

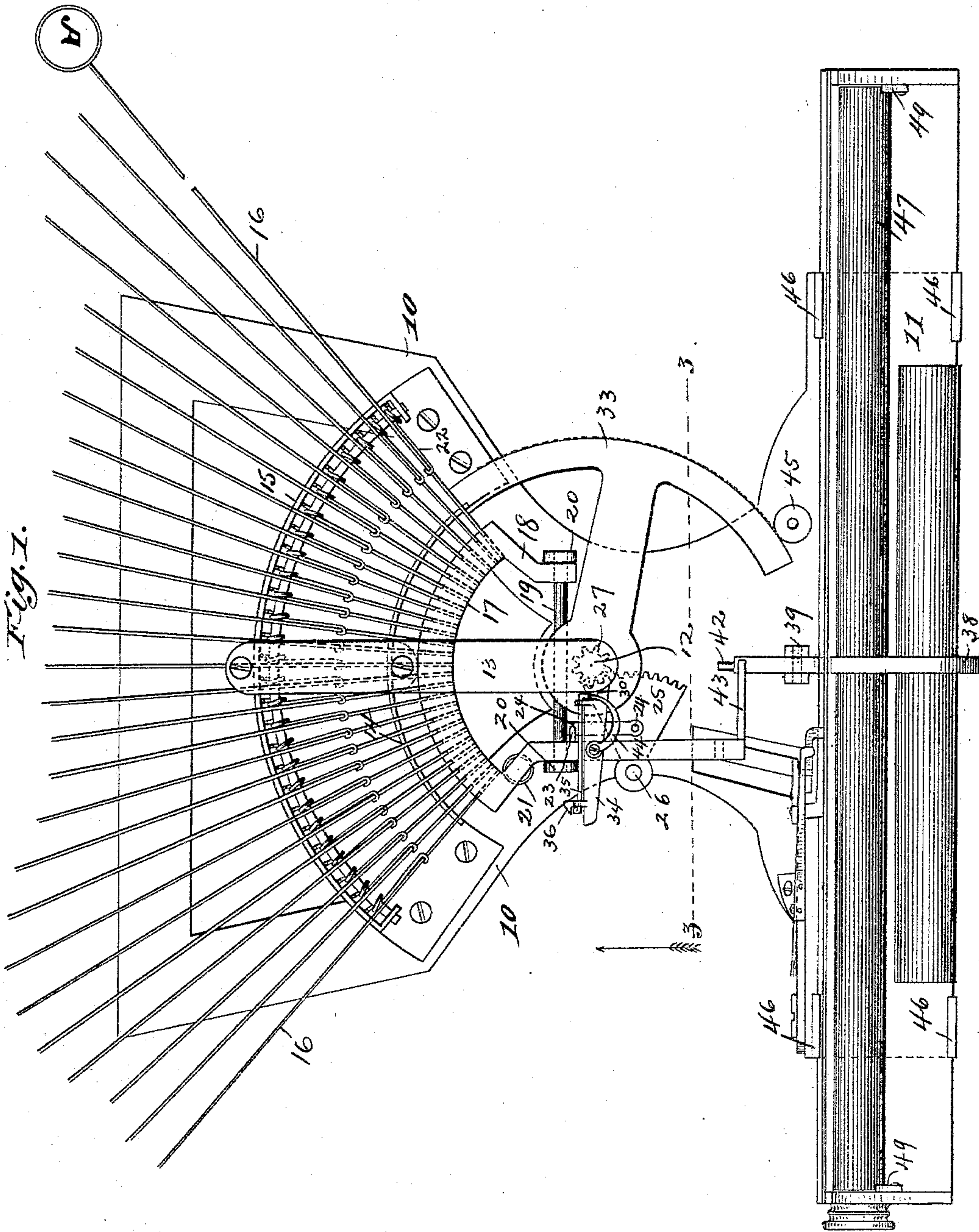
(No Model.)

4 Sheets—Sheet 1.

W. P. QUENTELL.
TYPE WRITING MACHINE.

No. 551,404.

Patented Dec. 17, 1895.



Witnesses,

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Frederick Goodrum

Inventor.

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(No Model.)

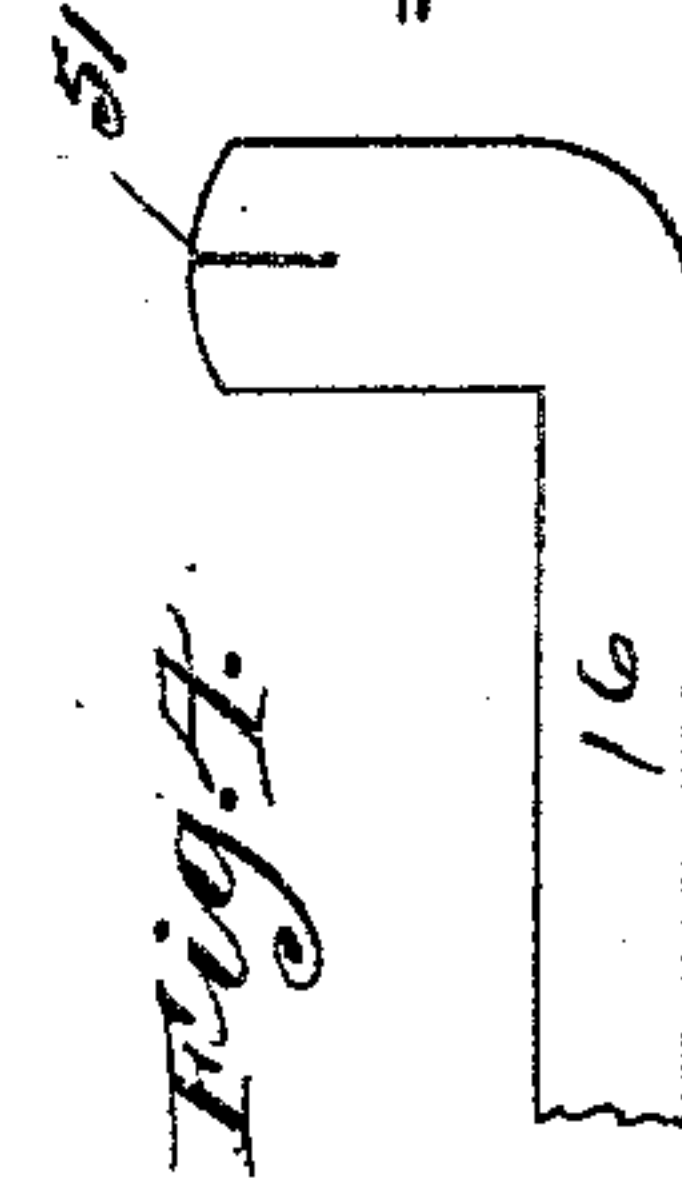
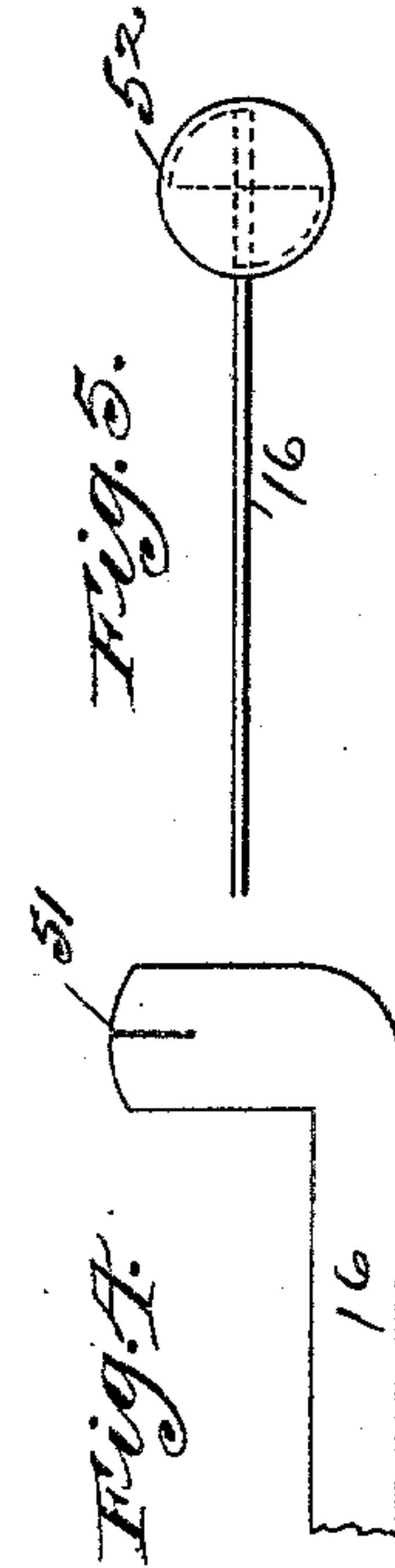
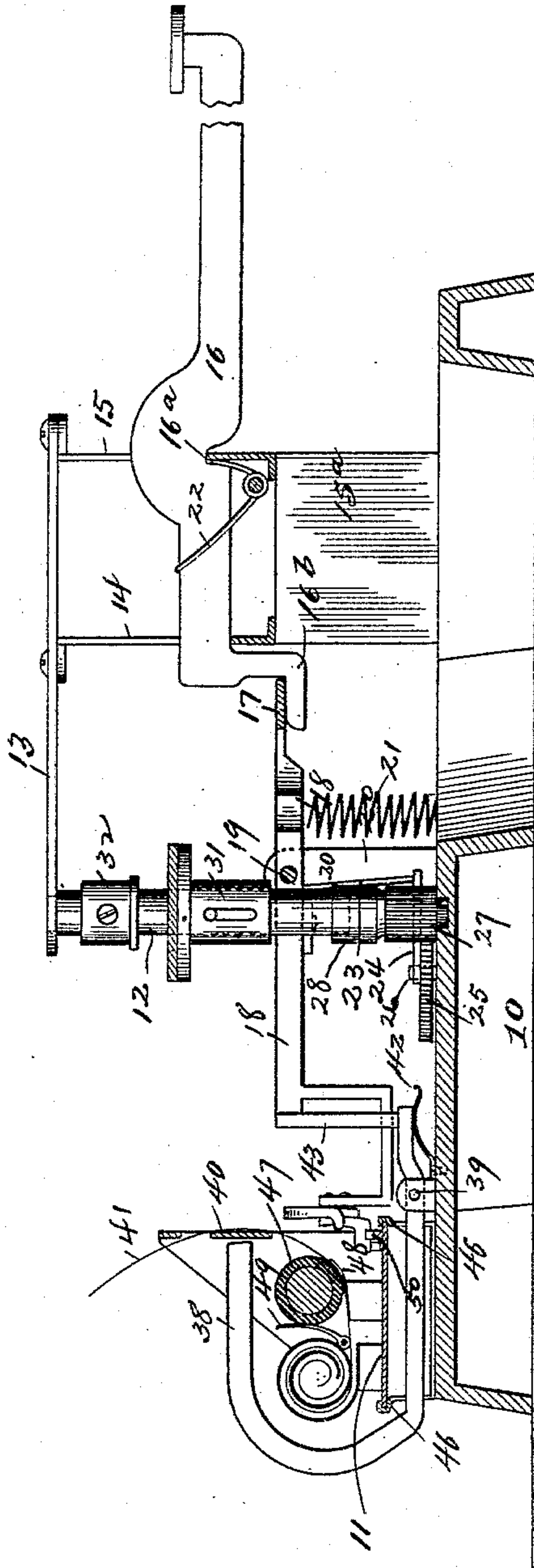
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Fig. 2.



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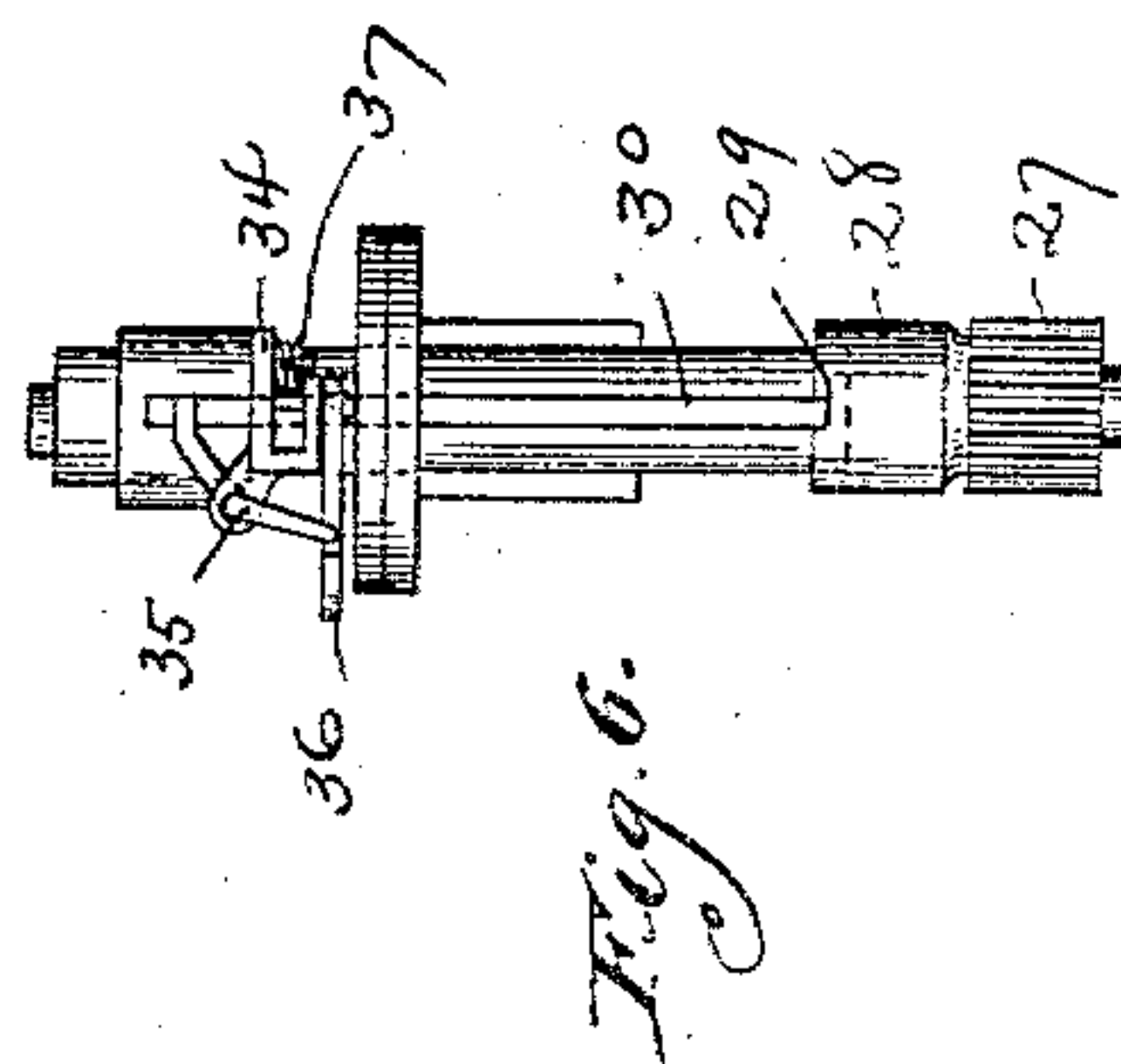
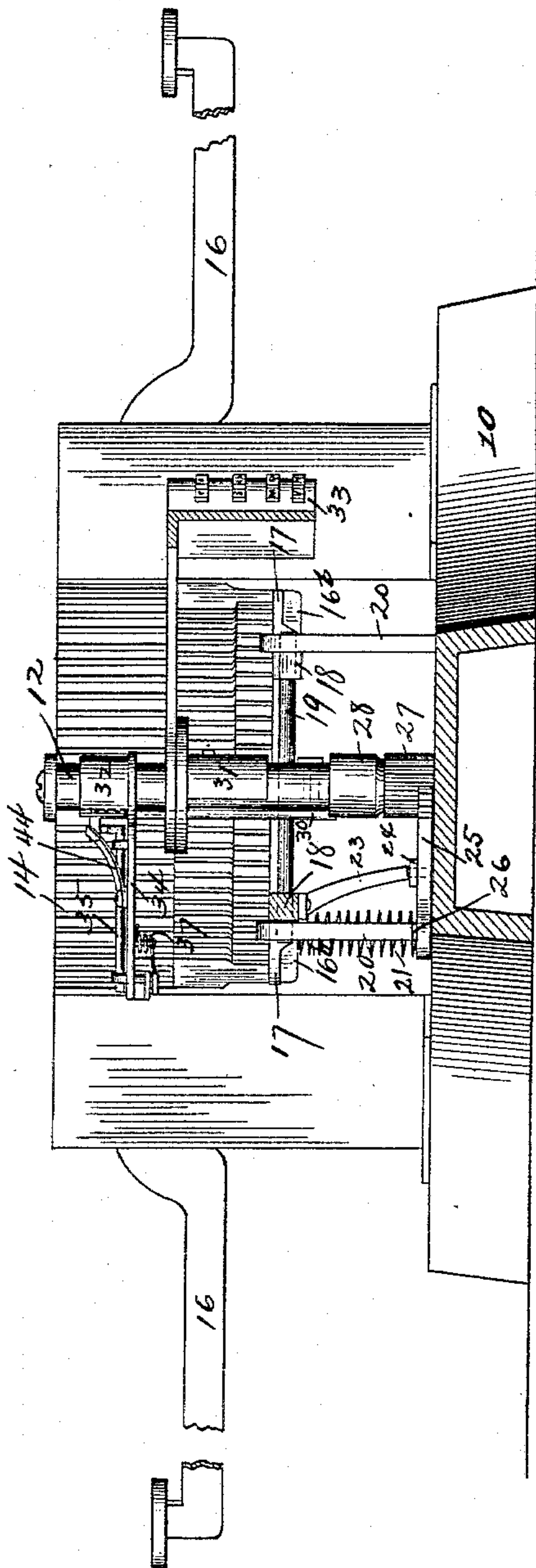
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Fig. 3.



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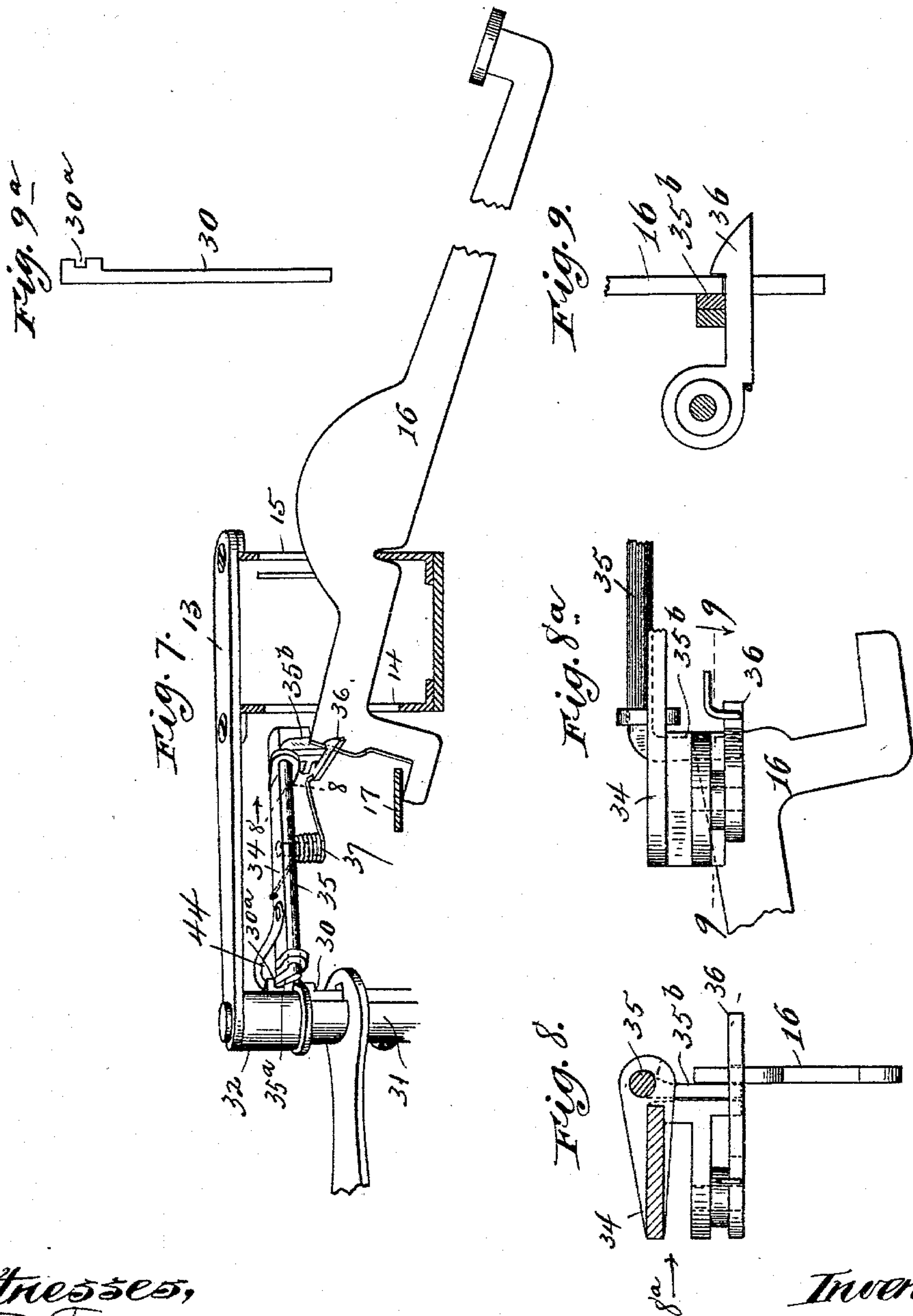
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UNITED STATES PATENT OFFICE.

WILLIAM P. QUENTELL, OF KANSAS CITY, MISSOURI.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 551,404, dated December 17, 1895.

Application filed May 29, 1894. Serial No. 512,886. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. QUENTELL, of Kansas City, Missouri, have invented certain new and useful Improvements in Type-
5 Writing Machines, of which the following is a specification.

This invention has for its object to provide a type-writing machine of novel yet simple construction which can be made at a low
10 cost; and the invention consists in certain novel features of construction and combinations of parts of the printing mechanism, and more particularly to a novel means for operating the type-carrier and printing-
15 hammer.

Other improvements relate to the manner of supporting the key-lever, and to certain features of construction in the roller by which the paper is fed.

20 In the machine there is employed a suitable base on which the operative parts are mounted, such parts comprising a sliding paper-carriage having a roller for feeding the paper with suitable feed mechanism, a series
25 of pivoted key-levers, a vertically-arranged shaft capable of partial rotation and carrying the type, and mechanism operated by the key-levers for partially rotating the shaft and bringing the desired type character into
30 printing position, together with a hammer which preferably forces the paper against the type.

In the accompanying drawings Figure 1 is a plan view with parts omitted. Fig. 2 is a
35 sectional elevation taken at right angles through the carriage and centrally through the base. Fig. 3 is a sectional elevation on the line 3 3 of Fig. 1, looking in the direction of the arrow. Figs. 4 and 5 are detailed
40 views, respectively, in side elevation and plan of one extremity of the key-lever, showing its construction to adapt it to receive a button. Fig. 6 is a detail showing in elevation the central rotating post, a pinion loosely
45 mounted thereon, a sliding locking-key, and, in end view, means for sliding said key. Fig. 7 is a perspective showing the upper end of the rotating post and sliding key, a rock-
50 shaft for operating said sliding key and a pivoted latch engaged with one of the key-levers. Fig. 8 is a sectional detail on the

line 8 8 of Fig. 7. Fig. 8^a is a view of the parts shown in Fig. 8, looking in the direction indicated by the arrow. Fig. 9 is a plan view below the line 9 9 of Fig. 8, and Fig. 9^a
55 is a detail view of the sliding key for locking the pinion to the rotating post.

In the drawings, 10 represents the base on which is mounted a paper-carriage 11. In a central position on the base is mounted, so
60 as to partially rotate, a post 12, which will be suitably stepped at its lower end into the base, while its upper end has a bearing in an arm 13 projecting from frame-pieces 14 15, which are curved in the arc of a circle concentric to the central rotatable post 12 and
65 supported on brackets 15^a rising from the base. The frame-pieces 14 15 are slotted to receive, support and guide the forward ends of key-levers 16, said levers being notched, as
70 shown at 16^a, to embrace the bottoms of the slots in the frame-piece 15, and the forward ends of said levers are hooked, as at 16^b, to engage the rear bar 17 of the pivoted frame 18, the latter being pivoted on a pin 19 in the
75 brackets 20, also rising from the base. Said frame 18 is normally held in a substantially horizontal position by the spring 21, and the key-levers are normally held in a similar position by springs 22. The frame 18 has a
80 pendent arm 23 engaged with a link 24 pivoted upon a swinging gear-segment 25, the pivot of said segment being marked 26, and the connection of the link to the segment being eccentric to said pivot. Loosely mounted
85 on the post 12 is a pinion 27, having a sleeved hub 28, which is provided with a slot, as at 29, to receive the end of a sliding key 30, said key being mounted to slide in a suitable keyway formed by slots in sleeves 31 32.
90

The sleeve 31 carries a type-segment 33, which is curved in the arc of a circle concentric to the central post, and upon the face of which are mounted in any convenient way a series of type. These may be cast in a sheet
95 on a rubber plate; but I prefer to employ metal or other hard type. Of course more than one series of type may be employed—as, for example, upper and lower case characters—and suitable means will be provided, if
100 desired, for raising and lowering these type-segments on the shaft so as to bring the dif-

ferent series of characters into proper position for use, but nothing is claimed herein on this feature.

The sleeve 32 carries an arm 34, and on this arm is mounted a rock-shaft 35, having one end 35^a thereof engaged in a notch 30^a in the upper end of the sliding key 30, while the opposite end 35^b of the rock-shaft is downturned in position to be engaged by the end of the key-lever when the key is actuated, as clearly seen in Fig. 7. As shown in this view, when the upper end of the key-lever is depressed its inner end is thrown up and in the rotation of the central post the arm 34 carrying the rock-shaft is swung so that the nose of a latch 36, pivoted upon said arm, rides over the front edge of the inner end of the key-lever and is caused to engage therewith by means of the spring 37. The downturned end 35^b of the rock-shaft strikes the key-lever, thus rocking said shaft in its bearing and causing its end 35^a, which is engaged in the notch 30^a of the key 30, to lift said key, thus releasing the pinion 27 carried on the post.

The parts just above described constitute a stop to limit the rotative movement of the central post and the consequent movement in the arc of a circle of the printing-segment, and the engagement of this stop with the end of the key-lever further operates to release the locking mechanism, whereby the pinion has been secured with the post, thus releasing said pinion and permitting its further rotation while the type-segment is locked in the printing position.

The operation of the parts thus far described may be briefly stated as follows: Upon the depression of any key-lever of the series its forward hooked end will engage the pivoted frame 18 and through the pendent arm and pivoted link will swing the segmental gear on its axis, and said segmental gear being enmeshed with the pinion on the post carrying the type-segment said post and segment will perform a partial rotation, the extent of the movement being dependent upon which particular type-lever is depressed. The series of type-levers, it will be understood, are marked to correspond with the type characters on the printing-segment, and the movement of the type-segments being necessarily greater to bring some of the characters into position than to bring others into like position some of the type-levers are depressed to a correspondingly greater extent than others. In each case, however, the type-lever is depressed and the segment moved until the action is arrested by the engagement of the stop-lever carried by the shaft with the type-lever which is actuated, and when such engagement occurs the latch passes over, the small rock-shaft carried by the stop-arm is rocked on its pivot, the sliding key engaging the sleeve of the pinion carried by the post is raised so as to free the pinion from the post, and then a slight further movement

downward of the key-lever will cause a movement of the pinion independent of the post. This last movement is utilized to operate a hammer, which forces the paper against the type, and which will now be described. The hammer is marked 38 and is pivoted at 39 on a standard rising from the base, and beyond its pivot is carried below the paper-carriage, and its extremity passes above the paper-carriage in position to strike a flexible platen 40, along the face of which the paper 41 is fed. The printing-segment, it will be understood, will be brought into position opposite the end of the hammer 38, and the paper and platen are thus interposed between the end of said hammer and the desired type character. The hammer is normally held back by the spring 42 and is rocked on its pivot by an arm 43 depending from the front of the pivoted frame 18. Now, after the desired type character is brought into printing position and the sliding key is lifted so as to free the pinion the further depression of the key-lever will cause a further tilting of the pivoted frame 18 until its pendent arm 43 strikes the forward end of the hammer 38, thus rocking the latter on its pivot and causing its operative end to strike the platen 40, forcing the paper 41 against the type character. Upon the release of the key-lever its spring returns it to its normal position. The pivoted frame is also returned to its normal position by its spring. The latch slips off the end of the key-lever as the latter is depressed by its spring. The rock-shaft which lifted the key is released and the key is depressed by a spring 44, carried by the stop-arm, so as to lock the pinion to the post.

Any suitable means may be provided for inking the type. I have shown a simple ink-roll 45 rotatably mounted in vertical position adjacent to the path of the type-segment and adapted to roll over the face of the type on the type-segment as the latter moves into printing position.

The paper-carriage 11 is mounted to slide endwise in suitable ways 46 on the base, and said carriage has a feed-roll 47 which is normally pressed against stationary feed-plates 48 by means of springs 49. This construction is employed because a spring feed-plate acts unequally at different points upon the paper, and therefore causes the latter to feed unevenly. The springs 49 may be so adjusted that their tension will be equal upon the roller and the even feed of the paper may be thus secured.

A scroll-shaped housing is applied in such position as to receive the paper and prevent its interference with the hammer which embraces the feed-carriage. The carriage is provided with the usual rack-bar 50, and a suitable feed mechanism actuated by the depression of the frame 18 will cause the step-by-step movement of the carriage as the printing progresses. The first effect of the move-

ment of the frame 18 is to space, the second to bring the type into position to print, and the third and last is to actuate the hammer.

I have shown a simple and efficient means for securing the buttons to the key-levers. The key-levers are preferably cut out from thin sheet metal and their outer ends are upturned, as shown in the detail view, Fig. 4, and split as at 51, and the ends thus separated are spread or bent in opposite directions, as shown in Fig. 5, to permit the button 52 to be sprung over them. These buttons are usually metal disks, bearing on their upper surfaces the imprint of a character corresponding to one or more of the characters of the type-segment.

The main object of this invention being to secure an efficient machine of small size and which can be economically made, the particular features of construction above described are important to these ends, but it will be understood that variations in the structural details may be made without departing from the scope of the invention.

I claim—

1. In a typewriter of the class described, the combination with a rotatable post, of a type segment carried thereby, a pinion loosely mounted on the post, means for locking said pinion to rotate with the post, a gear enmeshed with the pinion, a series of key levers, and connections adapted to be operated by the key levers when depressed whereby to actuate the gear and thereby the pinion, the post and the type segment carried thereby to bring a type character into printing position, and a stop carried by the post and adapted to engage the key lever, substantially as described.

2. In a typewriter of the class described, the combination with a rotatable post, of a type segment carried thereby, a pinion loosely mounted on the post, means for locking said

pinion to rotate with the post, a gear enmeshed with the pinion, a series of key levers and connections adapted to be operated by the key levers when depressed whereby to actuate the gear and thereby the pinion, the post and the type segment carried thereby to bring a type character into printing position, a stop carried by the post and adapted to engage the key lever and a latch carried by the stop and adapted to engage the key lever to lock the printing segment in position, substantially as described.

3. In a typewriter of the class described, the combination with a series of pivoted key levers, of a pivoted frame, a gear operated thereby, a post carrying a type segment, a pinion loosely mounted on said post and enmeshed with the gear, a sliding key adapted to lock said pinion, a stop arm carried by the shaft and adapted to engage the key lever when depressed and a rock shaft carried by the stop arm and adapted when rocked by engagement with the key lever to lift the key and to release the pinion, substantially as and for the purpose described.

4. In a typewriter of the class described, the combination with a series of pivoted key levers, of a pivoted frame, a gear operated thereby, a post carrying a type segment, a pinion loosely mounted on said post, a sliding key adapted to lock said pinion with the post, a stop arm carried by the shaft and adapted to engage the key lever when depressed, a rock shaft carried by the stop arm and adapted to lift the key to release the pinion, and a pivoted hammer adapted to be actuated by the pivoted frame, substantially as described.

WILLIAM P. QUENTELL.

Witnesses:

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J. A. FARQUHAR.