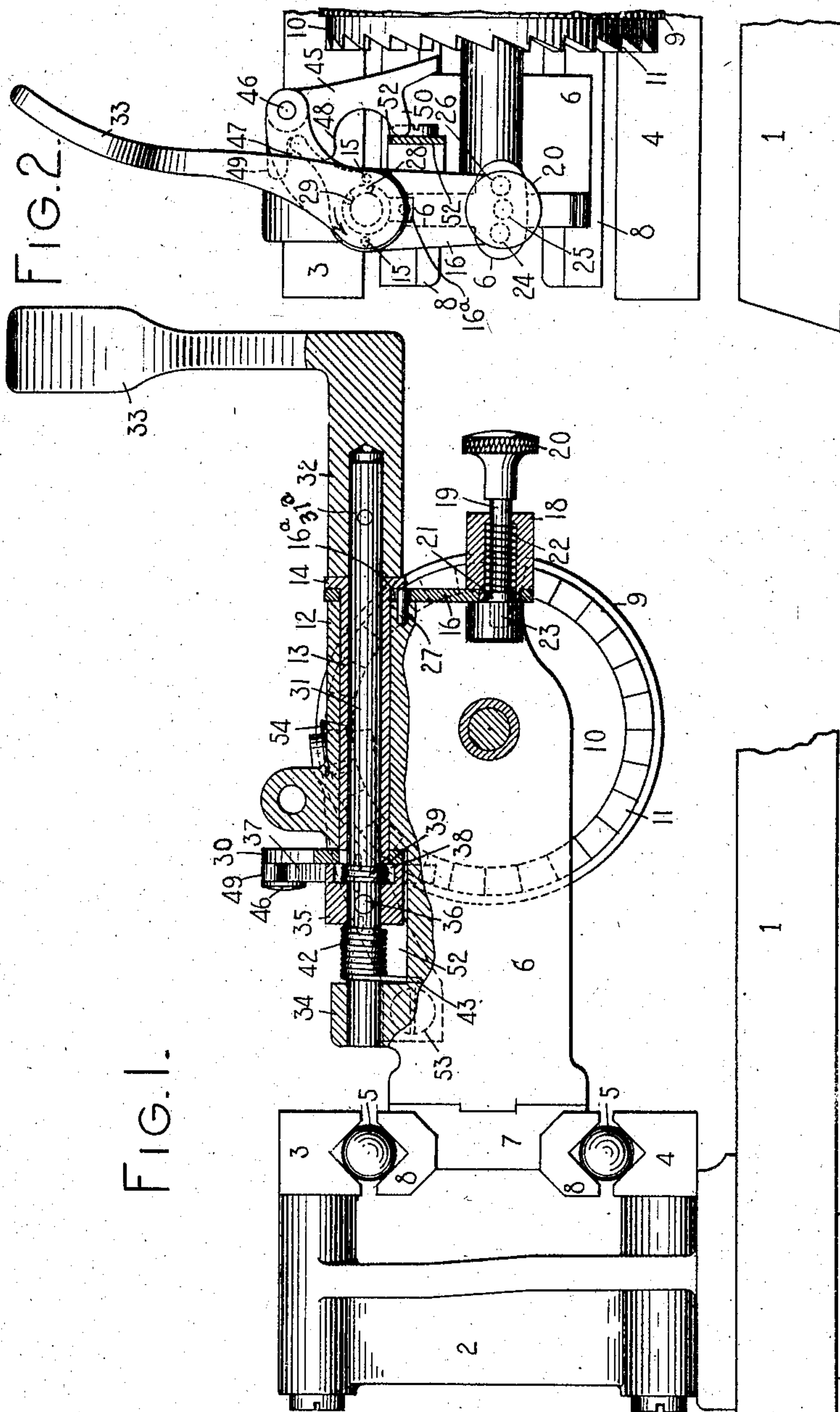


No. 791,483.

PATENTED JUNE 6, 1905.

H. W. MERRITT.
TYPE WRITING MACHINE.
APPLICATION FILED FEB. 10, 1904.

2 SHEETS—SHEET 1.



WITNESSES:

K. V. Klonovan.
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INVENTOR:

Henry W. Merritt.

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HIS ATTORNEY

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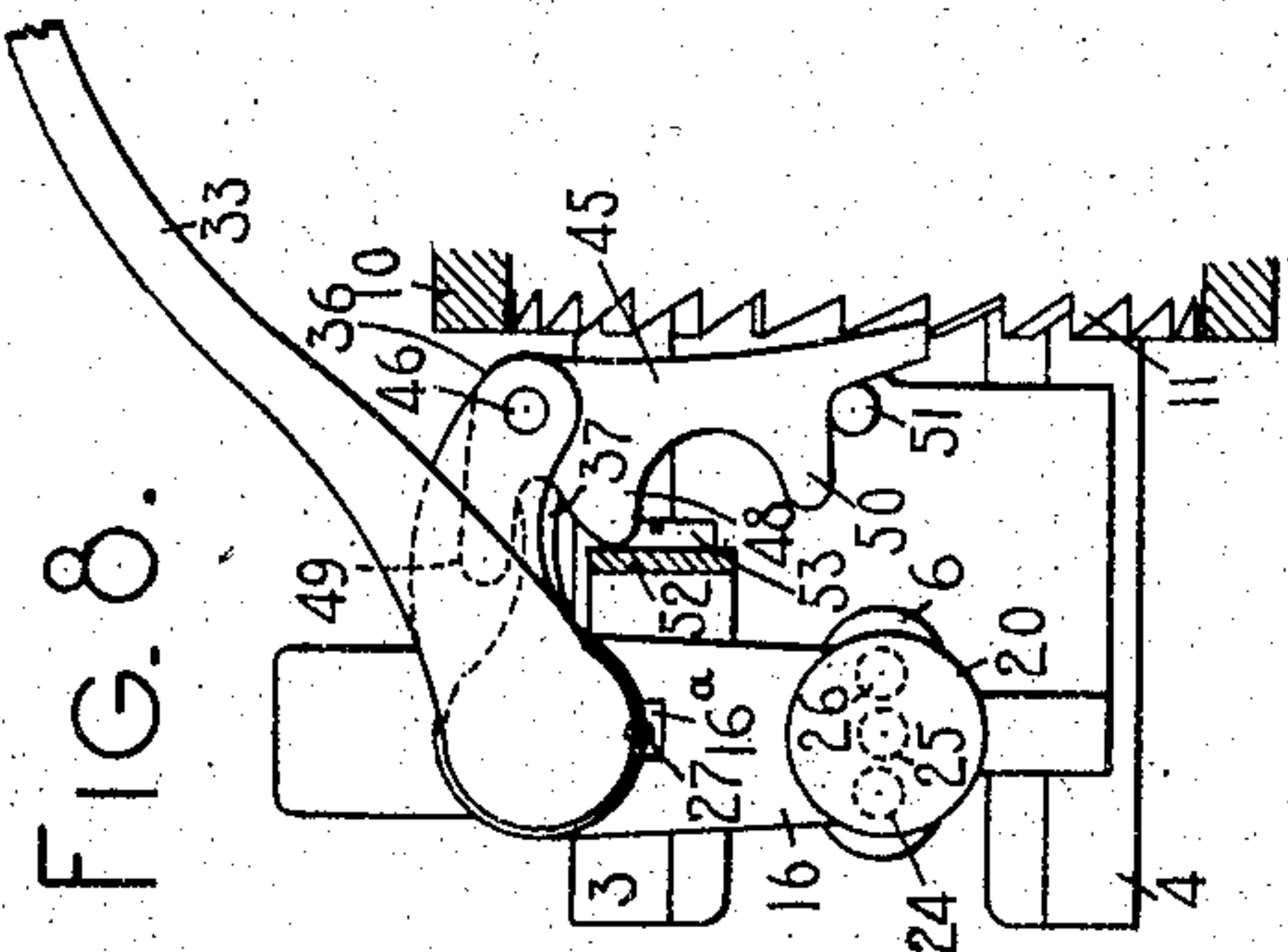


FIG. 8.

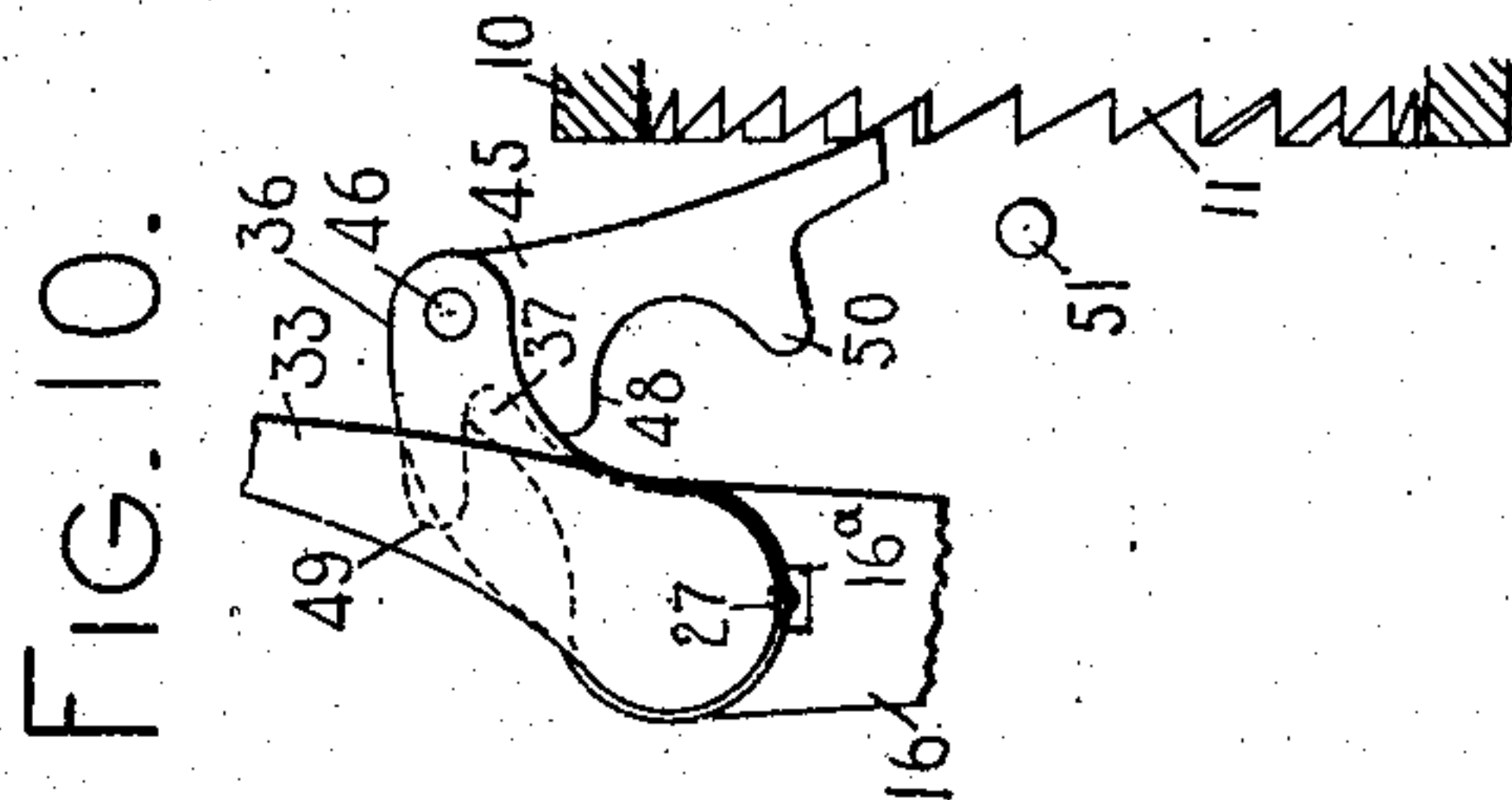


FIG. 10.

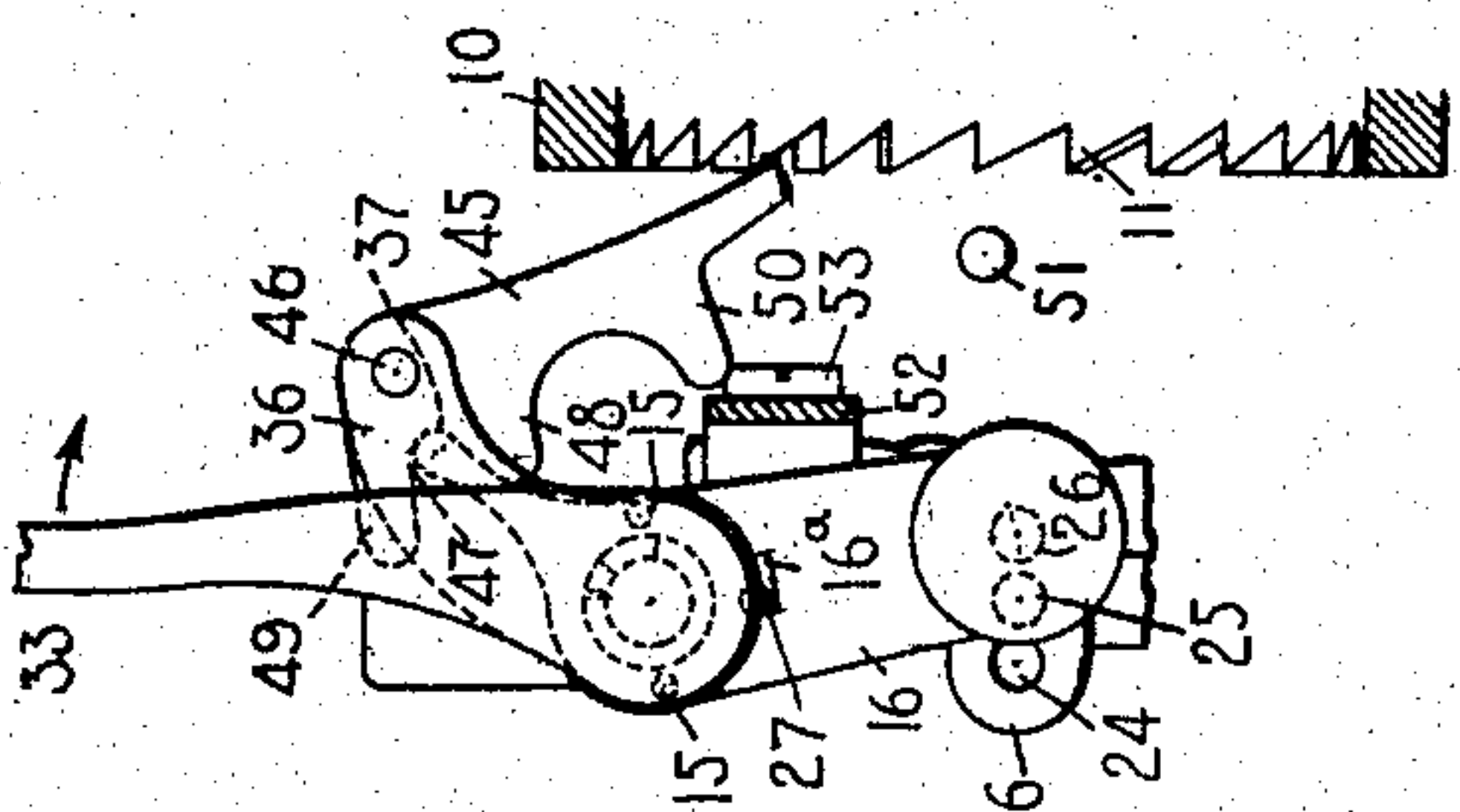


FIG. 7.

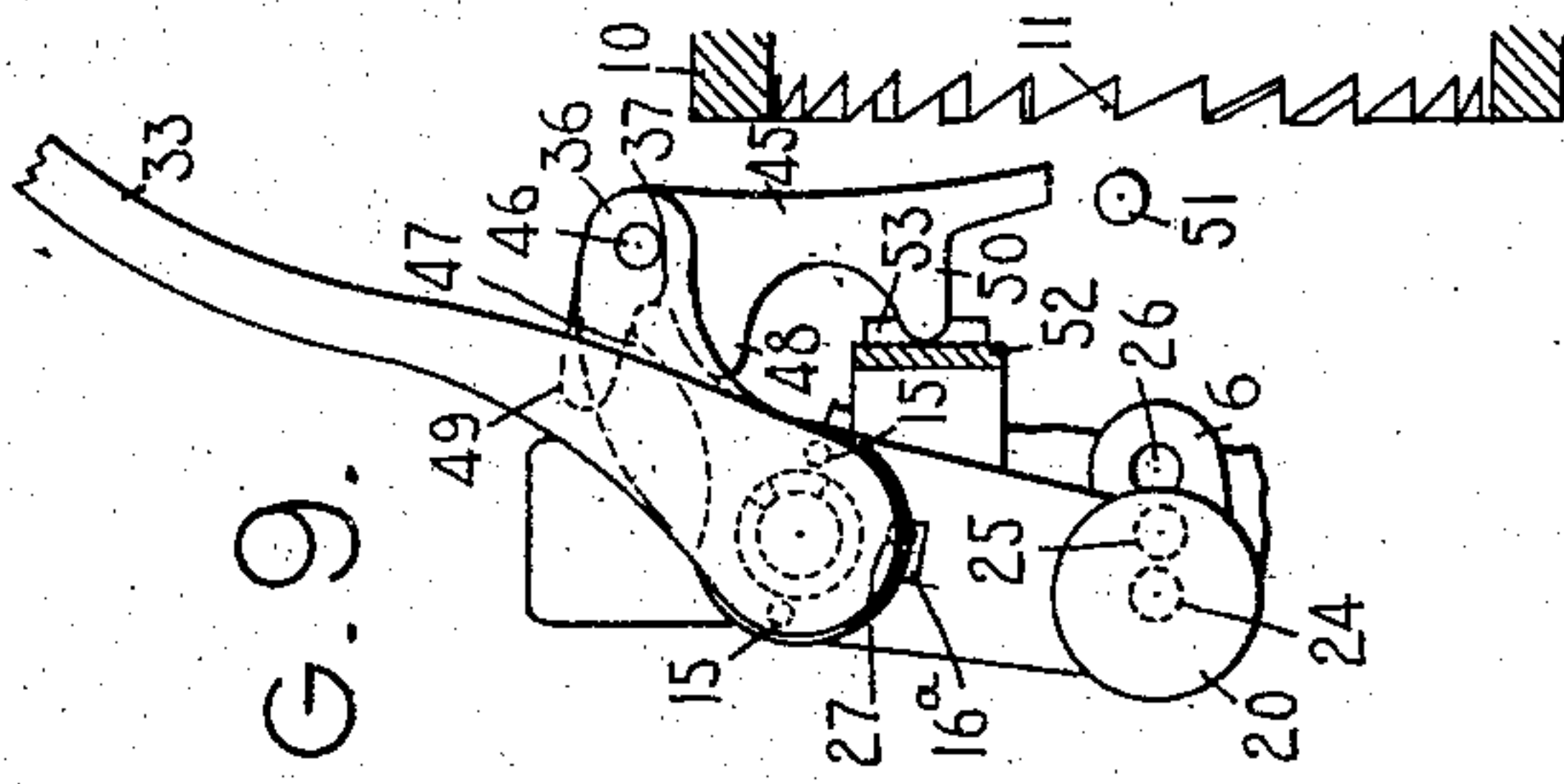


FIG. 9.

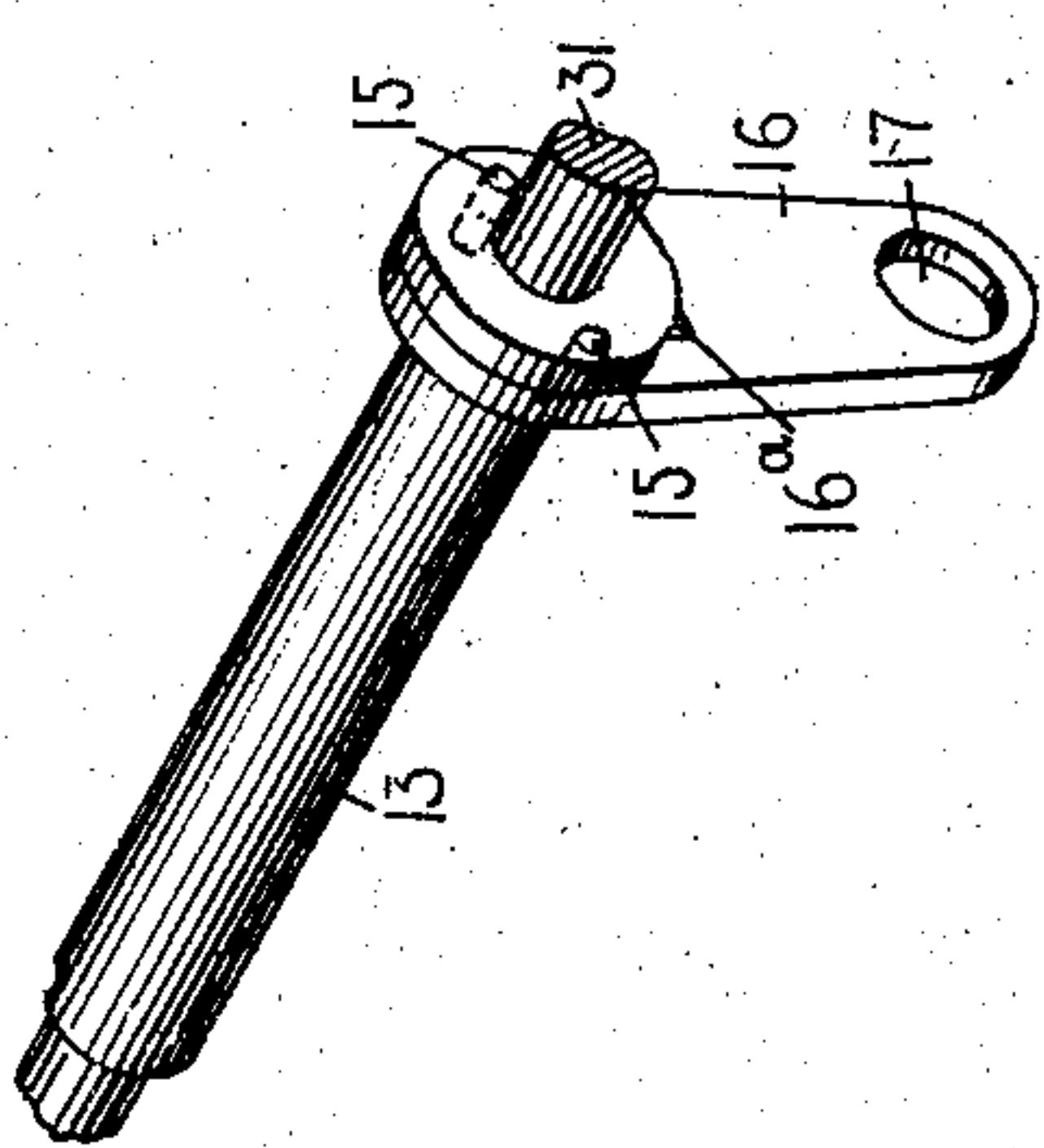


FIG. 3.

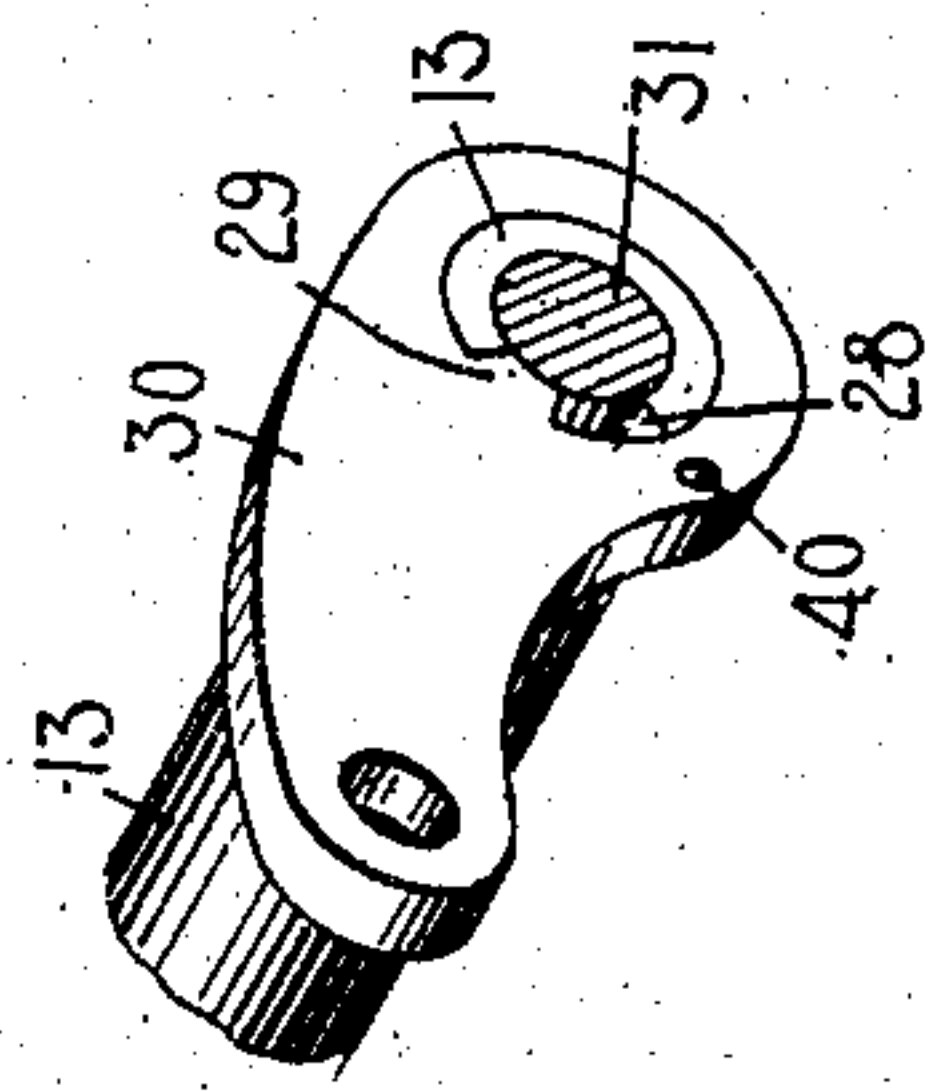


FIG. 4.

FIG. 6.

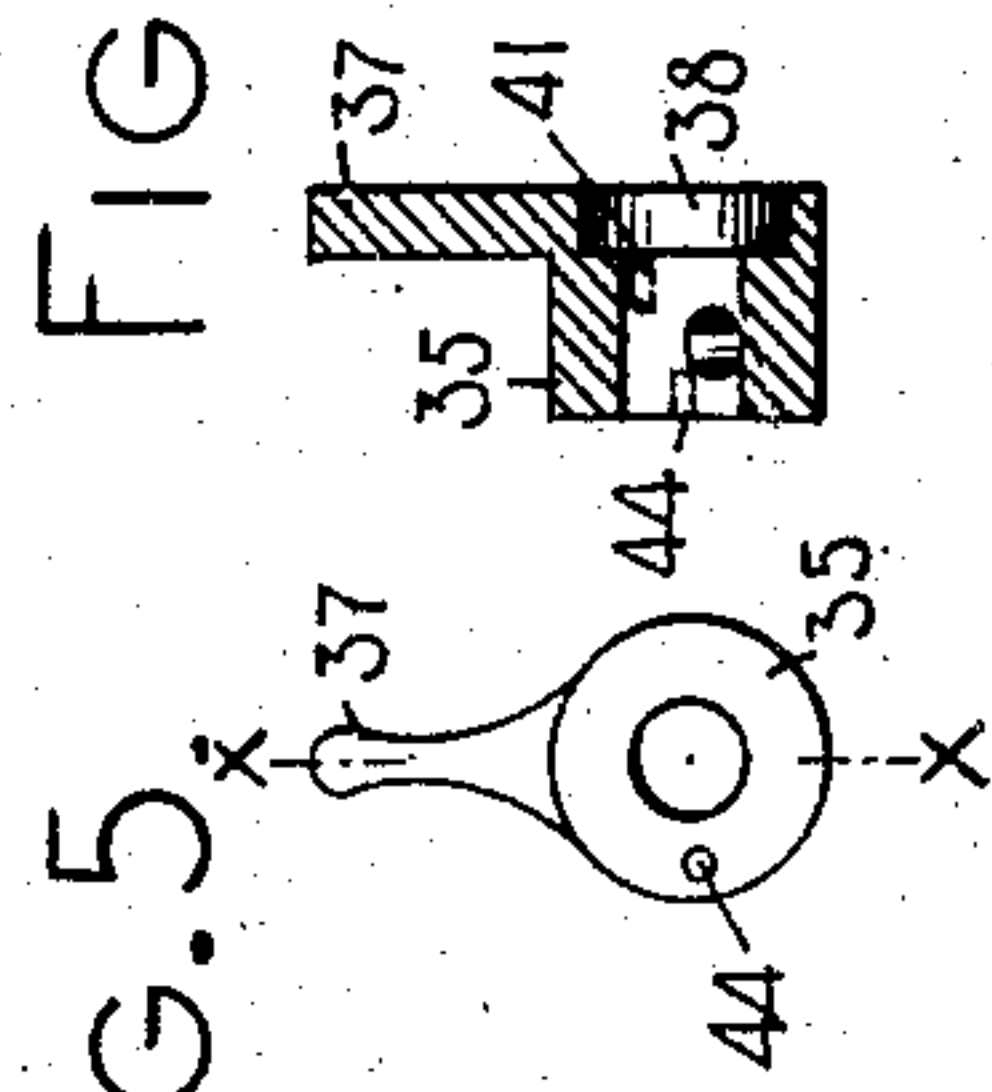


FIG. 5.

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UNITED STATES PATENT OFFICE.

HENRY W. MERRITT, OF SYRACUSE, NEW YORK, ASSIGNOR TO THE MONARCH TYPEWRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 791,483, dated June 6, 1905.

Application filed February 10, 1904. Serial No. 192,879.

To all whom it may concern:

Be it known that I, HENRY W. MERRITT, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates to type-writing machines, and more particularly to the line-spacing mechanism thereof.

Heretofore it has been common in line-spacing mechanism of type-writing machines to depend upon the action of a spring to throw the line-spacing pawl into engagement with the line-spacing ratchet-wheel at the initial portion of the movement of the hand-actuated finger-piece, and it has been found in practice that the pawl would not work under the same conditions in all circumstances and at times would engage a tooth of the ratchet-wheel other than the one intended.

The object of my present invention is to overcome the above and other difficulties heretofore encountered and to provide simple and efficient means for effecting the line-spacing movements of the platen in a positive and reliable manner.

To the above and other ends, which will hereinafter appear, my invention consists in the features of construction, arrangements of parts, and combinations of devices to be hereinafter described, and particularly pointed out in the appended claims.

In the accompanying drawings, wherein like reference-numerals designate like parts in the various views, Figure 1 is an enlarged detail fragmentary end view with parts broken away, the view illustrating the line-spacing mechanism and a portion of the carriage. Fig. 2 is an enlarged detail fragmentary front elevation of the same. Figs. 3 and 4 are detail perspective views of portions of the line-spacing mechanism to be hereinafter described. Fig. 5 is a detail end view of the crank-finger for actuating the line-space pawl. Fig. 6 is a longitudinal sectional view of the same, taken on the line *x x* of Fig. 5. Figs. 7, 8, 9, and

10 are fragmentary detail front elevations of the line-spacing mechanism with parts in section, the views illustrating the parts in different positions and under different adjustments, as will hereinafter more clearly appear.

I have illustrated my invention in its application to a Monarch type-writing machine, though it should be understood that the invention is applicable to various characters of writing-machine.

The top plate 1 of the machine has uprights 2 secured thereto, said uprights supporting oppositely-grooved rails 3 and 4, in which antifriction balls or rollers 5 are adapted to travel. The platen-frame 6 is provided with a longitudinal bar 7 with oppositely-grooved tracks or rails 8 formed thereon. The platen-frame supports a platen 9, that is adapted to turn therein, and the left-hand end of the platen is provided with a line-spacing ratchet-wheel 10 with end teeth 11 thereon. The left-hand end of the platen-frame is bored or otherwise formed to provide a bearing 12 for a sleeve 13, that extends fore and aft of the machine and has a circumferential flange 14 at the forward end thereof. This flange is connected by pins 15, Fig. 3, or otherwise to a depending arm 16, apertured at the lower end thereof, as indicated at 17, for the reception of a reduced end of a housing 18, which is riveted in place and closed at its forward end except for a central opening through which a stem 19 passes. The forward end of this stem is provided with a finger-piece or head 20, and the inner end portion thereof has a flange 21 secured thereto. A coiled spring 22 surrounds the stem and bears at one end against the flange or collar 21 and at its opposite end against the end of the housing 18, so as to force the stem toward the rear of the machine. The rear free end 23 of the stem is adapted to be received in any one of the three openings 24, 25, or 26 in the forward face of the left-hand end plate of the platen-frame.

The depending arm 16 is apertured at 16^a for the reception of a pin 27, that projects forwardly from the platen-frame and consti-

tutes a stop to limit the movement of adjustment of the arm 16 when the end 23 of the locking-pin is in register with either of the extreme openings 24 or 26.

5 The rear end of the sleeve 13 has a cut-out portion 28, that receives a lug 29, which projects from an arm or carrier 30. This carrier is apertured centrally, so as to receive its bearing on the outer face of the sleeve, and
10 the lug or projection 29 limits the movement of the carrier 30 relatively to the sleeve. A rock-shaft 31 is journaled within the sleeve and is connected by a pin 31^a or otherwise to a collar or sleeve 32, on which a hand-actuated finger-piece or arm 33 is formed. The
15 rock-shaft 31 is received within a bearing 34 at the rear end thereof, and a hub 35 is secured to the shaft by a pin 36. Projecting from the hub is a crank finger or arm 37, which is apertured at 38 to receive a coiled
20 spring 39, which surrounds the rock-shaft 31 and has one end thereof secured to the carrier 30 by being projected into an opening 40 therein, whereas the opposite end of said
25 spring is connected to the hub 35 by having one end thereof seated in an opening 41 in the hub. The tension of this spring is exerted to normally maintain a fixed relation between the hand-operated actuating-piece 33 and the
30 carrier 30, as will hereinafter more clearly appear. The rock-shaft 31 and the parts controlled thereby are restored to the normal position by a coiled spring 42, which surrounds the rock-shaft 31 and is connected at one end
35 to the platen-frame, as indicated at 43, and at its opposite end is secured in an opening 44 in the hub 35, thus tending to turn the rock-shaft in the direction of the arrow indicated in Fig. 2.

40 The upper end of the carrier 30 has a line-spacing pawl 45 pivoted thereto at 46, and this pawl is situated so that it may be brought into engagement with the crown-teeth 11 on the rear half of the line-spacing wheel 10, as
45 indicated in Fig. 1. The pawl 45 is bifurcated at 47, so as to provide two arms 48 and 49, that receive the crank arm or finger 37, and so as to provide, in effect, an interlocking connection between the line-spacing pawl and the
50 finger-piece 33 for actuating it. This connection is such that the crank arm or finger 37 is oppositely disposed to the bifurcated portion and swings in the same plane as and will cooperate with the arms 48 and 49 on the
55 pawl to positively turn the pawl around its pivot 46 on the carrier and into and out of engagement with the teeth on the ratchet-wheel. The lower end portion of the line-spacing pawl is provided with a shoulder or
60 abutment 50, that cooperates with a fixed pin or stop 51, which projects from the platen-frame, and when the pawl has reached the limit of its feed movement, as indicated in Fig. 8, the shoulder 50 will be brought into
65 contact with the stop 51 and will arrest the

further feed movement and at the same time will maintain the pawl in contact with the teeth of the line-spacing ratchet-wheel, so as to prevent an overthrow of the wheel and platen. A leaf-spring 52 is secured by a
70 screw 53 and carries at its free end the usual detent-roller 54, which bears against the teeth of the line-spacing ratchet-wheel.

In the operation of the device the controlling device is first set in the proper position
75 for affording a line-feed of one, two, or three teeth of the ratchet-wheel by a forward pull upon the finger-piece or head 20, thus releasing the end 23 of the locking-pawl from the depression in which it is seated and then turn-
80 ing the depending arm 16 of the sleeve connected thereto in order to place the arm and sleeve in proper position, and the tension of the spring 22 will force the bolt 19 into one of the openings 24, 25, or 26, depending upon
85 the position to which the arm 16 has been adjusted. If, for instance, the locking-pin is situated in the recess 26, then the parts will normally be in the position indicated in Fig. 7. The initial portion of the movement of
90 the finger-piece 33 in the direction of the arrow as this time will cause a movement of the crank arm or finger 37, which is effective to turn it positively on its pivot 46, so as to bring the end of the pawl into engagement with the
95 proper tooth on the line-spacing ratchet-wheel 11. During this initial movement of the finger-piece 33 the carrier 30 will remain at rest by reason of the tension of the spring 39 exerted thereon. When, however, the line-
100 spacing pawl is brought into engagement with a tooth of the ratchet-wheel, a continued pressure exerted upon the finger-piece 33 will cause the line-spacing pawl, the ratchet-wheel, and the carrier 30 to move together to effect
105 a line-spacing movement of the platen. This simultaneous movement of the parts will continue until the shoulder 50 on the pawl has been brought into engagement and arrested by the pin or stop 51. As soon as pressure
110 is released upon the finger-piece 33 the spring 42 restores the finger-piece to its initial position, and at the first portion of this return movement the crank arm or finger 37 will be brought into contact with the arm 49
115 on the pawl, thus throwing the pawl out of engagement with the teeth on the ratchet-wheel and simultaneously turning the carrier back to the initial position. It will be observed that the motion which is communicated
120 to the carrier 30 is exerted through the crank arm or finger 37 by the direct action thereof upon the line-spacing pawl, and the limit of the movement of the carrier is determined by the
125 lug 29 in its movement in the slot 28, which lug and slot constitute a lost-motion connection between the carrier and the sleeve 13.

From the foregoing description it will be understood that the line-spacing device is positive in its action and that the line-spacing
130

pawl is positively forced into engagement with the teeth of the ratchet-wheel at the initial portion of the feed movement and is positively withdrawn from contact with the teeth during the return movement of the pawl to its normal position.

Various changes may be made without departing from the spirit of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel connected thereto, a pivoted spring-restored carrier, a line-spacing pawl pivoted to said carrier, a finger-piece, a connection between said finger-piece and pawl, a lost-motion connection between said finger-piece and carrier, an independent spring for normally maintaining a fixed relation between the finger-piece and carrier, and means associated with the carrier for determining the normal position thereof.

2. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel connected thereto, a pivoted carrier, a pawl movably connected to said carrier, a finger-piece, means controlled by said finger-piece and including a lost-motion connection for first positively moving the pawl on its carrier and into engagement with the line-spacing ratchet-wheel and for then moving the pawl, line-spacing ratchet-wheel and carrier together, a spring for normally maintaining a fixed relation between said finger-piece and carrier, adjustable means for changing the initial position of said carrier, and a fixed stop with which the pawl is brought into direct engagement at the last portion of its stroke for limiting the feed movement of said pawl, and for holding it in engagement with the line-spacing wheel to prevent an overthrow of the platen.

3. In a type-writing machine, the combination of a platen, a platen-frame, a line-spacing ratchet-wheel connected to said platen, a line-spacing pawl, a movable carrier to which said pawl is movably connected, a rock-shaft that turns in bearings on the platen-frame, a finger-piece connected to said rock-shaft near one end thereof, a crank arm or finger connected to said rock-shaft near the other end thereof and directly connected to said pawl to positively move the pawl into engagement with the teeth of the line-spacing ratchet-wheel.

4. In a type-writing machine, the combination of a platen, a platen-frame, a line-spacing ratchet-wheel connected to said platen, a line-spacing pawl, a movable carrier to which said pawl is movably connected, a controlling device for said carrier, a lost-motion connection between said carrier and controlling device, a rock-shaft that turns in bearings on the platen-frame, a finger-piece connected to said rock-shaft, a crank arm or finger connected

to said rock-shaft and directly connected to said pawl to first positively move the pawl into engagement with the teeth of the line-spacing ratchet-wheel and then afford a movement of the pawl, line-spacing wheel and carrier together.

5. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel connected to said platen, a cooperating line-spacing pawl, a carrier to which said pawl is movably connected, a sleeve, means for adjusting said sleeve, a lost-motion connection between said carrier and sleeve, a finger-piece and operative connections between said finger-piece and pawl, whereby the pawl will first be moved on its carrier and then the pawl, line-spacing wheel and carrier will be moved together.

6. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel connected to said platen, a cooperating line-spacing pawl, a carrier to which said pawl is movably connected, a sleeve, means for adjusting said sleeve, a lost-motion connection between said carrier and sleeve, a rock-shaft, a hand-actuated finger-piece carried thereby, and a crank-finger carried by said shaft and directly engaging said pawl.

7. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel connected to said platen, a cooperating line-spacing pawl, a carrier to which said pawl is movably connected, a sleeve, means for adjusting said sleeve, a lost-motion connection between said carrier and sleeve, a rock-shaft journaled in said sleeve, a hand-actuated finger-piece on said rock-shaft, and a crank arm or finger on the rock-shaft that is received within a recess in the pawl and is effective to positively move the pawl into and out of engagement with the teeth of the line-spacing ratchet-wheel.

8. In a type-writing machine, the combination of a platen, a platen-frame, a line-spacing ratchet-wheel connected to the platen, a sleeve that is adapted to turn in a bearing in the platen-frame, a rock-shaft journaled in said sleeve, means for retaining said sleeve in any of its adjusted positions in its bearing, a line-spacing pawl, a carrier to which said pawl is movably connected, a lost-motion connection between said sleeve and carrier, a hand-actuated finger-piece connected to said shaft, and an actuating crank-finger fixed to said shaft and cooperating directly with said pawl.

9. In a type-writing machine, the combination of a platen, a platen-frame, a line-spacing ratchet-wheel connected to the platen, a sleeve that is adapted to turn in a bearing in the platen-frame, a rock-shaft journaled in said sleeve, a spring for restoring said shaft to normal position, means for retaining said sleeve in any of its adjusted positions in its bearing, a line-spacing pawl, a carrier to which said pawl is movably connected, a lost-mo-

tion connection between said sleeve and carrier, an independent spring which normally maintains a fixed relation between said shaft and carrier, a hand-actuated finger-piece connected to said shaft, an actuating crank-finger fixed to said shaft and coöperating directly with said pawl to positively move it into and out of engagement with the teeth of the line-spacing ratchet-wheel.

10 10. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel connected thereto, a pivoted carrier, a line-spacing pawl movably mounted on said carrier, and a hand-operated pivoted actuating device that is oppositely disposed to said pawl and swings in the same plane, one of said actuating device and pawl members being bifurcated to receive the other.

11. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel connected thereto, a pivoted carrier, a line-spacing pawl pivoted to the carrier, means for positively moving the pawl into engagement with the line-spacing wheel, and adjustable means associated with said carrier, to determine the initial position of the pawl with reference to the carrier and to determine the extent of line-space movement of the platen.

12. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel connected thereto, a pivotal carrier, a regulating device for determining the normal position of said carrier, a lost-motion connection between the carrier and said regulating device, a pawl pivoted to said carrier, a spring-restored finger-piece positively connected to said pawl to positively turn it on its carrier in both directions to positively move the pawl through said connection into and out of engagement with the teeth of the line-spacing wheel, and a spring for normally maintaining a fixed relation between said pawl and carrier.

13. In a type-writing machine, the combina-

tion of a platen, a line-spacing ratchet-wheel connected thereto, a pivotal carrier, a regulating device for determining the normal position of said carrier, a lost-motion connection between the carrier and said regulating device, a pawl pivoted to said carrier, a spring-restored finger-piece positively connected to said pawl to positively turn it on its carrier in both directions to positively move the pawl through said connection into and out of engagement with the teeth of the line-spacing wheel, a spring for normally maintaining a fixed relation between said pawl and carrier, and a fixed stop with which the pawl coöperates at the termination of its feed movement to hold the pawl in engagement with the teeth of the line-spacing wheel and prevent an overthrow of said wheel and platen.

14. In a type-writing machine, the combination of a platen, a line-spacing ratchet-wheel connected thereto, a pivotal carrier, a regulating device for determining the normal position of said carrier, a lost-motion connection between the carrier and said regulating device, a pawl pivoted to said carrier, a rock-shaft that extends fore and aft of the machine, a finger-piece connected to said rock-shaft, a crank-finger connected to said shaft and positively connected to the pawl to positively move it in both directions and into and out of engagement with the teeth of said wheel, a spring for restoring the shaft to normal position and an independent spring for normally maintaining a fixed relation between the finger-piece and carrier.

Signed at Syracuse, in the county of Onondaga and State of New York, this 8th day of February, A. D. 1904.

HENRY W. MERRITT.

Witnesses:

JOHN W. LYNCH,
GILES B. EVERSON.