

No. 891,274.

PATENTED JUNE 23, 1908.

O. A. LUCE & J. C. N. RICHARDS.
CARRIAGE SHIFT AND PLATEN ROTATOR.

APPLICATION FILED JAN. 31, 1908.

4 SHEETS—SHEET 1.

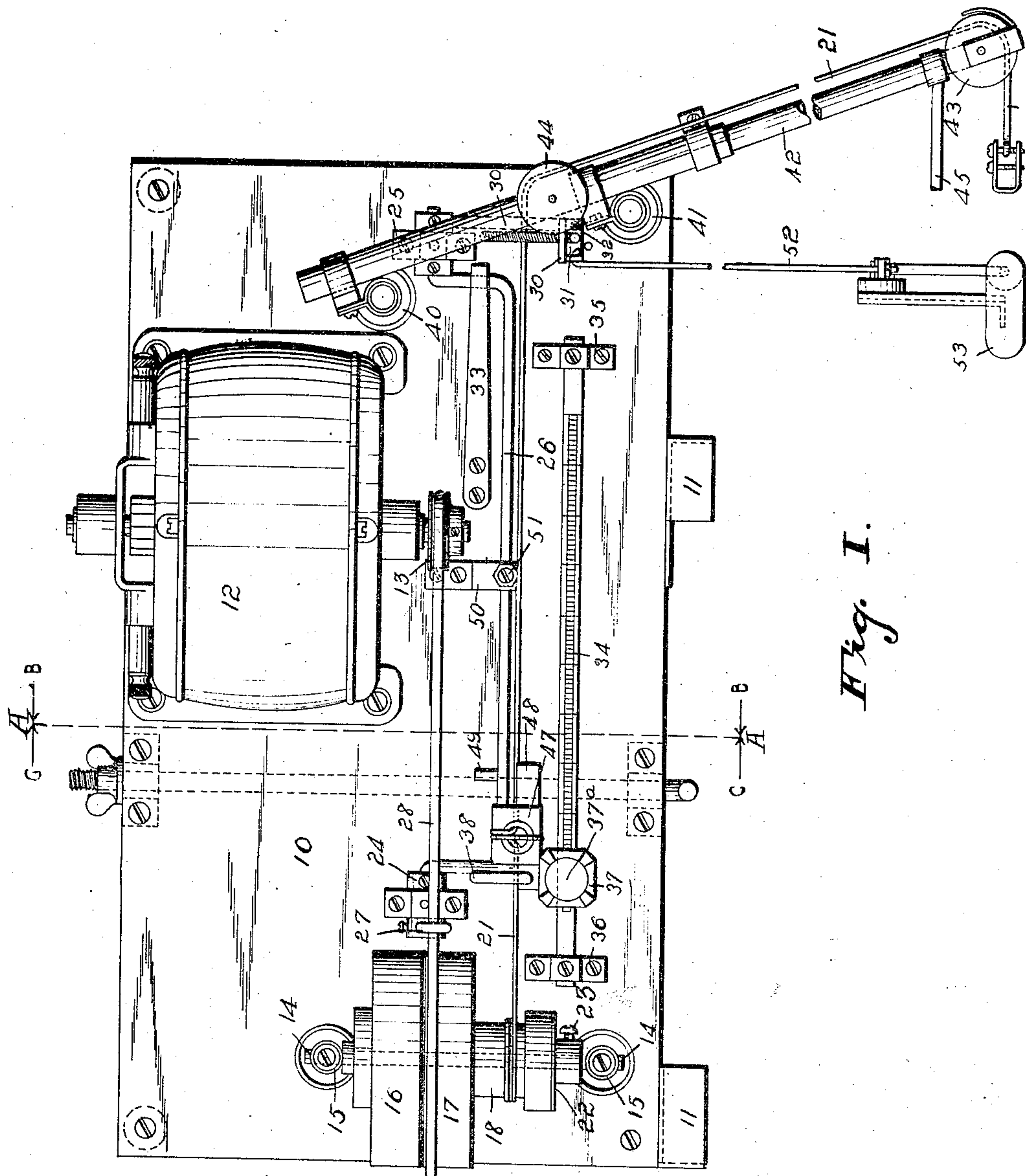


Fig. 1.

Witnesses.

Blanche Sedgwick
J. L. Porter

Inventors.

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J. C. Norman Richards
Jell S. Roe Atty.

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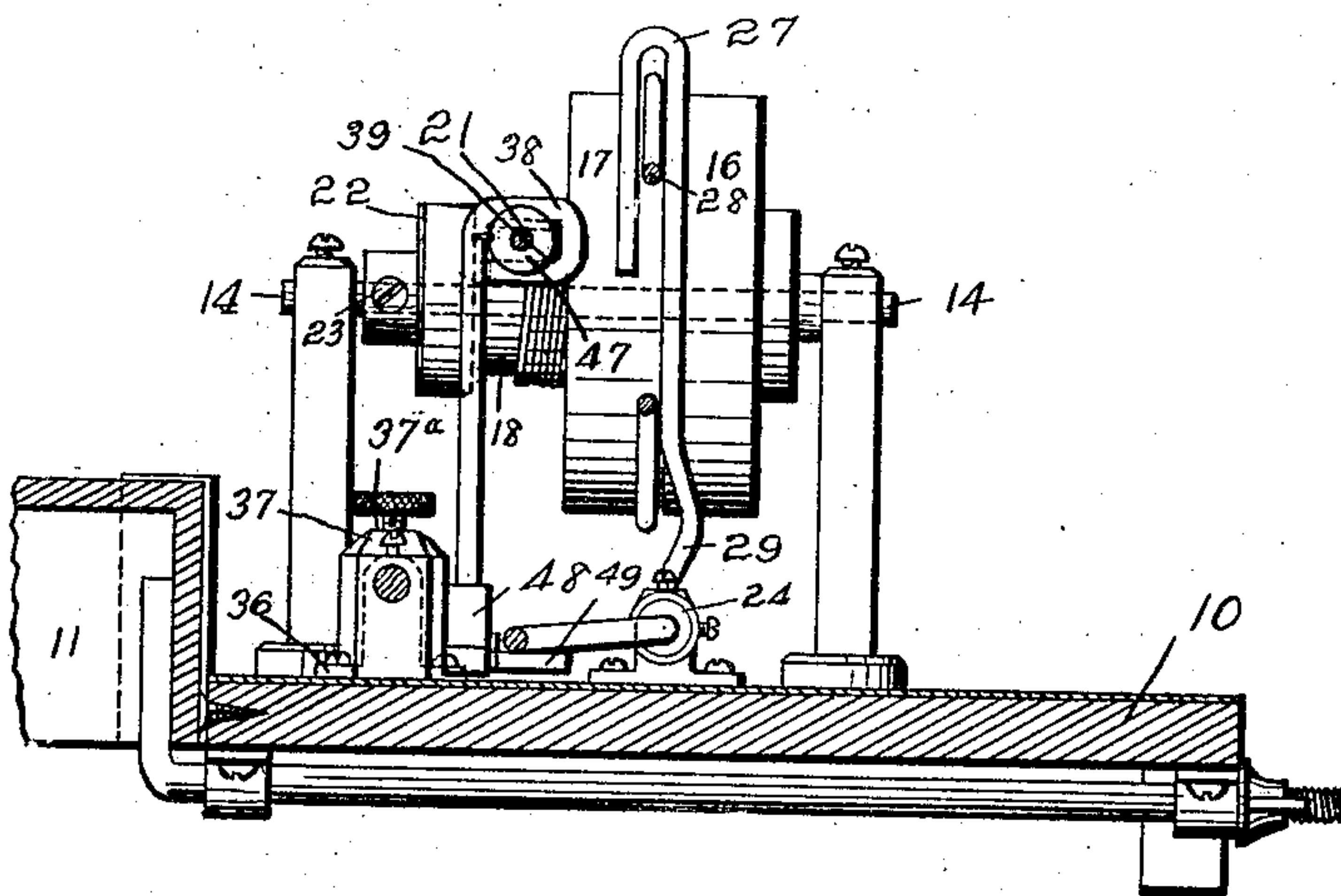


Fig. II.

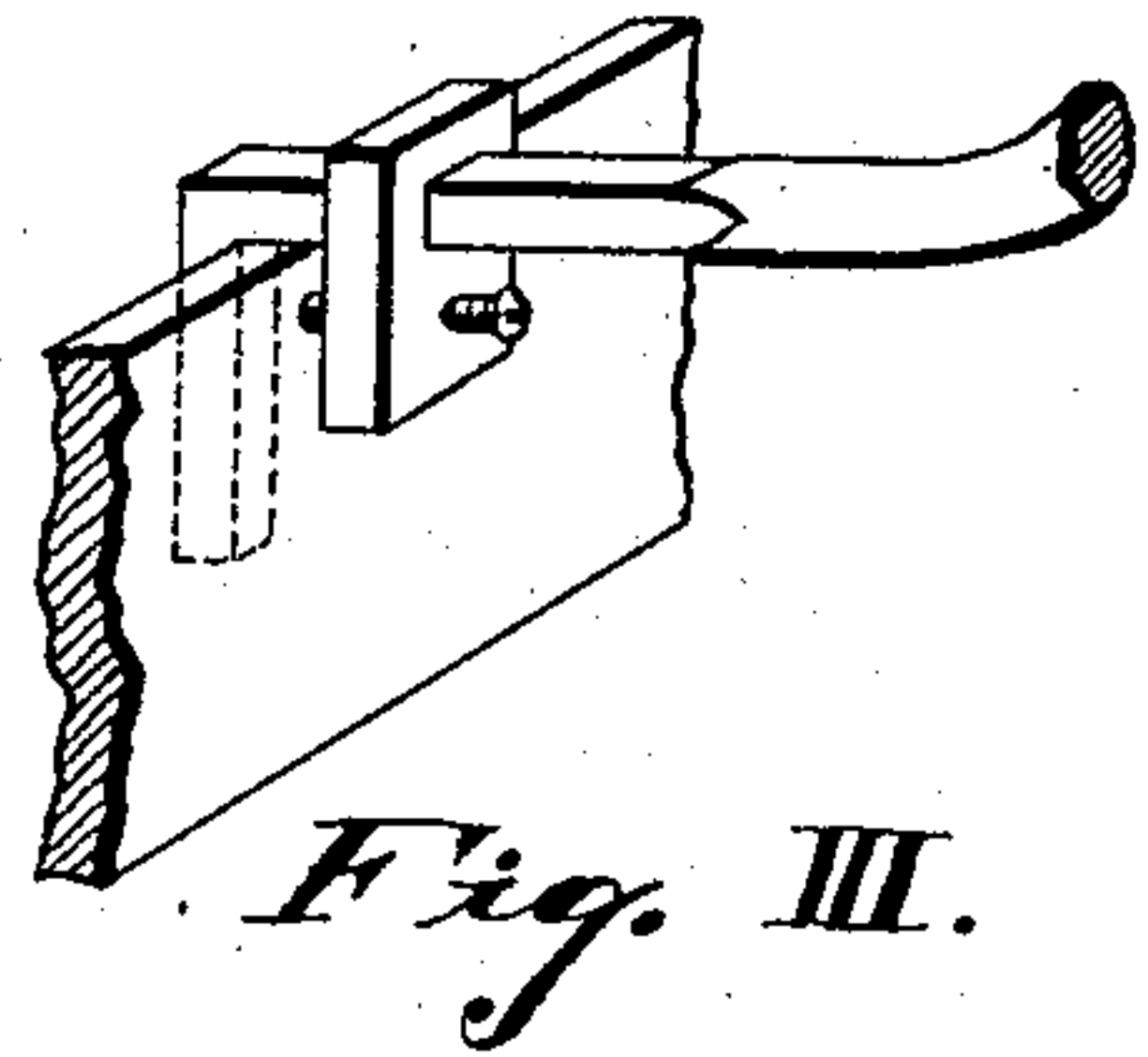


Fig. III.

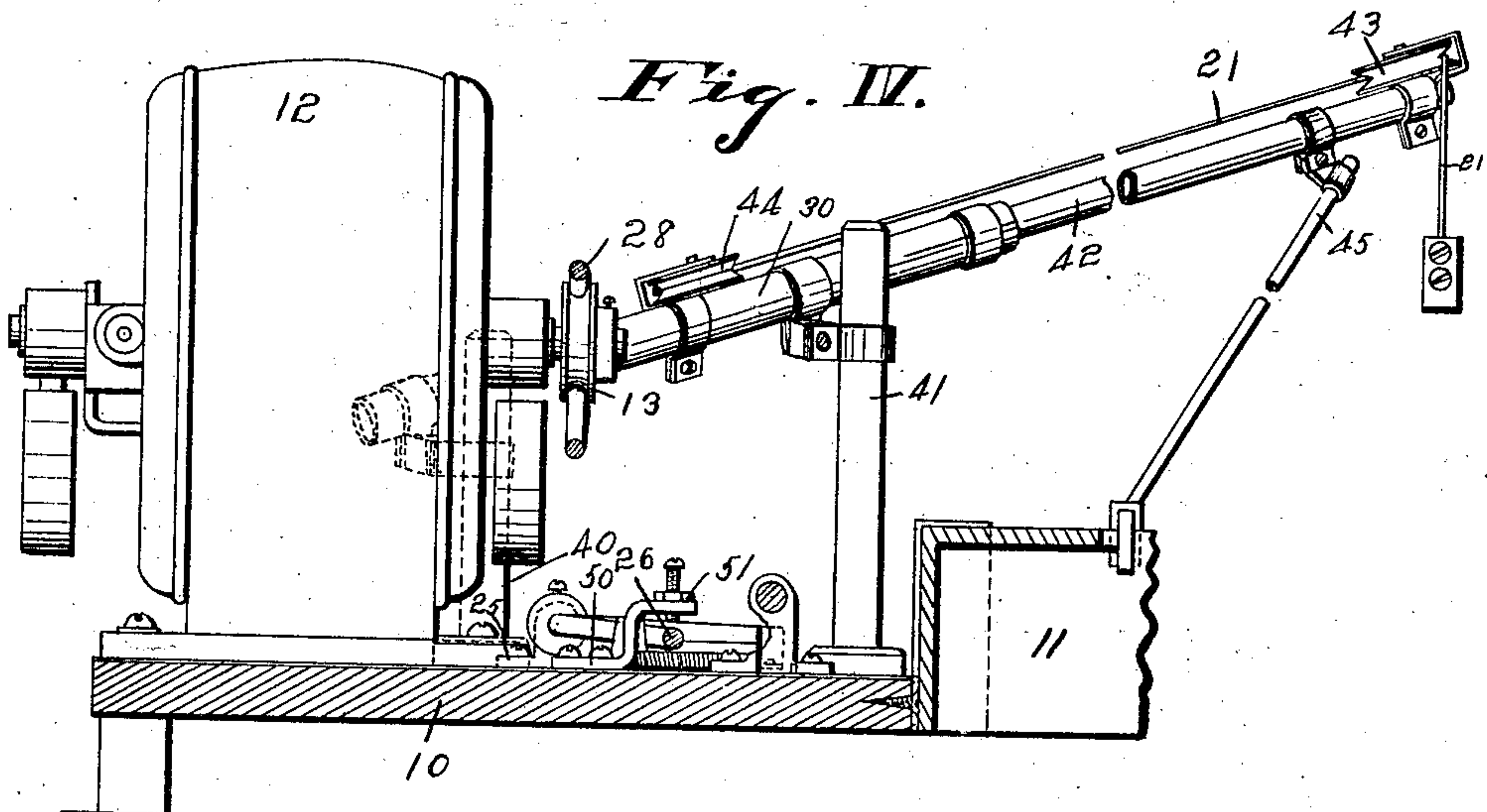


Fig. IV.

Witnesses.
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4 SHEETS—SHEET 3.

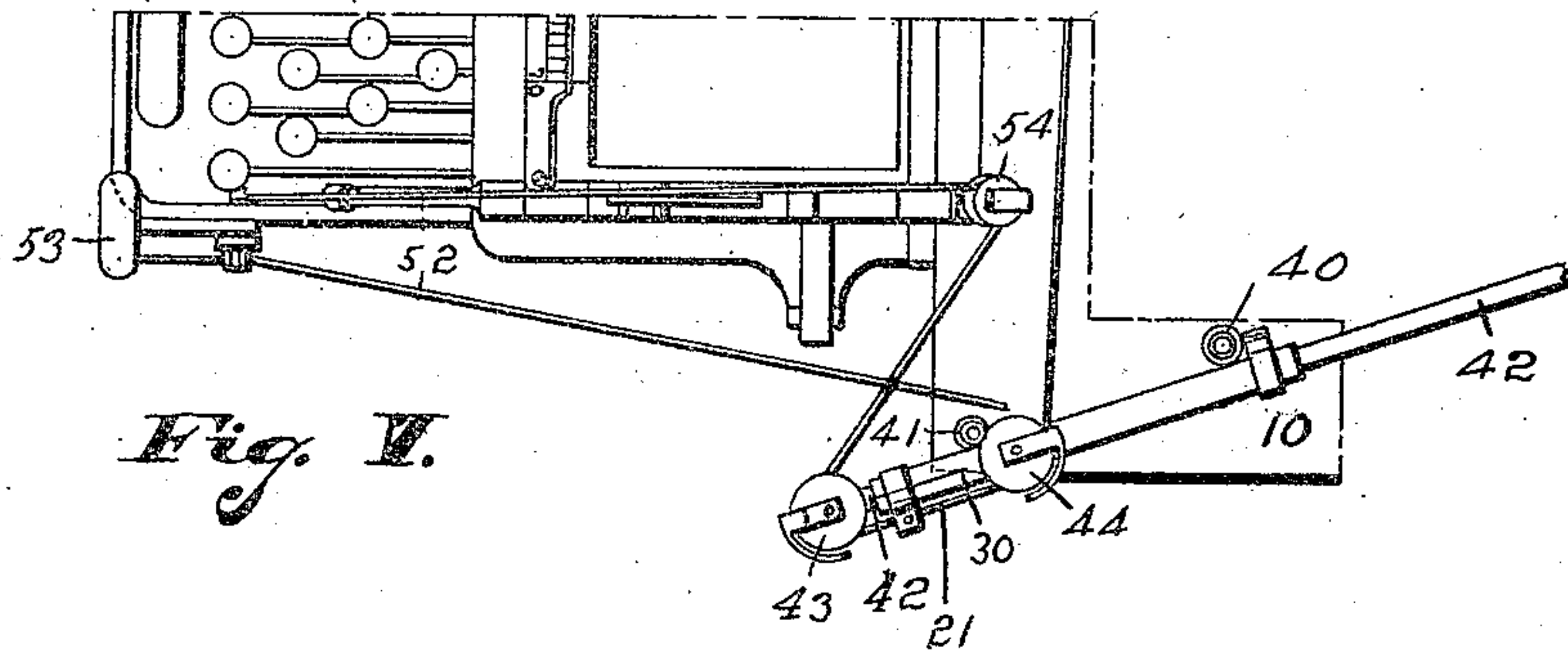


Fig. V.

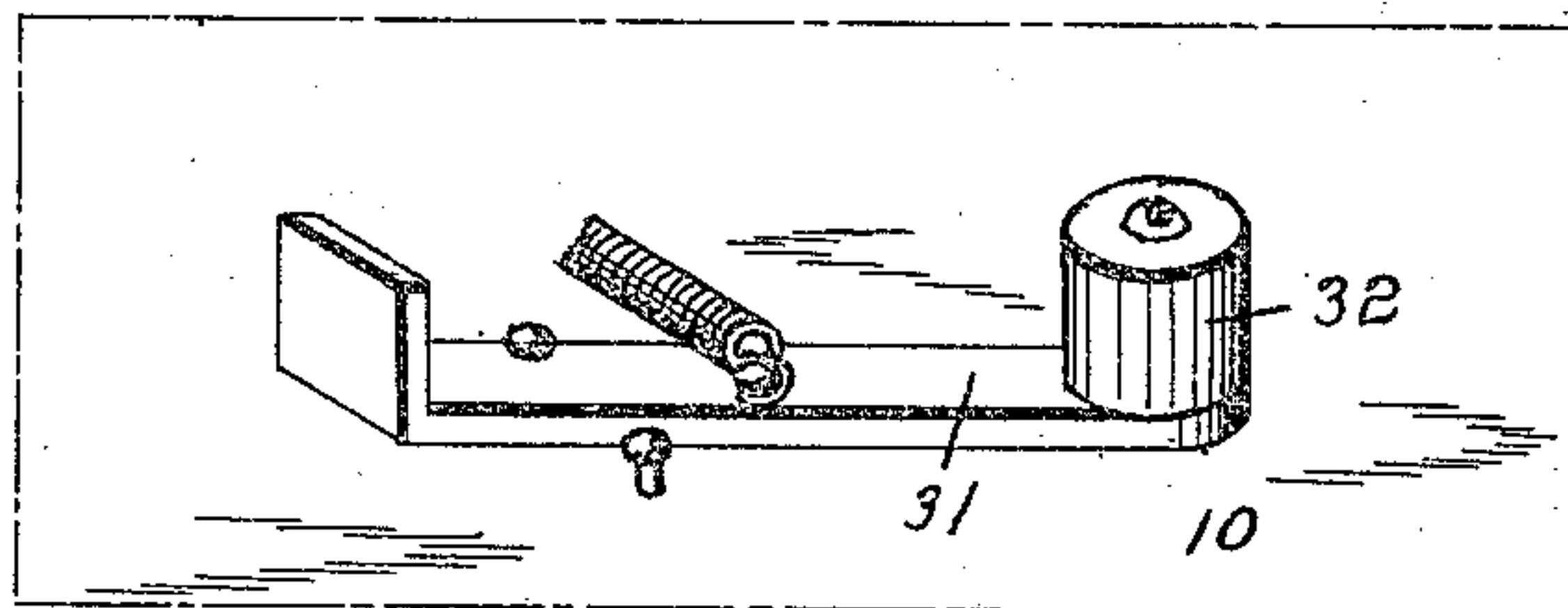


Fig. XI.

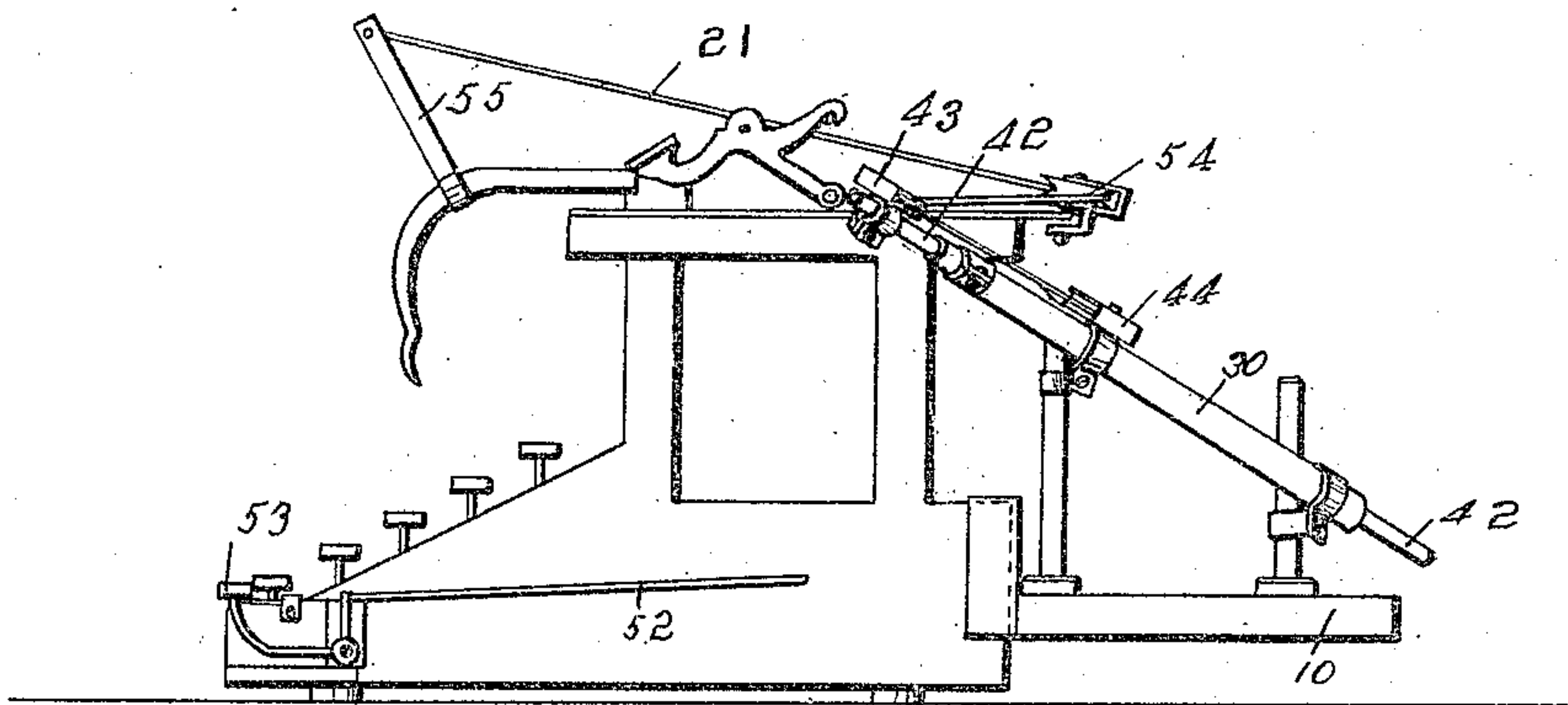


Fig. VI.

Witnesses.

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4 SHEETS—SHEET 4.

Fig. VII.

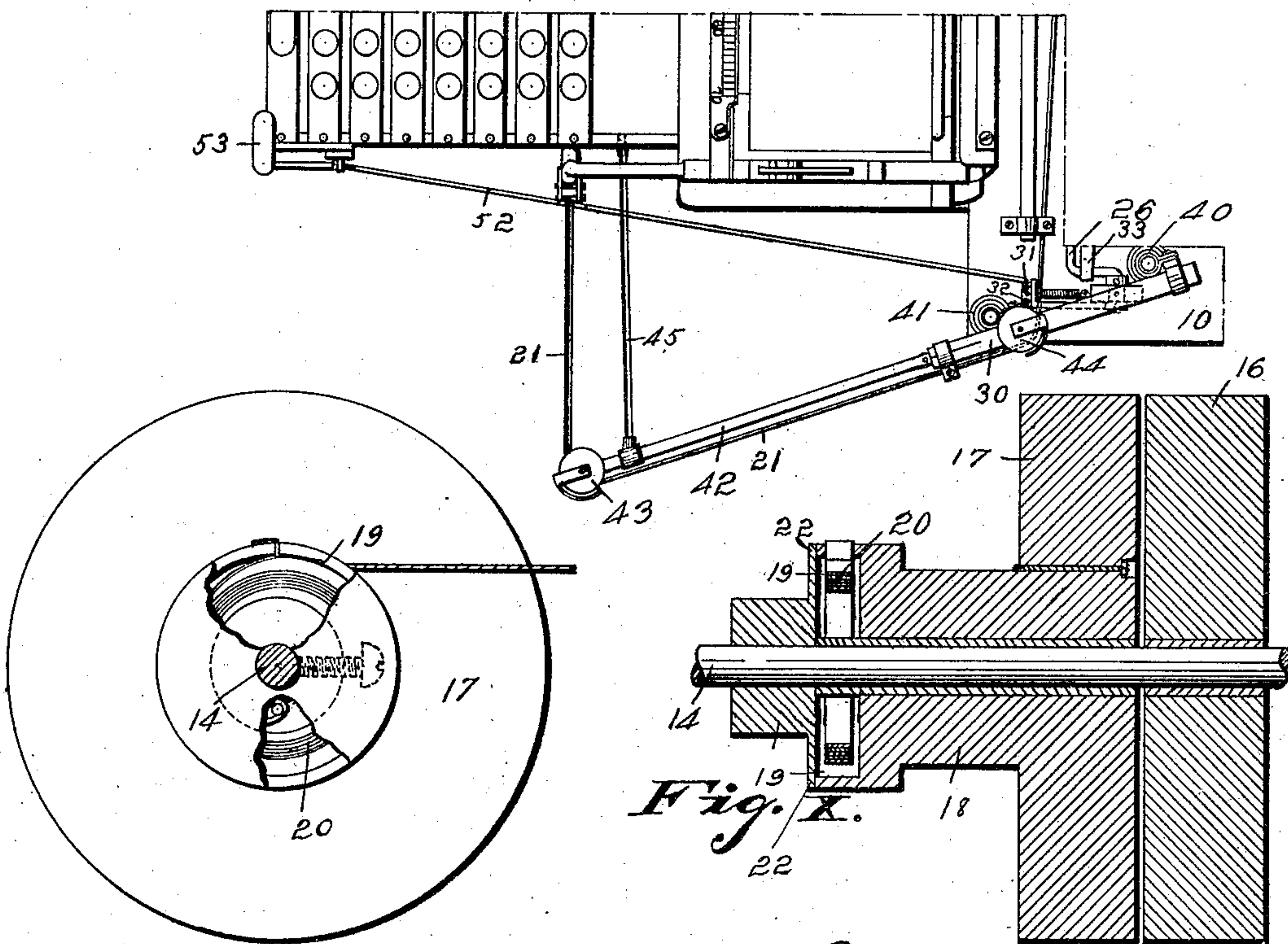


Fig. IX.

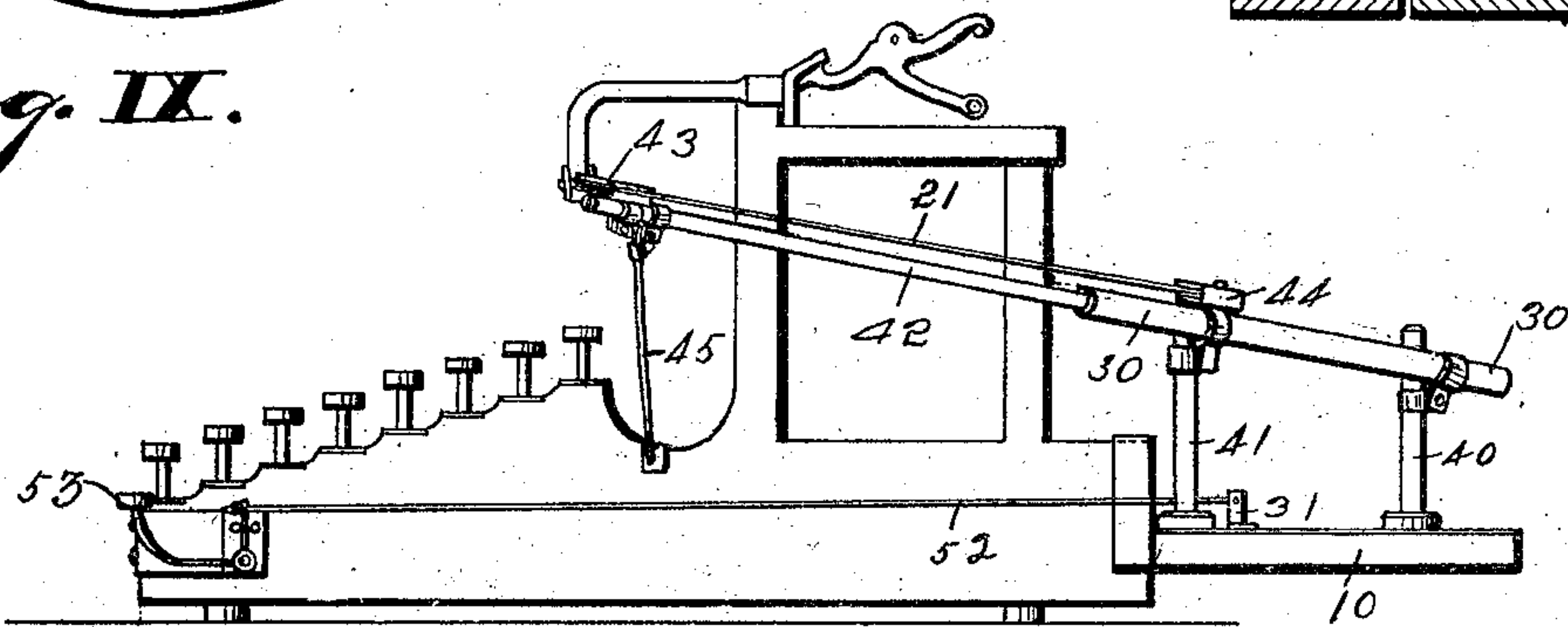


Fig. VIII.

Witnesses.
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UNITED STATES PATENT OFFICE.

OTIS A. LUCE AND JOHN C. NORMAN RICHARDS, OF DES MOINES, IOWA.

CARRIAGE-SHIFT AND PLATEN-ROTATOR.

No. 891,274.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed January 31, 1908. Serial No. 413,571.

To all whom it may concern:

Be it known that we, OTIS A. LUCE and JOHN C. NORMAN RICHARDS, citizens of the United States, residing in Des Moines, county of Polk, and State of Iowa, have invented a new and useful Improvement in Carriage-Shifts and Platen-Rotators, of which the following is a specification.

The object of our invention is to provide a means which, upon the pushing of a shift key, will cause the carriage of a typewriting machine to be rapidly conveyed to the starting position and to at the same time turn the roller so that the paper will be in proper position to receive the type for writing a new line.

A further object is to provide such a means in a simple, strong, durable and practically inexpensive construction adapted to be secured to any of the standard makes of typewriting machines.

Another object is to provide such a means which may be employed for operating a series of machines from one motive power.

Our invention consists of certain details of construction hereinafter set forth, pointed out in our claims, and illustrated in the accompanying drawings, in which

Figure I shows a plan view of our attachment; Fig. II shows a sectional view taken on the line *a-a*, looking in the direction of the arrows *b-b*; Fig. III shows a detail view of one of the clamping members we employ; Fig. IV shows a sectional view taken on the line *a-a*, looking in the direction of the arrows *c-c*; Fig. V shows a portion of a plan view of a Remington typewriter and a portion of our device secured thereto; Fig. VI shows a side elevation view of the same; Fig. VII shows a portion of a plan view of a Smith Premier typewriter and a portion of our device secured thereto; Fig. VIII shows a side elevation view of the same; Fig. IX shows a side elevation view of a belt wheel and drum we employ; Fig. X shows a transverse sectional view of the belt wheel we employ; and Fig. XI shows a detail view of a pivotally mounted lever we employ.

Referring to the accompanying drawings the reference numeral 10 is used to indicate a platform provided with a means 11 to secure it to the back of a typewriter and to this platform the major portion of our device is mounted. The said platform is so constructed that, when properly secured to a machine, one lateral side thereof is in line with its respective side of the writing ma-

chine and the other lateral side projects beyond its respective side of the machine. On the rear of the platform 10 is anchored a motor 12, provided with a belt wheel 13 on its forward portion, and this motor is designed to furnish all the power by which our device is operated. Mounted near that end of the platform 10 which is in line with one side of the writing machine, is a shaft 14 having its bearings in standards 15 said shaft being parallel with the shaft of the motor 12, on which the belt wheel 13 is secured, and on said shaft 14 is mounted a loose belt wheel 16 and in close proximity thereto a second belt wheel 17 which is rigidly secured to a drum 18 both of which are loosely secured to the said shaft. The said drum is provided with a chamber 19 in which a spring 20 is secured, which is designed to provide a tension and to take up slack in a cable 21 secured to the said drum as will be hereinafter explained.

The numeral 22 indicates a plate mounted on the shaft 14 and designed to fit flush with the outer surface of the drum 18 and provide a covering for the chamber 19, and to said plate one end of the spring 20 is secured. The said plate is adjustable on the said shaft by means of a set screw 23, as shown, and it is obvious that the adjusting of this plate on the said shaft will loosen or tighten the tension of the spring 20.

Secured on the platform 10, and in line with the division point between the belt wheels 16 and 17, are two bearings 24 and 25, one being immediately in front of the said belt wheels and the other being near the opposite end of the said platform, and mounted in said bearings is a lever 26 its central portion being bent outwardly and projected toward the writing machine. Each end of said lever projects through its respective bearing and on the end of the lever nearest the belt wheels 16 and 17 is mounted an upwardly extending guide lever 27, formed by a rod projecting upwardly to a point above the plane of the aforesaid belt wheels and then curving back and its end projecting downwardly to a point in line with the shaft 14, and within the two arms of the said rod the belt 28, connecting the belt wheel 13 and the belt wheels 16 and 17, is designed to travel. The space between the two arms is designed to be merely sufficient to admit of the passage of the said belt, and the lower extremity of the said lever is curved as shown at 29. The said lever in its normal position is resting in front of the

division between the belt wheels 16 and 17 but the guide is causing the belt to travel on the wheel 16 and, as hereinbefore stated, 16 is a loose wheel and thus it is obvious that the belt is now merely idling. By an operation hereinafter explained, it will be shown how the guide lever is projected forwardly causing the belt to be shifted from the wheel 16 to the wheel 17. Secured to the other extremity of the lever 26 is a forwardly projecting lever 30, provided with an elbow at its forward extremity, and the numeral 31 indicates a lever, mounted for radial movement from its bearing 32, secured to the platform 10 said lever 31 having an upwardly projecting lug at its forward extremity, which is designed to engage the under portion of the lever 30 and provide a support therefor. The said lever 31 is provided with a tension spring, preferably a coil spring, which is secured in the platform 10 and designed to pull said lever toward and under the forward extremity of the lever 30 when the said lever is raised. The numeral 33 indicates a leaf spring secured to said platform its outer end engaging the forwardly curved portion of the lever 26 and designed to create a pressure adapted to push the forward portion of said lever downwardly and thus rotate, for a limited distance, the ends of the said lever in their respective bearings. It is obvious, however, that this is impossible while the lever 31 is engaging the under portion of the lever 30 but it is equally obvious that if the lever 31 is removed from contact with the lever 30 the ends of the lever 26 will be rotated, as described.

The numeral 34 indicates a scale bar, scored to correspond to the scorings on the scale bar of the machine, said scale bar being mounted parallel with, and near the forward part of, the platform 10, in bearings 35 and 36. The said scale bar is also, by construction, at right angles to the shaft 14. Mounted for longitudinal movement on the bar 34 is a lug 37 provided with a set screw 37^a and by this means the lug is adjusted on the bar. Pivotaly secured, for radial movement, to the lug 37 is an arm 38 projecting upwardly to a point slightly above the plane of the drum 18 and in the upper extremity of said arm is an orifice 39 and through said orifice the cable secured to the drum is threaded. By construction the arm 38 is in line with the drum 18.

Near the protruding end of the platform 10 and extending upwardly therefrom are two standards 40 and 41 the forward standard 41 being nearest the lateral edge of the platform, and adjustably secured to these standards, in such a manner that its position may be raised or lowered thereon, is a forwardly projecting arm 42. This arm is composed of two or more telescoping members which, obviously, makes it capable of being extended or shortened. At the forward extremity of said arm

is secured a pulley 43 and on the rear member of said arm, and in line with the upwardly projecting arm 38, is a second pulley 44.

The numeral 45 indicates a brace rod secured to the outer member of the extension arm and from thence to the writing machine and designed as a support for the said arm.

By construction the pulley on the outer end of the extension arm is designed to be in line with, and slightly above the plane of, the spacing lever of the writing machine, providing said machine is of a style similar to the Smith Premier machine in common use and a cable, or small chain 21, is secured to the said spacing lever and then threaded through the pulleys 43 and 44 and the orifice 39 and wound around and secured to the drum 18. A lug 47 is secured to the cable 21 at such a point as will cause it to come in contact with the arm 38 when the carriage of the machine has reached its limit of movement in its return. Projecting outwardly from the base of the lever 38 is an arm 48 provided with an elbow 49 and in normal position said arm and elbow are resting on the surface of the platform 10, the elbow under the lever 26, but when the upper portion of the lever 38 is forced toward the drum the elbow on the arm 48 is designed to come in contact with the under surface of the lever 26 and force it upwardly.

The numeral 50 indicates a lug secured to the platform 10 and projecting over the lever 26 said lug being provided with a set screw 51 located immediately over the central portion of the said lever, as shown, and this is designed to serve as a buffer to determine the upward limit of movement of said lever.

The numeral 52 indicates a rod, its rear end secured in the lug on the lever 31, designed to extend forwardly to the front portion of the machine its outer end being attached to a shift key 53, secured to the frame of the typewriter, as shown, and a downward movement of the said shift key is designed to cause said rod 52 to move forwardly thus forcing the supporting lug on the lever 31 from under the lever 30. From the construction of the parts, as described, it is obvious that the spring 33 will then press the lever 26 downwardly and rotate, to a slight degree, the ends of the said lever and it is equally obvious that this will change the position of the guide lever 27, with relation to the belt wheels 16 and 17, and cause the belt to be shifted from the idler 16 to the operating wheel 17. As this wheel operates the drum 18 it is obvious that the drum will be rotated thus rolling up the cable 21 until the lug 47 comes in contact with, and moves, the arm 38 which will cause the elbow 49 on the arm 48 to force the lever 26 upwardly and obviously moves the guide lever 27 and shifts the belt to the idler 16. It is equally obvious that as said lever 26 moves upwardly, as

described, the outer end of the lever 30 will move upwardly and the lever 31 actuated by its spring will again be forced backward and its lug engage the under portion of the lever 30. The parts of our device are so constructed that when the carriage of the machine has reached its limit of movement in the return shift the cable will be pulled a trifle further thus obviously moving and operating the spacing lever on the machine and when the shift of the belt from the belt wheel 17 to the idler 16 has been accomplished the spacing lever will be released.

The pulleys 43 and 44 are adjustably secured on the extension rod 42 and thus it is obvious that our device is adjustable at all important places and can be secured to any machine.

In applying our device to a machine of the Remington make, as illustrated in Figs. V and VI a small pulley 54 is mounted to the rear of the carriage on the side nearest the extension arm and an upwardly projecting arm 55 is secured to the spacing bar of the machine. The cable from the drum is then threaded through the said pulley and secured to the said arm. Thus it is obvious that a pull on the cable after the carriage has reached its limit of movement in the return will cause the spacing bar to be operated thus turning the roller.

It is also our intention to employ a small coil spring, to be mounted on the cable 21 at a point between the outer pulley and the end of the carriage of the typewriter, the function of the said spring being to provide a certain degree of elasticity so as to be adapted for operation regardless of the width of the line space, as adjusted on the machine.

Our device may be applied to a series of machines all being driven by one main belt from the motive power, said belt operating a counter shaft secured to the operating mechanism of each machine. The operating device of each machine is, obviously, provided with its individual belt as herein described.

Having thus described our invention what we claim and desire to secure by Letters Patent of the United States is:—

1. In a carriage return shift and line spacer for writing machines the combination of a driven belt designed to engage and operate a loose belt wheel and a combination belt wheel and drum both mounted on the same shaft and means for shifting the belt from one belt wheel to the other; means for returning the carriage and spacing the lines by the operation of the said drum, substantially as shown and described.

2. In a carriage return shift and line spacer for writing machines the combination of two belt wheels mounted side by side on the same shaft and a drum connected with one of said wheels; a belt driven by a motor, designed to alternately drive said wheels; a lever,

provided with means for guiding the belt, located in front of said belt wheels; means for shifting said guide lever to cause the belt to be shifted from one belt wheel to the other and means for returning the carriage and spacing the lines by the rotating of one of said belt wheels, substantially as shown and described.

3. In a carriage return shift and line spacer for writing machines provided with two belt wheels, mounted on the same shaft, one of which is designed as an idler and one to operate the mechanism; a means to shift the driving belt from one of said belt wheels to the other, comprising an upwardly projecting guide lever immediately in front of said wheels the lower end of said lever being connected to, and designed to be operated by, a second U shaped lever mounted for limited rotary movement in its bearings; means to hold said second lever stationary to cause the belt to run on the idler and means to rotate said lever to a limited degree to cause said belt to be shifted to the belt wheel designed to operate the mechanism, substantially as shown and described.

4. In a carriage return shift and line spacer for writing machines employing a continually moving belt designed to be shifted from an idler to a mechanism operating belt wheel the combination of a U shaped lever mounted for a limited rotary movement in its bearings; a tension spring engaging said lever and creating a downward pressure thereon; a means to limit the upward movement of said lever; an arm projecting forwardly from one end of said lever its outer end being supported by a second lever; means for operating said second lever and withdrawing its support from said arm; a guide lever secured to the other extremity of said U shaped lever, substantially as shown and described.

5. In a carriage return shift and line spacer for typewriting machines driven by shifting a belt from an idler to a mechanism operating wheel, a means consisting of a combination of levers to shift said belt; a pivotally mounted spring actuated lever, and means for operating said spring actuated lever by a movement of a shift key in the key board of the typewriting machine, substantially as shown and described.

6. In a carriage return shift and line spacer for writing machines employing a continually moving belt designed to be shifted from an idler to a mechanism operating belt wheel, a lever designed to guide said belt; a U shaped lever designed to actuate said first lever; a leaf spring to provide a tension for said U shaped lever; an arm on one end of said U shaped lever; a pivotally mounted spring actuated lever designed as a support to said arm; an adjustable rod secured to said spring actuated pivotally mounted lever, said rod extending forwardly

to a connection with a shift key mounted on the front of the machine, said key being so constructed that the lowering of the key moves the rod forwardly, all arranged and combined substantially as shown and described.

7. In a carriage return shift and line spacer for writing machines employing a continually moving belt designed to be shifted from an idler to a mechanism operating belt wheel, means for causing said shift; a drum connected with the mechanism operating wheel; a cable on said drum its other end being connected to the spacing lever of the typewriting machine; a tension for said drum, substantially as shown and described.

8. In a carriage return shift and line spacer for writing machines employing a continually moving belt designed to be shifted from a mechanism operating belt wheel to an idler, the combination of a cable secured to the carriage and wound around said drum; an upwardly extending pivotally mounted arm, provided with an orifice through which said cable is threaded, a lug on said cable designed to engage the said arm and force it

backward; a lever secured on the base of said arm said lever being designed to engage and operate, when the said arm is forced backward, a combination of levers which in turn causes the said shift to take place, means for adjusting said arm to regulate the place to which the carriage will be returned, substantially as shown and described.

9. In a carriage return shift and line spacer for writing machines the combination of a drum operated by a belt wheel driven by a continually moving belt and means for shifting the belt from the drum belt wheel to an idler; a cable secured to said drum and threaded through an orifice in an arm and thence through pulleys in an extension arm to the line spacer of a typewriting machine; a lug on said cable designed to operate as a stop to operate mechanism to shift the belt from the belt wheel drum to an idler, substantially as shown and described.

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Witnesses:

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