

No. 822,286.

PATENTED JUNE 5, 1906.

C. T. LIBBY.  
 LINOTYPE MACHINE.  
 APPLICATION FILED MAR. 12, 1904.

2 SHEETS—SHEET 1.

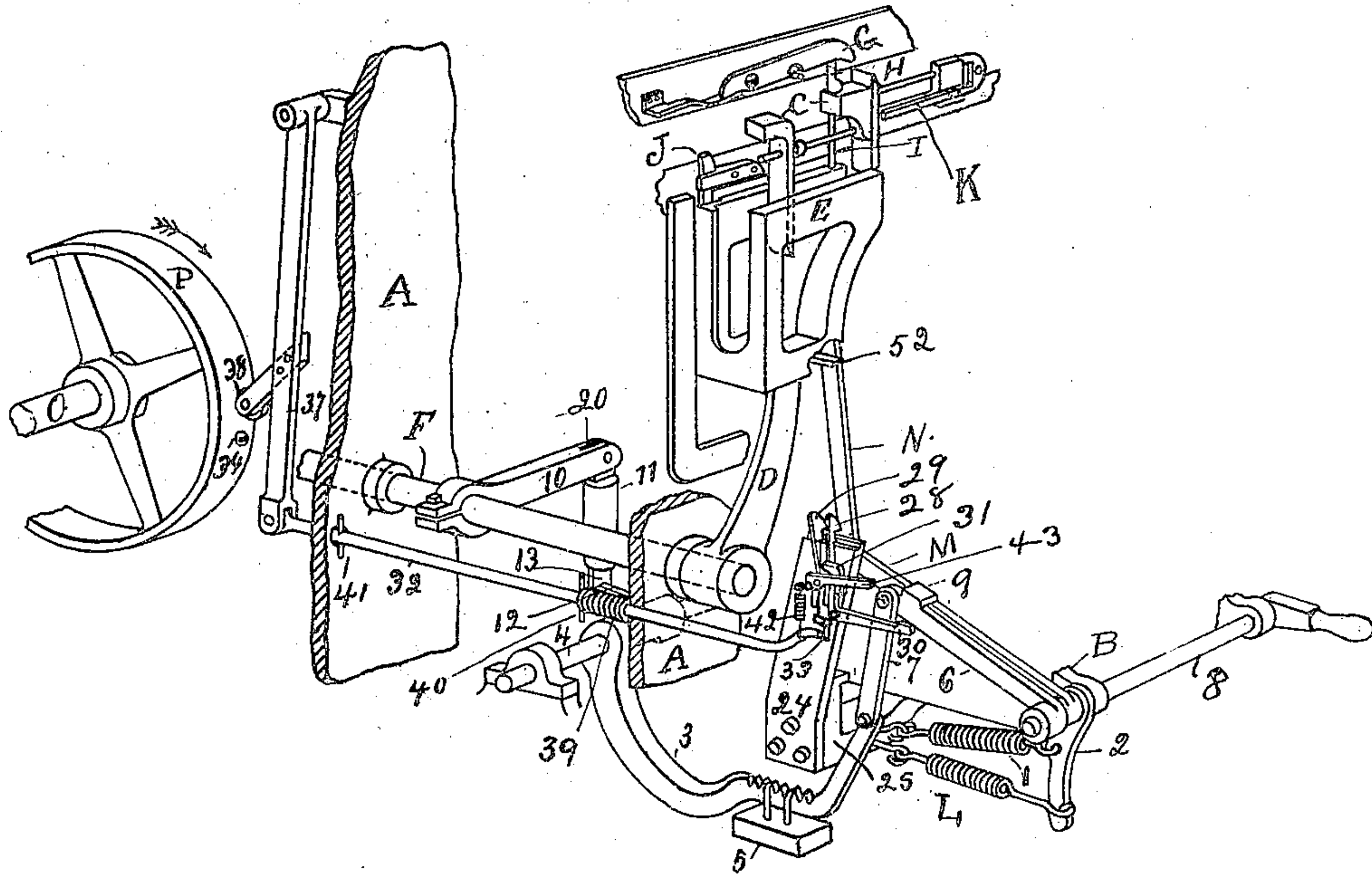


Fig. 1.

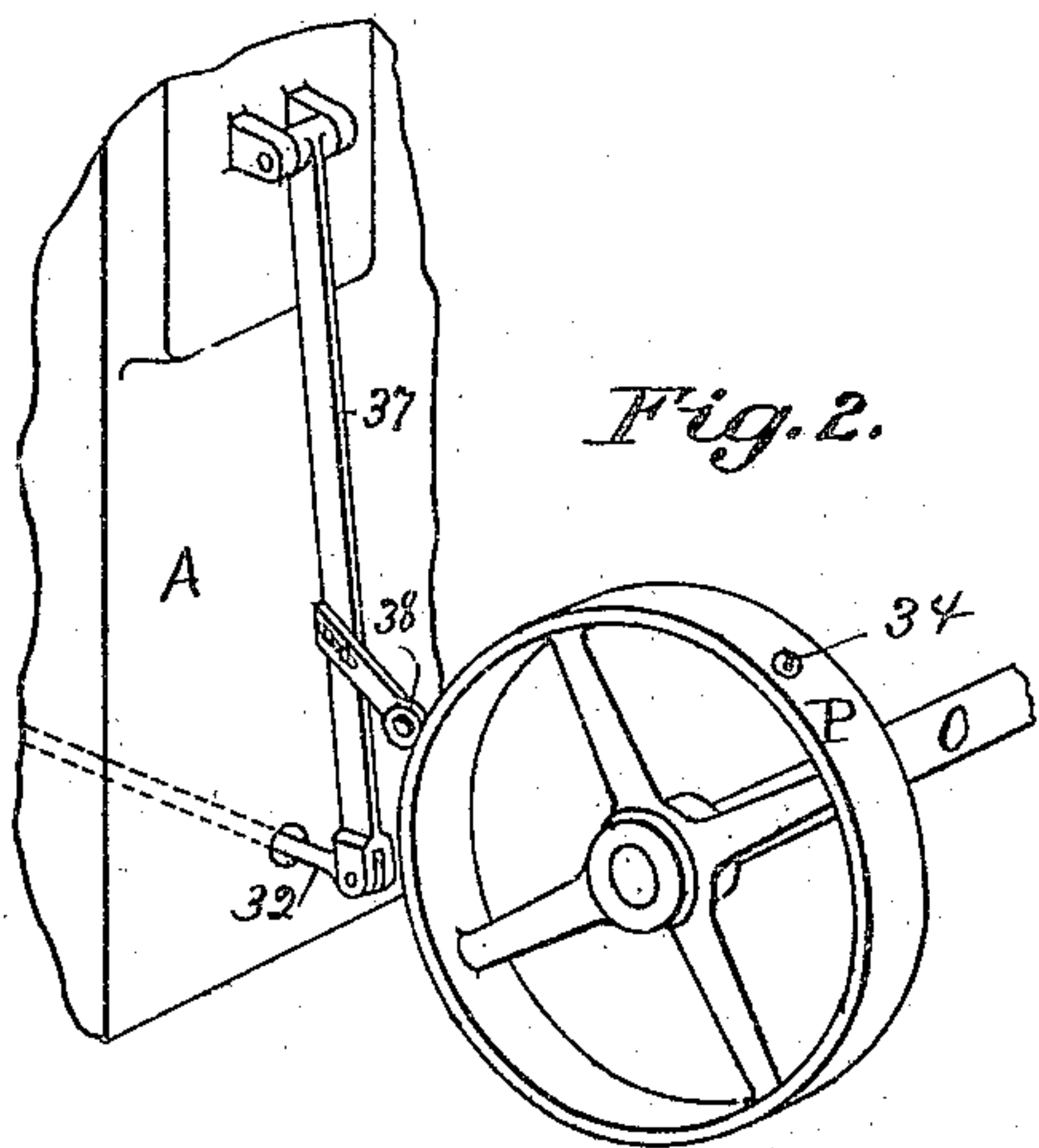


Fig. 2.

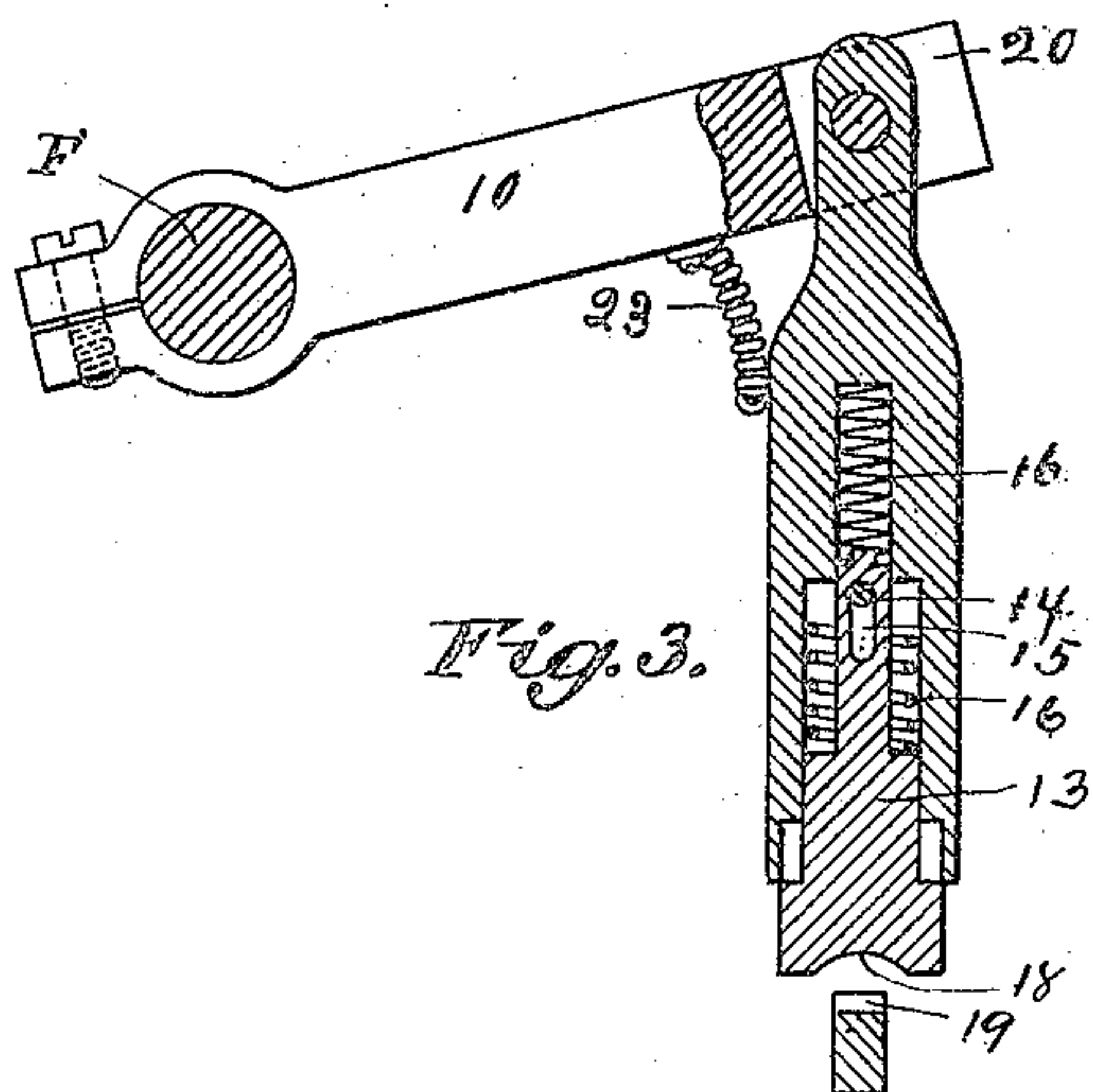


Fig. 3.

Witnesses:  
 Lauren M. Sauborn,  
 Marion Richards.

Inventor:  
 Charles T. Libby.  
 By Clifford Knill Clifford  
 attorneys.

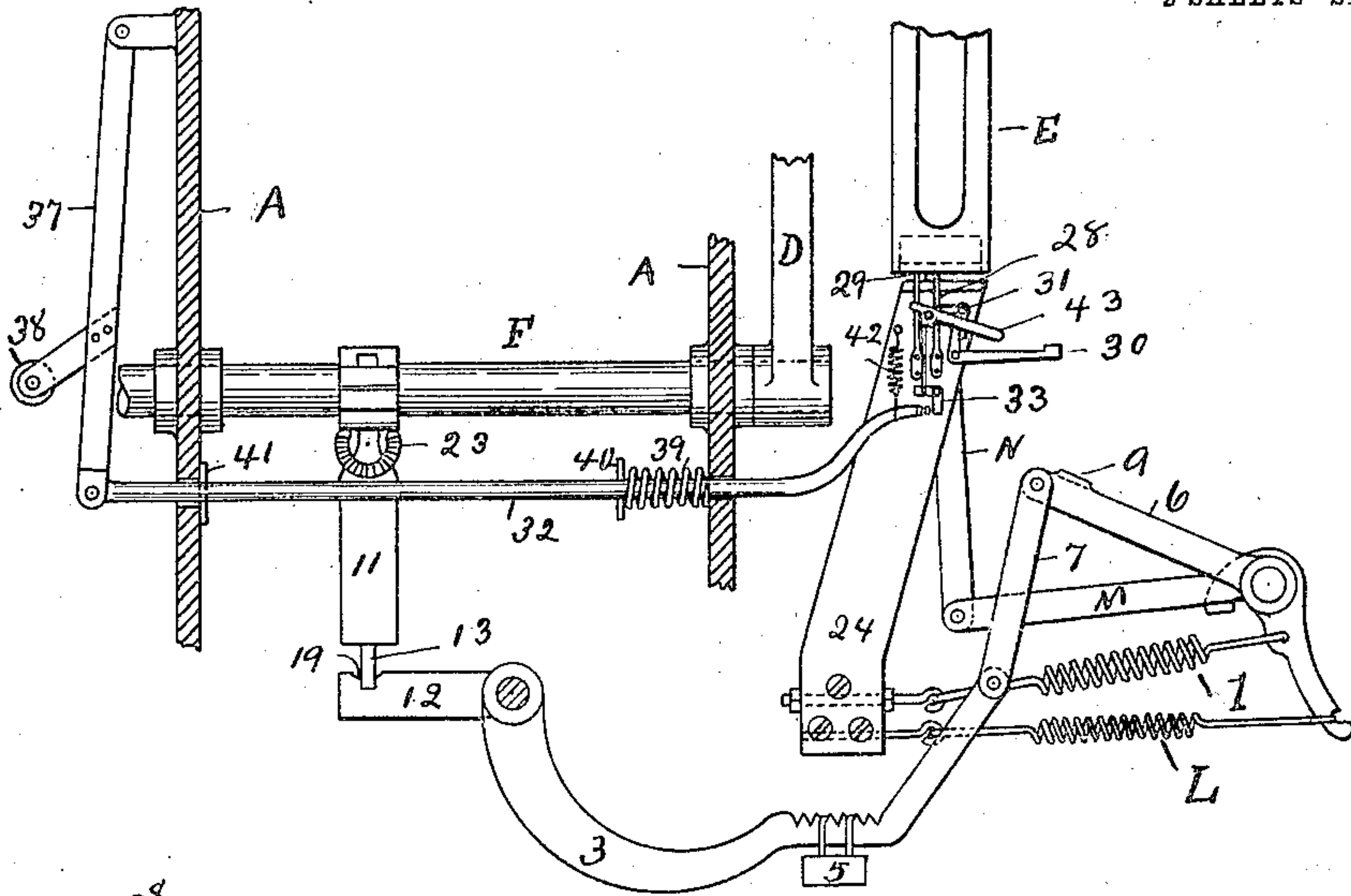
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2 SHEETS—SHEET 2.



*Fig. 4.*

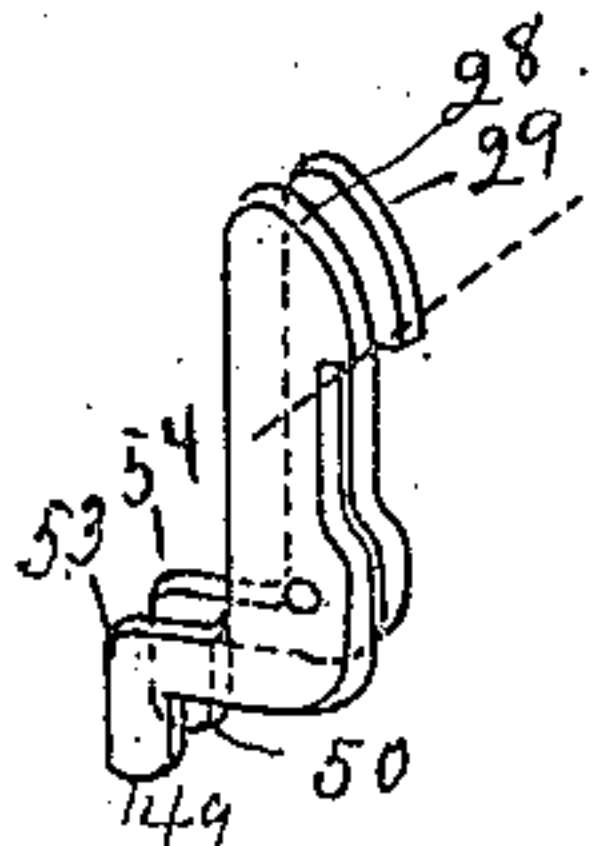


Fig. 6.

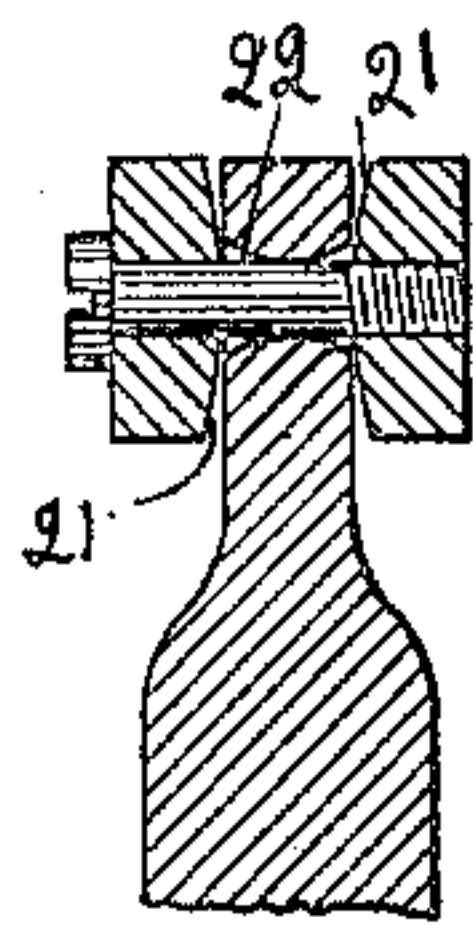
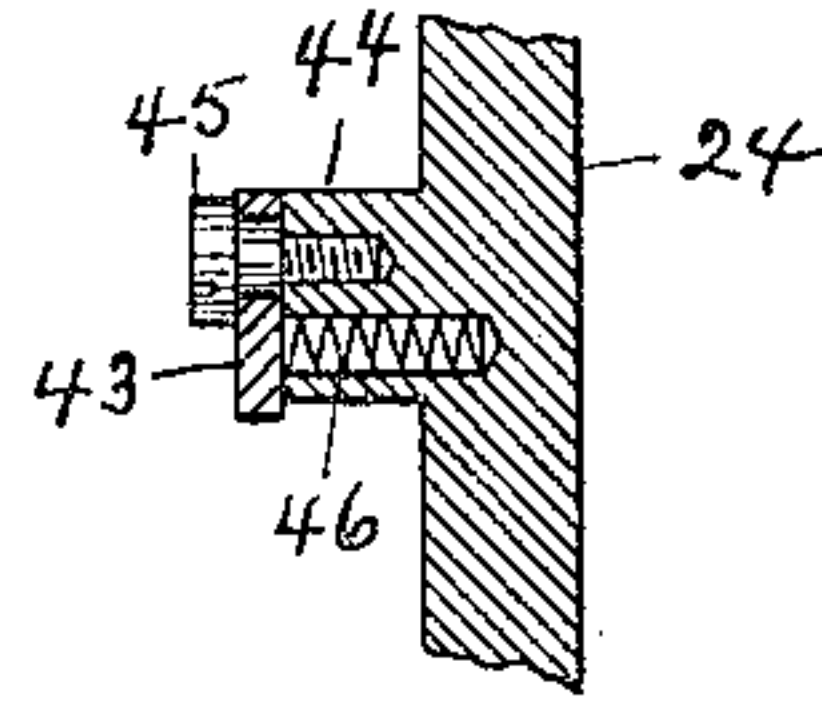


Fig. 9.



*Fig. 7.*

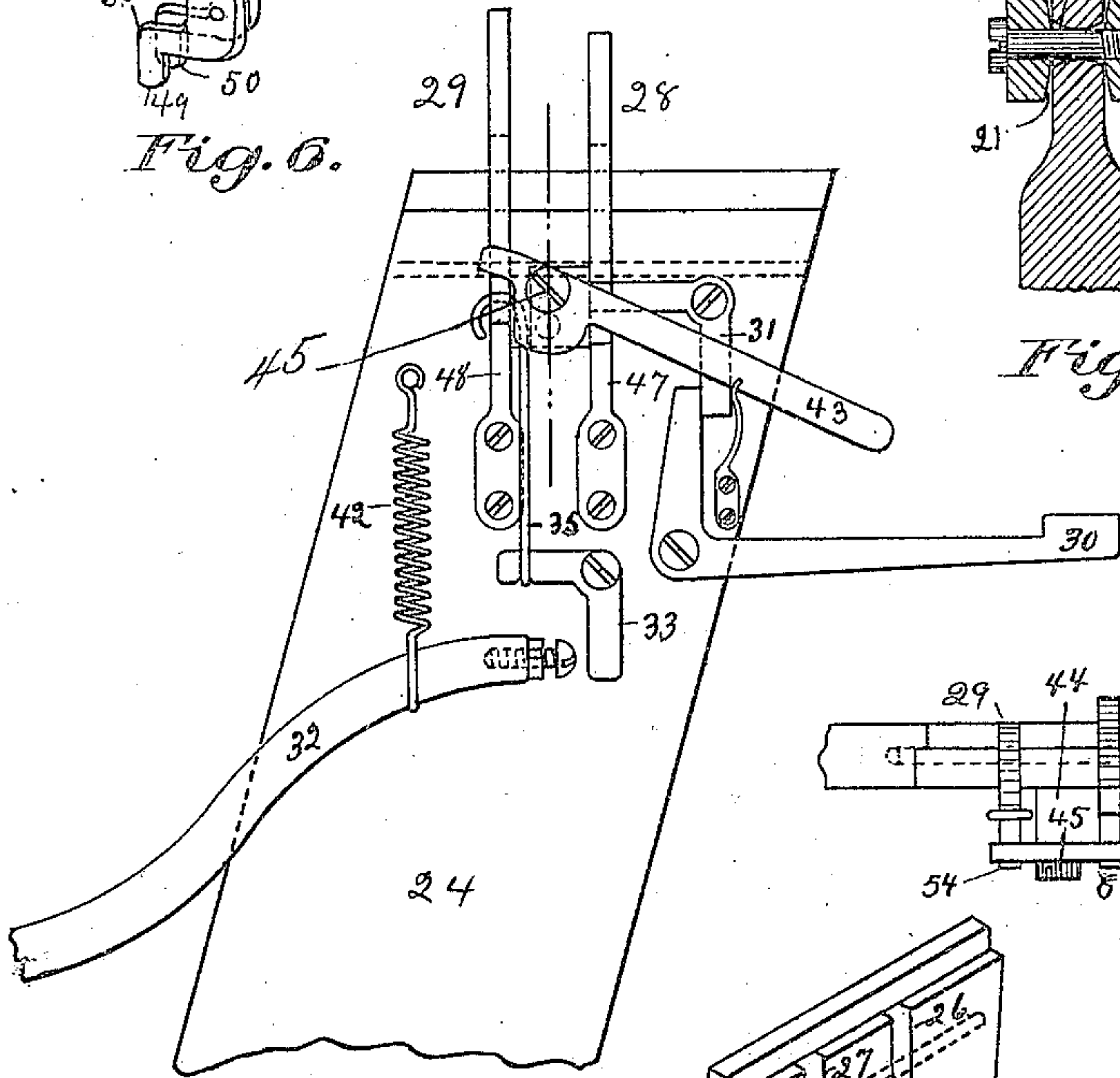
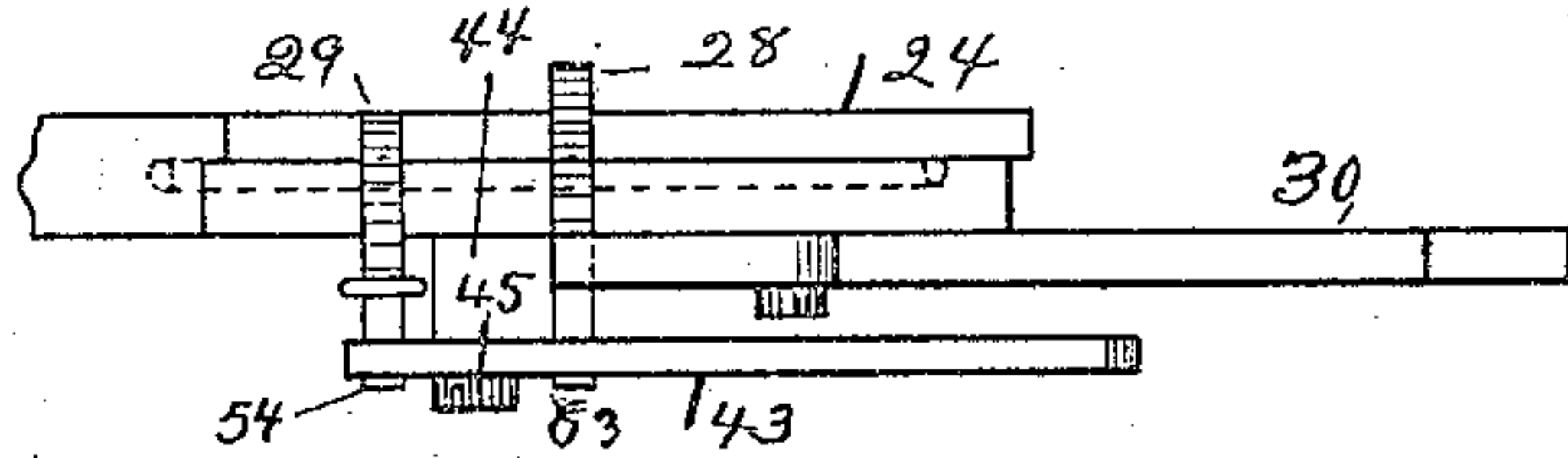
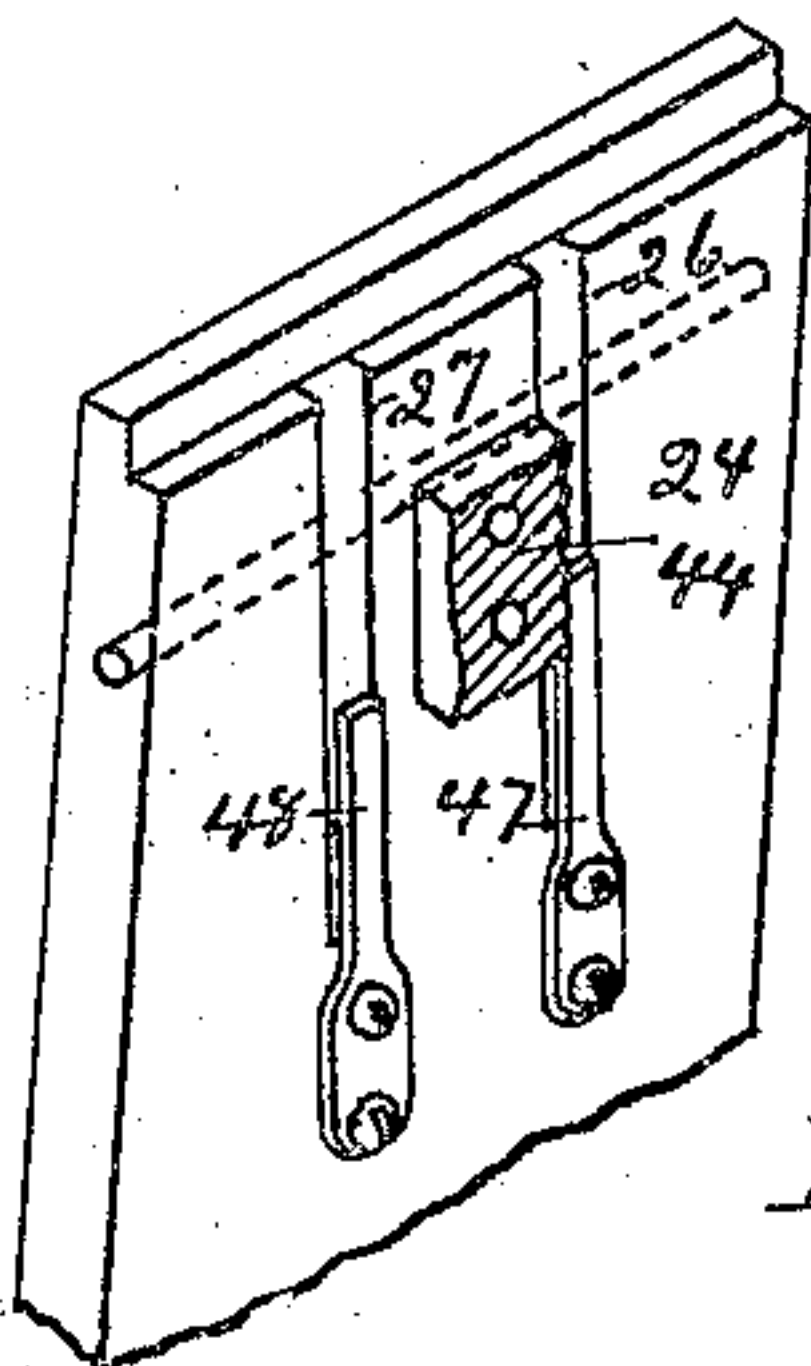


Fig. 5.



*Fig. 8.*



*Fig. 10.*

*Witnesses:*  
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# UNITED STATES PATENT OFFICE.

CHARLES T. LIBBY, OF PORTLAND, MAINE.

## LINOTYPE-MACHINE.

No. 822,286.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed March 12, 1904. Serial No. 197,782.

*To all whom it may concern:*

Be it known that I, CHARLES T. LIBBY, a citizen of the United States, residing at Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Linotype-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 improvements in machines of the general character of the so-called "Mergenthaler" linotype-machine shown and described in Letters Patent of the United States No. 436,532, dated September 16, 1890.

In my improved machine the assembling-elevator is put up automatically by mechanism possessing inherent force which is released arbitrarily by the operator each time he has assembled a matrix-line or which is released automatically by some moving part of the machine operating at a selected point in the movement of said part, which latter way of releasing has the effect to suspend the action of the start-and-stop device of the main machine and leaves its main driving-shaft to run constantly until stopped by the operator.

In the drawings herewith accompanying and making a part of this application, Figure 1 is a perspective view of a portion of a Mergenthaler machine, showing my improvements applied thereto, the position of the several parts being that which they occupy at the instant the assembling-elevator releases the line-delivery carriage. Fig. 2 is a detail perspective view of the cam and cam-roll which automatically effect the release of the elevating mechanism. Fig. 3 is a vertical section view of the weight-raising push-bar. Fig. 4 is a side elevation showing the assembling-elevator-operating springs, latches, and latch-operating mechanisms. Fig. 5 is an enlarged detail view in elevation showing the bracket, latches, switch, and operating mechanisms. Fig. 6 is a perspective view of the latches. Fig. 7 is a detail sectional view showing the friction-spring for controlling the switch. Fig. 8 is a detail plan view showing latches and latch-operating switch. Fig. 9 is a detail sectional view of the top of the push-bar and its support, and Fig. 10 is a perspective view of the latch-supporting bracket.

Same characters of reference refer to like parts.

The fundamental character of my invention, as hereinbefore set forth, is well illustrated in the drawings above referred to; but it is to be understood that this particular embodiment of my invention is not essential and that any mechanism having inherent power to reciprocate the elevator, whether actuated by a spring-power, gravity, or similar force, and means for bringing said elevator-reciprocating mechanism into action either arbitrarily at the will of the operator or automatically at regularly-recurring periods or that makes the assembling-elevator reciprocate periodically in proper time with the main machine without ceasing its periodic movements until stopped by the operator is within the spirit and scope of my invention. At the same time it is to be understood that the particular embodiment of my invention herein shown and described is itself novel and particularly well adapted to accomplish the desired result.

In said drawings, A represents the column; B, a portion of the keyboard-frame; C, the line-delivery carriage; D, the line-delivery-carriage lever; E, the assembling-elevator; F, the line-delivery-carriage-lever-operating shaft; G, a pivoted latch for retaining the line-delivery carriage; H, the line-delivery-carriage-releasing pin; I, the needle on the assembling-elevator for operating said pin; J, the hook for supporting the assembling-elevator; K, the assembling-elevator-releasing bar; L, the assembling-elevator-counterbalancing spring; M, the assembling-elevator hand-lever; N, the assembling-elevator link; O, the main cam-shaft, and P one of the cams. These parts may be substantially the same and operate in substantially the same manner as in the aforesaid Mergenthaler machine—namely, when the assembling-elevator loaded with matrices arrives up the hook J engages, and almost simultaneously the needle I pushes up the releasing-pin H and knocks off the latch G, whereupon the line-delivery carriage goes to the left and starts a revolution of the main cam-driving shaft O. Hook J holds the elevator up until the line of matrices has passed out, whereupon it is knocked off by the releasing-bar K, and the elevator drops down. The reciprocation of the line-delivery carriage is effected by a rocking of its shaft about forty-five degrees, and on its return it is again latched



and held by latch G. Meanwhile the main cam-driving shaft continues its movement and at the end of a single revolution automatically stops, unless the assembling-elevator has been again sent up. The main cam-driving shaft only goes round once for each time the assembling-elevator is put up. The assembling-elevator cannot be put up until the line-delivery carriage has returned to its first position; otherwise the line of matrices would be in the path of the returning line-delivery carriage. The line-delivery-carriage shaft is motionless at the time the assembling-elevator goes up.

In carrying out my invention the aforesaid counterbalancing-spring is made strong enough, either alone or in connection with a second spring 1, to raise the elevator, and the elevator is returned by a weight against the opposing force of the spring, said spring being thereby reenergized. Mechanism actuated by some moving part of the machine, as the line-delivery-carriage shaft and intermediate mechanism, serves to periodically raise the weight to position.

In the form in which I have in the present instance embodied my invention the assembling-elevator is raised by a spring or springs L and 1, attached for convenience at one end to an arm 2, rigidly secured to the assembling-elevator lever and at the other end to any convenient part of the machine. Only one elevating-spring is necessary; but for facility of adjustment two are desirable, although working between the same points. In case two are used, one should work on a very short radius and be very strong, the movement on the short radius varying the power of the spring but little, whereby the assembling-elevator is supported with substantially the same tension in all its positions. The other spring L should be very light and active, capable of working on a long radius without radically changing its tension.

The assembling-elevator is returned against the force of said spring or springs by means of a weight-lever embodied in an arm 3 of a two-arm lever pivotally mounted upon a shaft 4, mounted in the frame of the machine. The efficiency of the weight can be varied by providing said arm with a movable weight-block 5. Arm 3 is connected with the assembling-elevator-operating mechanism in any convenient manner, as by a link 7, pivotally attached to said arm and to a loose lever 6, mounted on the assembling-elevator-lever shaft 8. The lever 6 lies parallel with the assembling-elevator lever and adjacent thereto and is provided with an offset 9, projecting into the path of the assembling-elevator lever, so that when the weight is released said offset engages and rests upon the assembling-elevator lever, overpowering the elevating mechanism and returning the elevator. The force of the weight tending to carry the ele-

vator down and hold it down being greater than the force tending to carry it up, it is necessary periodically to raise the weight by some means. For this purpose I attach to the line-delivery-carriage shaft a rigid arm 10, upon the end of which is pivotally mounted a push-bar 11, adapted to engage the arm 12 of the two-arm weight-lever, whereby the return of the line-delivery-carriage shaft pushes down on the arm 12 of the two-arm lever, thus relieving the assembling-elevator lever of the burden of the weight. The push-bar 11 has a contact 13 supported therein by means of a pin 14, passing through a slot 15, and is held yieldingly projecting downwardly by means of two springs—one, 16, the weaker and always operative, and the other, 17, stronger and beginning to operate only after the former has been partially compressed. The end of the contact, as seen at 18, and arm 12 of the two-arm lever, as seen at 19, should both be hollowed and carefully rounded. The push-bar has a double rocking motion on arm 12. On account of this rocking motion the push-bar must have a slight play also on its pivot in its supporting-arm. For this purpose the top and bottom inner faces of the slot 20 in the end of the arm are made flaring, as seen at 21, and the hole in the end of the push-bar through which the pivot passes is also made flaring, as seen at 22, Fig. 9. A very light spiral loop-spring 23 may be used in the angle formed by the push-bar and its supporting-arm to prevent endwise swinging and to aid the end of the push-bar to find its place as it drops on arm 12 of the weight-lever.

Passing now to a description of the mechanism by which the time at which the elevator shall go up is regulated, it is noted preliminarily that the elevator may be sent up by mechanism set in operation arbitrarily by the operator when he is ready, or it may be sent up by mechanism set in motion automatically and periodically by some moving part of the machine. It is understood that either might be employed alone; but the two may better be employed in the same machine, means being provided for rendering one inoperative while the other is in use. I have illustrated both ways of running with a switch by means of which one or the other is rendered inoperative. To this end I provide means for locking the elevator down and means for releasing it. For this purpose to any convenient part of the frame I attach a bracket having an upright part 24, extending upwardly to the left of the keyboard, and a horizontal portion 25, extending under the keyboard, as seen in Fig. 1. The horizontal portion may be utilized to afford a strong anchorage for one end of the elevating-springs. Pivotally mounted in recesses 26 and 27 in said bracket are locking-latches 28 and 29 for locking the elevator



down in ready position. The front latch 28 is released arbitrarily by the operator by means of a key-lever 30, acting on said latch either directly or through an intermediate reversing-lever 31. The back latch 29 is released automatically and periodically in time to the movement of the machine by means actuated by a moving part of the machine. The means herein shown consists of a push-rod 32, acting on said latch either directly or through an intermediate angle-lever 33 and connecting-link 35, said rod being actuated forwardly at stated periods by engagement therewith of a stud or projection 34 in the periphery of the cam P, set on the cam-shaft O. Stud 34 may, if preferred, be attached directly to said shaft O. For convenience the push-rod passes through the frame. The end of the push-rod is pivotally attached to a swinging link 37, which carries an antifriction-roll 38, projecting into the path of the stud 34. The push-rod is returned by means of a spring 39, interposed between the wall of the column and a stop 40, set in the rod. The return movement of the push-rod is limited by a stop 41, set in the rod engaging the frame. The push-rod is preferably loosely mounted in the column, and it is found convenient to support the free end thereof further by a light coil-spring 42, attached to the end thereof and to the bracket.

The latches are provided with a switch 43, by which one or the other is constantly held out of action, thus leaving only one of the latches operative at a time. The switch may be pivotally mounted upon a projection 44 on the bracket adjacent to the latches by means of a pivot-pin 45 and presses down alternately upon projections 53 and 54 on the latches, and the latch may be held yieldingly locked in any position by means of a spring 46, tending constantly to force the switch into frictional engagement with the pin and itself being in frictional engagement with the switch, as seen in Fig. 7.

To facilitate shifting from the back latch to the front latch, the holding-face of the front latch is made shorter and a little higher than that of the back latch, as seen in Fig. 6. In consequence of this construction switching from the front latch to the back latch lets the elevator up. Springs 47 and 48 engage projections 49 and 50, respectively, on the latches and tend constantly to hold the latches in their forward or ready position. The latches are adapted to engage a projection 52 on the bottom of the assembling-elevator.

Assume now that the elevator is locked down by the push-rod-actuated latch, as seen in Fig. 4, that the weighted end of the weight-lever is raised, and that the push-rod is just at the point of disengaging the latch. As soon as the latch is disengaged the expansion of the spring carries the elevator up.

This releases the line-delivery carriage and starts a revolution of the machine. The assembling-elevator remains up, suspended by its hook until the line delivery carriage in its movement to the left disengages the hook, when the weight-lever starts down, engaging the elevator-lever and returning the elevator, reenergizing the elevating-springs. The return of the assembling elevator lever and its shaft to the right again raises the weight-lever, leaving the assembling-elevator held down solely by the latch until such time as the stud on the cam again actuates the push-rod to release the latch, thus again sending the elevator up and starting the next revolution of the machine; otherwise the machine would come to a full stop at the end of each revolution, being by its normal construction a start-and-stop machine, with only a single revolution of its main cam-driving shaft, resultant on each separate act of raising the assembling-elevator. This cycle of movements may continue indefinitely or as long as the operator is able to set copy to the full speed of the machine, the machine operating automatically and continuously. If for any reason the operator is unable to have his line in readiness to send up when in the normal operation of the machine the latch 29 should be disengaged by the push-rod 32, the operator can then by use of the switch 43 bring the other latch 28 into engagement with the elevator, thus holding it down irrespective of the action of the push-rod, or the push-rod may by any convenient means be prevented from actuating its latch, whereupon as the elevator fails to go up the machine comes to a standstill at the end of that revolution.

When the operator is unable to set copy to the full speed of the machine, the machine will operate in substantially the same way as before, except that instead of the automatic and periodic release of the elevator by means of the back latch the front latch is released by a key-lever actuated manually by the operator each time he has the line ready to send up. It will be evident that the means for reciprocating the elevator and their operation will be the same in both cases.

Many equivalent means may be substituted for the specific devices herein shown for these purposes, all of which are equally within the spirit and scope of my invention, and likewise the auxiliary mechanism for regulating and controlling the main features of my invention may be greatly varied, and I do not desire to be limited in these respects otherwise than as specifically set out in the claims.

The advantages of my improved machine are as follows: It is optional with the operator when desired to have the assembling-elevator reciprocate repeatedly in proper time to the movements of the machine running at



full speed and continue this until stopped by himself. This operation is valuable to the large number of operators who are able to set news measure to the full speed of the machine and who are thus saved the labor and nervous strain of putting up the assembling-elevator and watching the movement of the machine for the proper time of doing so—in fact, having nothing left to do but to be sure their line is set before the elevator goes up and then enjoying an instant's relaxation and an opportunity to glance at copy while the assembling-elevator automatically goes up and returns. Furthermore, operators who are otherwise unable to set lines to the full speed of the machine will have their speed increased, because my improved machine will save all interruption of their attention to copy caused by using the hand-lever to put up the assembling-elevator, and the time while the elevator is passing up and back will enable them to be ready to set the next line immediately the elevator is returned. Upon any interruption in completing a line of matrices the operator may instantly change the machine to the start-and-stop form. Running in the latter way the operator is saved all the work of manually raising the elevator, in lieu thereof merely touching a key.

Having thus described my invention and its use, I claim—

1. In a linotype-machine, an assembling-elevator, mechanism having inherent power adapted to raise said elevator, mechanism having inherent power adapted to return said elevator and efficient to overpower the elevator-raising mechanism and mechanism operated by a moving part of the machine to render the elevator-returning mechanism periodically inoperative.

2. In a linotype-machine, an assembling-elevator, mechanism for automatically raising said elevator, mechanism for automatically returning said elevator and mechanism for automatically and periodically suspending the operation of the elevator-returning mechanism, whereby the periodic reciprocation of the elevator is rendered automatic and continuous.

3. In a linotype-machine, in combination, the assembling-elevator, mechanism possessing potential, static or stored force the release of which serves to raise the elevator, mechanism possessing a similar force to return the elevator and reenergize the elevator-raising mechanism, mechanism actuated by a moving part of the machine to reenergize the elevator-returning mechanism and means for controlling the elevator-raising and elevator-returning mechanisms.

4. In a linotype-machine, in combination, the assembling-elevator, means tending constantly to raise said elevator, the line-delivery carriage adapted to be started automatically by each upward movement of said ele-

vator, means for holding said elevator in its lower position and means for automatically releasing said elevator actuated by the main cam-driving shaft and operated in time therewith, whereby each raising of the elevator starts a revolution of the machine and each revolution of the machine brings into operation mechanism for releasing the elevator, thus making the assembling-elevator reciprocate periodically in proper time with the main machine until manually stopped.

5. In a linotype-machine, in combination, the assembling elevator, mechanism for reciprocating the same, the main cam-driving shaft, means for holding said elevator-reciprocating mechanism down and means automatically actuated by the main cam-driving shaft to release said elevator-reciprocating mechanism, thus making the assembling-elevator reciprocate periodically in proper time with the main machine without ceasing its periodic movements until stopped by the operator.

6. In a linotype-machine, in combination, the assembling-elevator, mechanism for reciprocating the same, the main cam-driving shaft, means for holding said elevator reciprocating mechanism down and means automatically actuated by the main cam-driving shaft to release it, another means for holding said elevator-reciprocating mechanism down and means for arbitrarily releasing it and a switch for fastening either of said two holding means out of action, whereby the use of said switch gives the operator the instant option to have the machine stop automatically at the end of each revolution or run constantly until manually stopped.

7. In a linotype-machine, in combination, the assembling-elevator, mechanism possessing potential, static or stored force, the release of which serves to raise the elevator, mechanism for reenergizing the last-named mechanism after each action, and means for controlling both mechanisms.

8. In a linotype-machine, in combination, an assembling-elevator adapted to have a reciprocating motion, means for raising said elevator, means for returning said elevator, means for causing said elevator raising and returning mechanisms to act alternately and means for temporarily stopping their action.

9. In a linotype-machine, in combination, an assembling-elevator, a spring for raising said elevator, means for returning said elevator against the action of said spring, means for temporarily holding the elevator down and means for operating the elevator-returning mechanism.

10. In a linotype-machine, in combination, an assembling-elevator, mechanism for raising said elevator, means for returning said elevator against the action of said elevator-raising mechanism, means for temporarily holding the elevator down and means



for actuating the elevator-returning mechanism.

11. In a linotype-machine, in combination, an assembling-elevator, elevator raising and returning mechanisms, one adapted to raise and the other to return said elevator and means for automatically bringing said elevator raising and returning mechanisms into action to raise and return the elevator alternately and means for temporarily suspending the action of said elevator raising and returning mechanisms.

12. In a linotype-machine, in combination, the assembling-elevator, elevator raising and returning mechanisms, one adapted to raise and the other to return the elevator, the power of the latter, when both are operative, being the greater, and means for periodically suspending the action of the latter while the former acts and means for controlling the action of both.

13. In a linotype-machine, in combination, an assembling-elevator, means adapted to raise the elevator, means adapted to return the elevator, the power of the latter being the greater, means for bringing the elevator-returning mechanism into operative position, whereby the elevator-raising mechanism is free to act, means for holding the elevator-raising mechanism inoperative while and releasing it after the elevator-returning mechanism is brought into operative position, whereby the assembling-elevator is alternately raised and lowered.

14. In a linotype-machine, an assembling-elevator, a spring adapted to raise and a weight adapted to return the elevator, the power of the weight, when both are operative, being the greater, means for raising the weight, means for holding it temporarily suspended, whereby the spring is free to act, and means for releasing the weight, means for holding the spring compressed, while, and releasing it after, the weight is suspended, whereby the assembling-elevator is alternately raised and lowered.

15. In a linotype-machine, the reciprocating assembling-elevator, mechanically actuated means for operating said elevator, the line-delivery-carriage shaft and mechanism actuated by said shaft to bring said mechanically-actuated means into operative position.

16. In a linotype-machine, in combination, the assembling-elevator, means for raising the same, the line-delivery-carriage shaft, a lever on said shaft and mechanism intermediate between said lever and said elevator operated by the former to return the latter.

17. In a linotype-machine, in combination, an assembling-elevator, means for raising the assembling-elevator, and mechanism actuated by the main cam-driving shaft to control said raising means.

18. In a linotype-machine, in combina-

tion, an assembling-elevator, means for automatically raising and lowering the assembling-elevator and mechanism actuated by a moving part of the machine to make the movements of the elevator reciprocal with the movements of the main machine without ceasing its periodic movements until manually stopped.

19. In a linotype-machine, in combination, an assembling-elevator, means for raising said assembling-elevator, the main cam-driving shaft, a lug carried by said shaft, and mechanism actuated by said lug to make the movements of the elevator reciprocal with the movements of the main machine until manually stopped.

20. In a linotype-machine, in combination, the assembling-elevator adapted to rise and return, means for raising the same, the line-delivery-carriage shaft, a lever on said shaft and mechanism intermediate between said lever and said elevator operated by the former to return the latter.

21. In a linotype-machine, in combination, the assembling-elevator adapted to rise and return, means capable of being energized for raising the same, the line-delivery-carriage shaft, a lever on said shaft and mechanism intermediate between said lever and said raising means operated by said lever to energize said raising means.

22. In a linotype-machine, in combination, the assembling-elevator, mechanism for reciprocating the same, the main cam-driving shaft, a cam on said shaft and means actuated by said cam to control said reciprocating mechanism.

23. In a linotype-machine, in combination, an assembling-elevator, a rod passing through the machine adapted to be actuated by a moving part of the machine and mechanism for reciprocating the assembling-elevator adapted to be controlled by said rod.

24. In a linotype-machine, in combination, the assembling-elevator, mechanism for raising and lowering the same, the main cam-driving shaft, means for holding said elevator down, and means automatically actuated by the main cam-driving shaft to release said holding means, means for locking said elevator in its up position and automatic means for releasing the same, whereby the assembling-elevator reciprocates in proper time with the main machine.

25. In a linotype-machine, in combination, the assembling-elevator, mechanism for reciprocating the same, the main cam-driving shaft, means for holding said elevator down and means automatically actuated by the main cam-driving shaft to release said holding means.

26. In a linotype-machine, the combination with a motor-driven part and an assembling-elevator, mechanism possessing potential, static or stored force for actuating the



elevator, and connected energizing mechanism actuated by the driven part for setting the elevator-actuating mechanism.

27. In a linotype-machine, the combination with an assembling-elevator of mechanism tending constantly and automatically to raise the elevator and means for controlling said elevator-raising mechanism.

28. In a linotype-machine, the combination with a movable assembling-elevator, of mechanism acting automatically for moving the elevator through its cycle of movement and automatically repeating its said action until manually stopped.

29. In a linotype-machine, the combination with a motor-driven part, of an assembling-elevator, mechanism acting automatically for actuating the elevator, means for holding the actuating mechanism out of action, and means actuated by the motor-driven part for releasing said holding means.

30. In a linotype-machine, the combination with a motor-driven part, of an assembling-elevator, connected mechanism controlled by the driven part for actuating the elevator, means for holding said mechanism out of action, and means for releasing said holding means actuated by the driven part.

31. In a linotype-machine, the combination with an assembling-elevator, of means normally tending to raise the same, means for holding the said means against action, and means acting automatically for releasing the raising means.

32. In a linotype-machine, the combination with an assembling-elevator, of means normally tending to raise the same, means for holding said means inactive, a trip for said holding means, and means for returning said raising means to its initial position.

33. In a linotype-machine, the combination with an assembling-elevator, of means tending constantly to raise the elevator, and means for holding the raising means inactive during the period of assembling the matrices therein.

34. In a linotype-machine, an assembling-elevator, automatically spring-actuated mechanism for raising the elevator and automatically-operating weight-actuated mechanism for resetting said spring-actuated mechanism.

35. In a linotype-machine, an assembling-elevator, automatic mechanism for raising said elevator, and automatic means for lowering said raising means, said last-mentioned means being sufficiently powerful to overcome said raising mechanism and restore the same to its initial position.

36. In a linotype-machine, the combination with a mechanically-actuated part thereof and an assembling-elevator, of mechanism acting by potential, static or stored force for actuating the elevator and connecting mechanism between said elevator-actuating mechanism

and said actuated part for energizing said actuating mechanism.

37. In a linotype-machine, in combination, an assembling-elevator, mechanism having potential, static or stored force, which, when permitted to act, is adapted to raise said elevator, mechanism having a similar force, which, when permitted to act, is adapted to return said elevator and to reenergize the elevator-raising mechanism, and means for controlling the elevator-raising and elevator-returning mechanisms.

38. In a linotype-machine, an assembling-elevator and mechanism adapted to impart reciprocal movement to the same, said mechanism acting automatically and until manually stopped.

39. In a linotype-machine, the assembling-elevator, the line-delivery-carriage shaft and mechanism intermediate said elevator and said shaft adapted to reciprocate the former.

40. In a linotype-machine, the combination with the line-delivery-carriage shaft and an assembling-elevator, of actuating means for the elevator and connecting mechanism actuated by the line-delivery-carriage shaft for energizing the elevator-actuating means.

41. In a linotype-machine, the combination with a movable assembling-elevator, of mechanism acting automatically by potential, static or stored force for actuating the elevator and means for energizing and controlling said actuating mechanism.

42. In a linotype-machine, the combination with an assembling-elevator, of means acting automatically for positively raising the same and means controlled by the main cam-driving shaft for holding the raising means out of action during the period of assembling the matrices therein.

43. In a linotype-machine, in combination, the assembling-elevator, mechanism adapted to store potential or static force and by its release raise the elevator; mechanism for reenergizing the last-named mechanism after each action, and means for controlling both mechanisms.

44. In a linotype-machine, in combination, the reciprocating assembling-elevator, a rocking shaft motionless while said elevator goes up, and mechanism energized from said rocking shaft adapted to actuate said elevator.

45. In a linotype-machine, the line-delivery-carriage shaft and the assembling-elevator, in combination with mechanism energized by the former and adapted to actuate the latter.

46. In a linotype-machine, an assembling-elevator and mechanism adapted to impart reciprocal movement to the same, said mechanism acting automatically and until manually stopped, in combination with means for causing periodical retardations in the movement of the elevator to permit charging and unloading the same.



47. In a linotype-machine, the combination with an assembling-elevator, of spring-actuated mechanism to raise the elevator and means for controlling said elevator-raising  
5 mechanism.

In testimony whereof I have signed my name to this specification, this 3d day of

March, 1904, in presence of two subscribing witnesses.

CHARLES T. LIBBY.

In presence of—

ELGIN C. VERRILL,  
MARION RICHARDS.