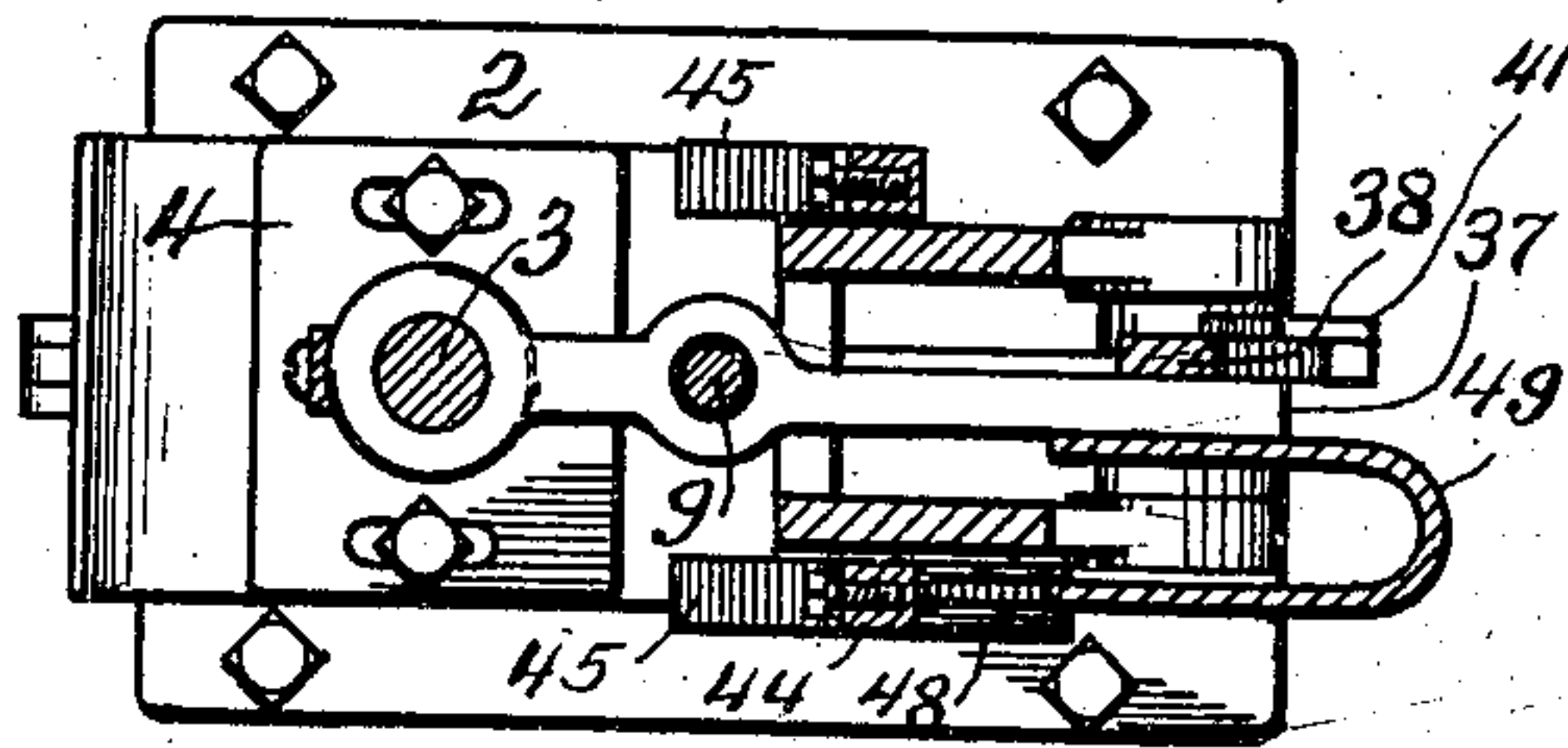
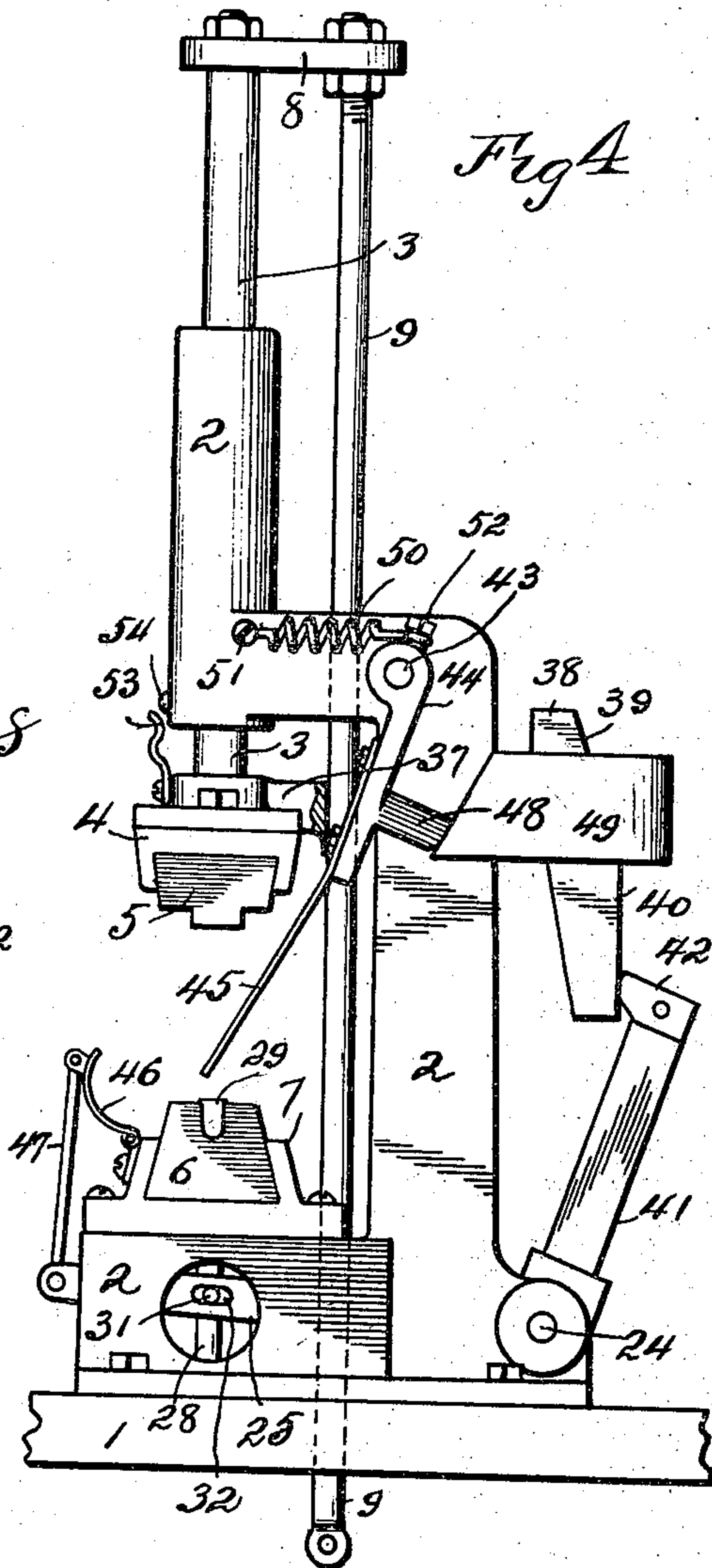
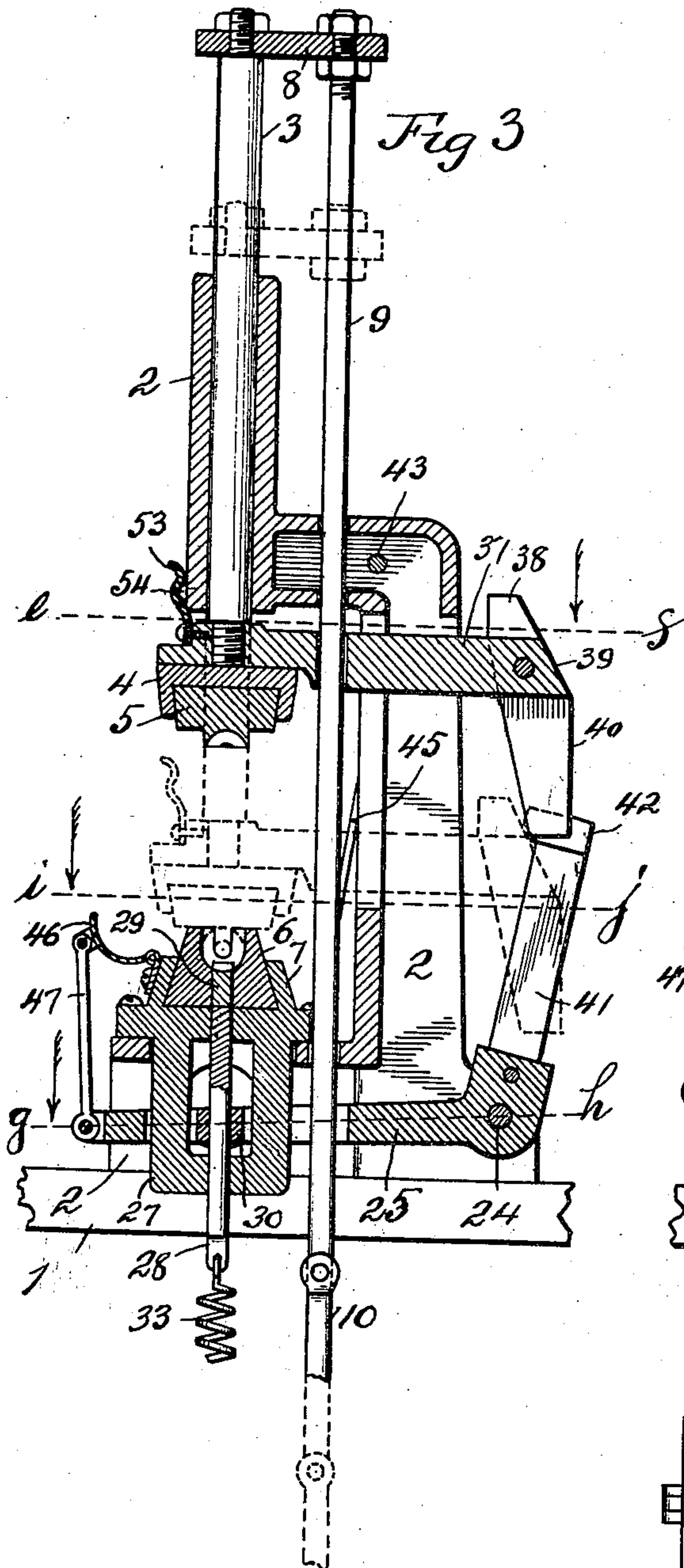
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4 SHEETS—SHEET 3.



Witnesses:  
*R. Hamilton.*  
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By His Attorney *Edwin J. Lake* Inventor  
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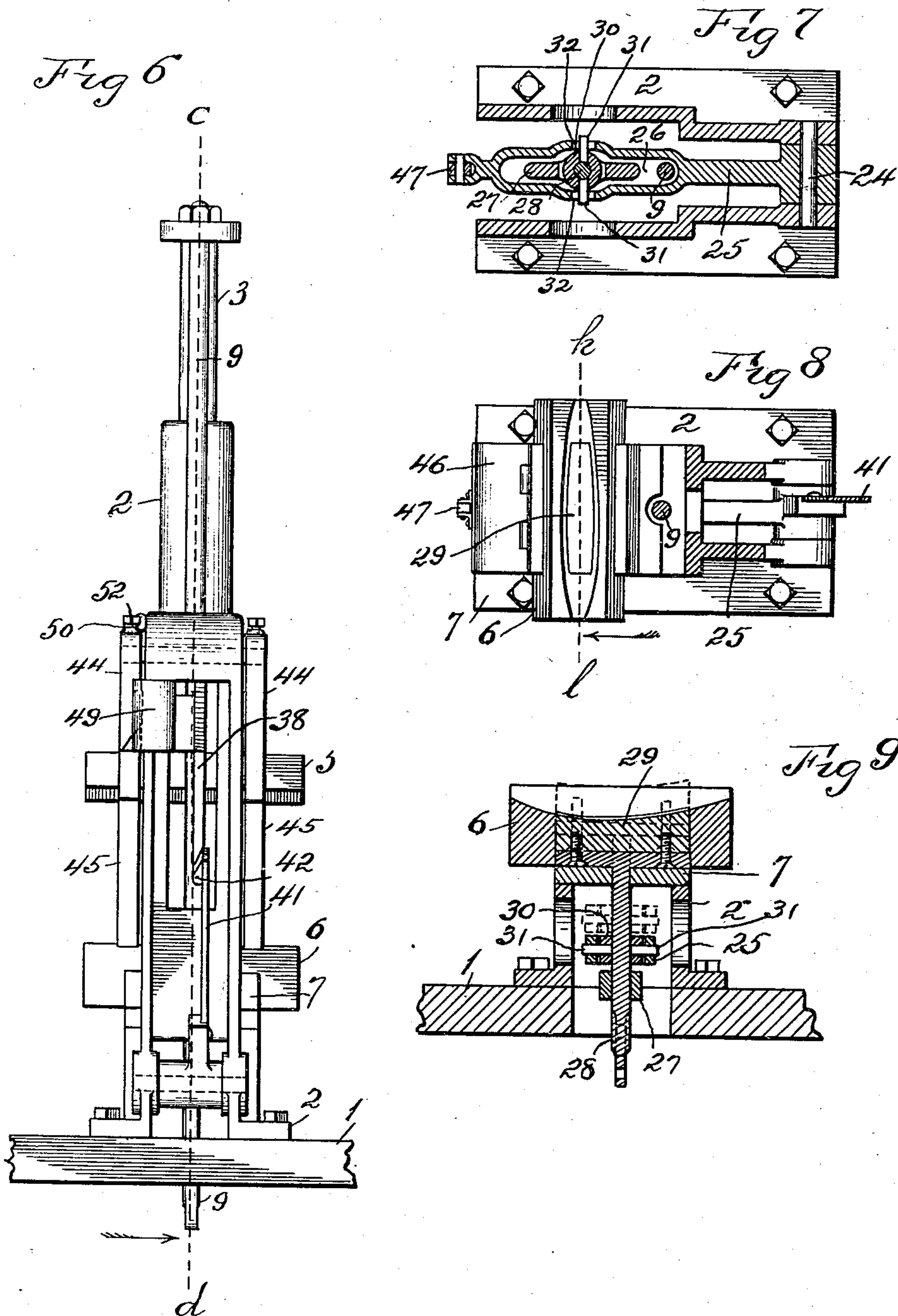


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4 SHEETS—SHEET 4.



Witnesses:  
*R. Hamilton*  
*E. B. House*

Inventor  
*Edwin J. Lake*  
By His Attorney  
*Warren D. House*



# UNITED STATES PATENT OFFICE.

EDWIN J. LAKE, OF KANSAS CITY, MISSOURI.

## CIGAR-FORMING MACHINE.

No. 896,219.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed September 24, 1906. Serial No. 335,927.

*To all whom it may concern:*

Be it known that I, EDWIN J. LAKE, citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Cigar-Forming Machines, of which the following is a specification.

My invention relates to improvements in cigar forming machines.

The object of my invention is to provide a machine for cheaply, quickly and economically making molded cigars.

My invention provides a machine having mechanism actuated by the operator's feet for compressing in a mold and ejecting therefrom the bunch, thus leaving the hands of the operator free for forming another bunch or applying to a molded bunch the wrapper.

My invention provides means by which the bunch is releasably retained for a time under pressure in the mold.

My invention provides further means for removing from the ejecting mechanism the molded bunch and depositing it in a receptacle provided to receive and hold the bunch preparatory to the application thereto of the wrapper.

Other novel features of my invention are hereinafter fully described and claimed.

In the accompanying drawings illustrating my invention, Figure 1 is a front elevation view of the machine. Fig. 2 is a vertical sectional view taken on the dotted line *a—b* of Fig. 1. Fig. 3 is a central vertical sectional view of the upper part of the machine, taken on the dotted line *c—d* of Fig. 6. In this view the plunger carrying the upper mold member is shown in solid lines in the fully raised position and in dotted lines in the fully depressed position. Fig. 4 is a side elevation of the parts shown in Fig. 3, the plunger being shown in the position in which the kicking device is being actuated to remove the molded bunch from the vertically movable bottom portion of the lower mold member. Fig. 5 is a horizontal sectional view taken on the dotted line *e—f* of Fig. 3. Fig. 6 is a rear elevation of what is shown in Fig. 3. Fig. 7 is a horizontal sectional view taken on the dotted line *g—h* of Fig. 3. Fig. 8 is a horizontal sectional view taken on the dotted line *i—j* of Fig. 3. Fig. 9 is a vertical sectional view taken on the dotted line *k—l* of Fig. 8.

Similar characters of reference denote similar parts.

1 denotes the bench supporting part of the mechanism, 2 denotes a vertical support or frame mounted on the bench 1 and having reciprocating vertically therein a vertical plunger 3 to the lower end of which is secured a holder 4 in which is adapted to be mounted the upper mold member 5 adapted to enter and cooperate with the lower mold member 6 in molding or forming the bunch which forms part of the cigar. The lower mold member 6 is adapted to be mounted in a shoe 7, the horizontal body portion of which is secured below the plunger 3 to the support or frame 2.

A horizontal plate 8 has one end secured to the upper end of the plunger, the other end being secured to the upper end of a vertical rod 9 which extends through suitable openings provided for it in the support 2 and bench 1. The upper end of a link 10 is pivoted to the lower end of the rod 9, the lower end of the link being pivoted by means of a horizontal bolt 11 to a radial crank 12 which is rigidly secured to a horizontal rock shaft 13 intermediate two vertical brackets 14 in which the rock shaft is pivotally mounted, the said brackets being secured to the under side of the bench 1. To rock the rock shaft 13 to and fro so as to vertically reciprocate the plunger 3 by means of the rod 9, link 10 and crank 12, two pedals 15 and 16 are pivoted each at one end to a horizontal rod 17 supported at its ends in blocks 18 secured to the floor. On the rock shaft 13 at opposite sides of the crank 12 are rigidly secured with their arcuate rims in diametrically opposite positions, two pulley wheel segments 19 and 20.

Secured respectively to the free ends of the pedals 15 and 16 are two flexible straps 21 and 22, which are mounted upon and respectively secured to the faces of the rims of the pulley wheel segments 19 and 20. The link 10 is provided at 23 with a bend, which when the pedal 15 is fully depressed, permits the rock shaft to rock to a position in which the center of the bolt 11 will pass a vertical line extending from the floor through the center of the rock shaft 13, thus retaining the plunger 3 and upper mold member in the fully depressed position, shown in dotted lines in Fig. 3, until such time as the pedal 16 is depressed so as to rock the rock shaft 13 in the



other direction. By alternately depressing the pedals 15 and 16, the rock shaft 13 is rocked to and fro and the plunger 3 and upper mold member 5 is vertically reciprocated.

5 To eject the molded bunch from the lower mold member 6, the following described mechanism is used. A bell crank lever is pivoted by a horizontal bolt 24 at the angle of the lever to the support 2. The horizontal arm 10 25 of the bell crank lever is provided with a vertical hole 26 through which extends a vertical U shaped projection 27 forming a part of the shoe 7. The horizontal portion of the said U shaped projection 27 and the horizontal 15 tal body of the shoe 7 are provided each with a vertical hole through which extends a vertically slidable rod 28, the upper end of which is secured to a horizontal plate 29 which forms a portion of the bottom of the mold 20 member 6 and is rectilinearly and vertically movable in a longitudinal vertical slot provided through the bottom of said mold member 6. Rigidly secured on the rod 28 is a 25 ring 30 in which are mounted two diametrically opposite horizontal pins 31 mounted respectively in longitudinal slots 32 provided in the arm 25 of the bell crank lever at opposite sides of the hole 26 in said arm. The 30 lower end of the rod 28 has secured to it the upper end of a coil spring 33, the lower end of which is secured to a block 34 secured to the lower end of a vertical bar 35, the upper end of which is secured to a horizontal plate 36 secured to the under side of the bench 1. 35 After the arm 25 of the bell crank lever has been swung upwardly so as to elevate the rod 28 and bottom portion 29 to eject the molded bunch from the lower mold member 6, the spring 33 retracts downward the rod 40 28, plate 29, and the arm 25. To swing the arm 25 upward so as to operate the mechanism to eject the molded bunch, the following described parts are provided. One end of a horizontal bar or plate 37 is secured to the 45 plunger 3. On this bar is secured a cam comprising a vertical plate 38, having an inclined outer edge 39, and a straight vertical edge 40.

The upwardly extending arm 41 of the bell 50 crank lever comprises a flat laterally flexible plate having secured at one side adjacent its upper end a block 42, which when the plunger is elevated as shown in Fig. 3 rests against the side of the cam plate 38. As shown in 55 Fig. 6, the side of the block 42 adjacent to the plate 38, and the lower end of the plate 38 on the side adjacent to the block 42 are beveled to permit the block 42 and plate 38 to assume the positions shown in Fig. 3. 60 When the pedal 15 is depressed, thus, as already described, forcing the plunger 3 downward, the cam plate 38 will not swing the bell crank lever, but the cam plate will swing laterally the flexible arm 41 of the bell 65 crank lever in a direction at right angles to

the plane of movement of the arm 41 when the lever is swung on the bolt 24. When the plunger and cam plate 38 have reached the positions shown in dotted lines in Fig. 3, the 70 block 42 on the arm 41 will press against the inclined edge 39 of the cam 38, as shown in Fig. 3. If now the pedal 16 is depressed so as to force the plunger 3 and cam plate 38 upward, the cam plate will force the arm 41 75 to the right, as viewed in Fig. 3, thus swinging the bell crank lever 25 upward as already described, and thus forcing the rod 28 and bottom plate 29 to the positions shown in Fig. 4, and in dotted lines in Fig. 9. In this position the parts will remain until the block 80 42 on the arm 41 has passed from the vertical edge 40 of the cam plate 38. Before this takes place it is necessary for the mechanism to operate which removes the ejected bunch 85 from the top of the plate 29 forming the bottom portion of the lower mold member 6. For this purpose I provide a kicking device which at the proper time will kick the molded bunch off the lower mold member 6.

A horizontal rock shaft 43 is pivotally 90 mounted on the support 2 and has secured to its ends two radial arms 44 to which are respectively secured two downwardly extending plates 45 preferably adjustable 95 lengthwise on the arms 44. The plates 45 are adjusted so that when the arms 44 are swung to the position shown in Fig. 4, the elevated bottom plate 29 will be cleared by the plates 45, said plates at their lower ends 100 striking the molded bunch lying on the bottom plate 29 and kicking said bunch into a receptacle provided to receive the same and comprising a horizontal gutter shaped plate 46 pivoted at one edge to the forward side of 105 the shoe 7. A link 47 is pivoted at its upper end to the gutter shaped plate 46, the lower end of the link being pivoted to the outer end of the arm 25 of the bell crank lever. The receptacle for the molded bunch is pivotally 110 mounted on the shoe 7 so that the receptacle may be swung into position to be struck by the molded bunch after the kicking device has removed it from the bottom plate 29. When the cam plate 38 has cleared the 115 block 42 on the upward movement of the plunger 3, the receptacle 46 will be swung by the arm 25 to the position shown in Fig. 3, in which position, the molded bunch may be readily removed for having the wrapper 120 applied to it.

To swing the arms 44 to the position shown in Fig. 4, one of said arms is provided with a 125 rearward lateral projection 48 which is in the path of the inclined forward edge of the resilient arm of a U shaped cam plate 49, the other arm of which is rigidly secured to the bar 37. The upper side of the projection 48 is beveled, so that when the bar 37 and cam plate 49 move downward, the free arm of the 130 cam plate 49 will strike the inclined surface



of the projection 48 and will be sprung later-  
ally or away from the bar 37 and will not  
operate to swing the arms 44. On the up-  
ward movement of the cam plate 49 and  
5 plunger 3, however, the inclined edge of the  
free arm of the cam plate will strike the rear  
end of the projection 48, and the arms 44  
and rock shaft 43, together with the plates  
45 will be swung to the position shown in  
10 Fig. 4. The parts are so positioned that the  
cam plate 49 will strike the projection 48  
before the block 42 has cleared the cam 38.  
To retract the arms 44 and rock shaft 43 to  
the position shown in Fig. 2, a horizontal  
15 coil spring 50 is provided, one end of which  
is secured to a screw 51 mounted in the sup-  
port 2 in front of the shaft 43. The other  
end of the spring is secured to a set screw 52  
mounted in the upper end of one of the arms  
20 44. To retain the plunger releasably in the  
elevated position, a spring plate 53 has its  
lower end secured to the bar 37. Said plate  
53 is provided on its rear side with a depres-  
sion adapted, when the parts are as shown  
25 in Fig. 3 to receive a rounded projection 54  
provided on the forward side of the support  
2 above the bar 37. When sufficient pres-  
sure is applied to the pedal 16, the spring  
plate 53 will yield so as to be released from  
30 the projection 54.

In operating my invention, the parts  
being positioned, as shown in Fig. 2, the  
bunch forming part of the cigar and pro-  
vided with a binder is placed in the lower  
35 mold member 6, after which the pedal 15  
is depressed, thus depressing the plunger 3  
and forcing the upper mold member 5 into  
the lower mold member 6. The pedal 15  
being fully depressed, the plunger 3 and  
40 mold member 5 will be held in the depressed  
position, shown in dotted lines in Fig. 3.  
At this time the operator may prepare an-  
other bunch, the first bunch, in the mean-  
time being held compressed in the mold.  
45 When the second bunch is prepared, the  
pedal 16 is depressed, thus rocking the rock  
shaft 13 so as to raise the plunger 3, mold  
member 5, and bar 37 carrying the cams  
38 and 49. The cam 38 by striking the  
50 block 42 swings the bell crank lever arm 23  
upward, thus forcing upward the rod 28 and  
mold bottom plate 29, thereby ejecting from  
the lower mold member 6 the compressed  
bunch. Continuing in its upward move-  
55 ment, the cam 49 strikes the projection 48  
on one of the arms 44, thus swinging said  
arm 44, and the rock shaft 43 carrying the  
other arm 44, to the position shown in Fig.  
4, thus causing the plates 45 to kick the  
60 compressed bunch from the bottom plate  
29 and against the curved receptacle 46  
which has in the meantime been swung to  
the position shown in Fig. 4 by the arm 25  
and link 47. The cam 49 passing the pro-  
65 jection 48, the spring 50 will retract the

arms 44 to the position shown in Fig. 2.  
The cam 38 clearing the block 42, the spring  
33 will draw down the rod 28 and arm 25 to  
the position shown in Fig. 3. The recepta-  
cle 46 will at the same time drop to the posi- 70  
tion shown in Fig. 3, and the parts will be  
in position for another bunch to be placed  
in the lower mold member 6. The movable  
bottom portion 29 of the mold being mov-  
able in a right line ejects the bunch in a 75  
rectilinear direction, freeing all parts of the  
bunch simultaneously and thereby prevent-  
ing any tearing or distortion of the bunch.

It will be obvious that my invention may  
be modified in different ways within the 80  
scope of the appended claims without de-  
parting from the spirit of the invention.

Having thus described my invention, what  
I claim and desire to secure by Letters Pat-  
ent, is:— 85

1. In a cigar forming machine, the combi-  
nation with the two mold members, one re-  
ciprocative vertically above the other, the  
lower mold member having a vertically  
movable bottom portion, of a rock shaft, 90  
means for reciprocating the upper mold  
member when the rock shaft is rocked to  
and fro, means for upwardly moving the  
said bottom portion when the upper mold  
member is upwardly moved, two pedals, 95  
means for rocking the shaft in opposite  
directions when said pedals are alternately  
depressed, and means operative after the  
said bottom portion of the lower mold mem-  
ber has been upwardly raised for removing 100  
from said bottom portion the molded bunch.

2. In a cigar forming machine, the combi-  
nation with a vertically reciprocative plun-  
ger, of an upper mold member carried by  
said plunger, a lower mold member having a 105  
vertically movable bottom portion, means  
operated by the upward movement of the  
plunger for moving upwardly said bottom  
portion to eject the molded bunch from the  
lower mold member, means operated upon 110  
the upward movement of the plunger for re-  
moving the molded bunch from said bottom  
portion, a rock shaft, means for reciprocating  
the plunger when the rock shaft is rocked to  
and fro, two pedals, and means for rocking 115  
the rock shaft to and fro when the pedals are  
alternately depressed.

3. In a cigar forming machine, the combi-  
nation with a vertically reciprocative plun-  
ger, of an upper mold member carried by the 120  
plunger, a lower mold member having a ver-  
tically movable bottom portion, a lever,  
means actuated by the upward movement of  
the plunger for swinging said lever in one  
direction, means by which when the lever is 125  
swung in said direction the bottom portion  
of the lower mold member will be upwardly  
moved to eject from the lower mold member  
the molded bunch, means for removing from  
the said bottom portion the molded bunch, 130



means operated by the plunger after said bottom portion has been raised for operating said removing means, and means for reciprocating said plunger.

5 4. In a cigar forming machine, the combination with a vertically reciprocative plunger, of the upper mold member carried by said plunger, the lower mold member having a vertically movable bottom portion, a lever  
10 having means when swung in one direction for upwardly moving said bottom portion of the lower mold member, means for removing from the said bottom portion when in the raised position the molded bunch, means  
15 carried by the plunger for operating said removing means, means carried by the plunger for swinging said lever so as to elevate the said bottom portion, a rock shaft, means for reciprocating the plunger when the rock  
20 shaft is rocked to and fro, two pedals, and means for rocking said rock shaft to and fro when the pedals are alternately depressed.

5 5. In a cigar forming machine, the combination with a vertically reciprocative plunger, of the upper mold member carried by the plunger, a support in which the plunger is reciprocative, a shoe mounted on said support,  
25 the lower mold member mounted in said shoe and having a vertically movable bottom portion, a lever pivoted to said support, means actuated by the upward movement of the plunger for tilting said lever in one direction, thereby raising the said bottom portion,  
30 means for tilting the lever in the opposite direction, means for reciprocating the plunger, a bunch receptacle pivoted to the said support, means connected with the lever for swinging said receptacle when the lever is swung, and means actuated by the upward  
40 movement of the plunger for removing the molded bunch from the said elevated bottom portion and depositing the bunch in said receptacle.

6 6. In a cigar forming machine, the combination with a plunger, of the upper mold member carried by the plunger, the lower mold member having a vertically movable bottom portion, a support for the plunger and lower mold member, a rock shaft, two  
50 pedals, means by which when the pedals are alternately depressed the rock shaft will be rocked to and fro, means for vertically reciprocating the plunger when the rock shaft is rocked to and fro, means actuated when  
55 the plunger is upwardly moved for elevating said bottom portion of the lower mold member, a member pivoted to said support so as to be swung to a position in which it will strike the molded bunch when the said bottom portion is elevated, and means actuated  
60 by the upward movement of the plunger for so swinging said pivoted member.

7. In a cigar forming machine, the combination with a support, of a plunger reciprocative on said support and adapted to carry

the upper member of a mold, a shoe mounted on said support and adapted to carry the lower mold member, a vertically movable device mounted in said shoe and adapted to serve as the bottom portion of the lower  
70 mold member, a lever pivoted to the support, means operated by the upward movement of the plunger for swinging the lever in one direction, means for upwardly moving said device when the lever is swung in said direction,  
75 a bunch receptacle pivoted to said support, a link connected to said receptacle and to said lever, a kicking device for removing the molded bunch from said vertically movable device, and means operated by the upward movement of the plunger for operating  
80 the kicking device to deposit the molded bunch in said receptacle.

8. In a cigar forming machine, the combination with a support, of a plunger reciprocatively mounted in said support, a shoe supported on said support, an upper mold member carried by said plunger, a lower mold member mounted on said shoe and having a vertically movable bottom portion,  
90 a lever pivoted to said support and to said vertically movable bottom portion, a cam carried by the plunger for swinging said lever to elevate said bottom portion, means connected with the plunger for removing  
95 from the said bottom portion, when elevated, the molded bunch, a rock shaft, means by which the plunger is reciprocated when the rock shaft is rocked to and fro, means for rocking the rock shaft, a bunch receptacle  
100 pivoted to the shoe and disposed so as to receive the removed bunch from the bottom portion, and a link connecting the pivoted bunch receptacle and the lever.

9. In a cigar forming machine, the combination with the lower mold member having a vertically movable bottom portion, of a lever, a plunger, the upper mold member carried by the plunger, means for reciprocating the plunger, a cam carried by the plunger for  
110 engaging and swinging the lever when the plunger is upwardly moved, means connected with the lever for upwardly moving the bottom portion of the lower mold member when the lever is swung by the cam, a pivoted  
115 arm which when swung in the proper direction will strike and remove from the elevated bottom portion of the lower mold member the molded bunch, and means actuated by the plunger for so swinging said arm.  
120

10. In a cigar forming machine, the combination with the plunger, of the upper mold member carried thereby, the lower mold member having a vertically movable bottom portion, means operated by the upward  
125 movement of the plunger for moving said bottom portion upwardly, a rock shaft having a crank arm, two pedals, means by which when the pedals are alternately depressed the rock shaft will be rocked to and fro; and  
130



means connected to said crank arm and  
plunger by which when the rock shaft is  
rocked the plunger will be reciprocated, said  
connecting means releasably holding the  
5 plunger in the depressed position after one  
pedal has been depressed and until the other  
pedal is depressed.

In testimony whereof I affix my signature  
in presence of two witnesses.

EDWIN J. LAKE.

Witnesses:

LESTER RAY,  
E. B. HOUSE.