

No. 607,193.

Patented July 12, 1898.

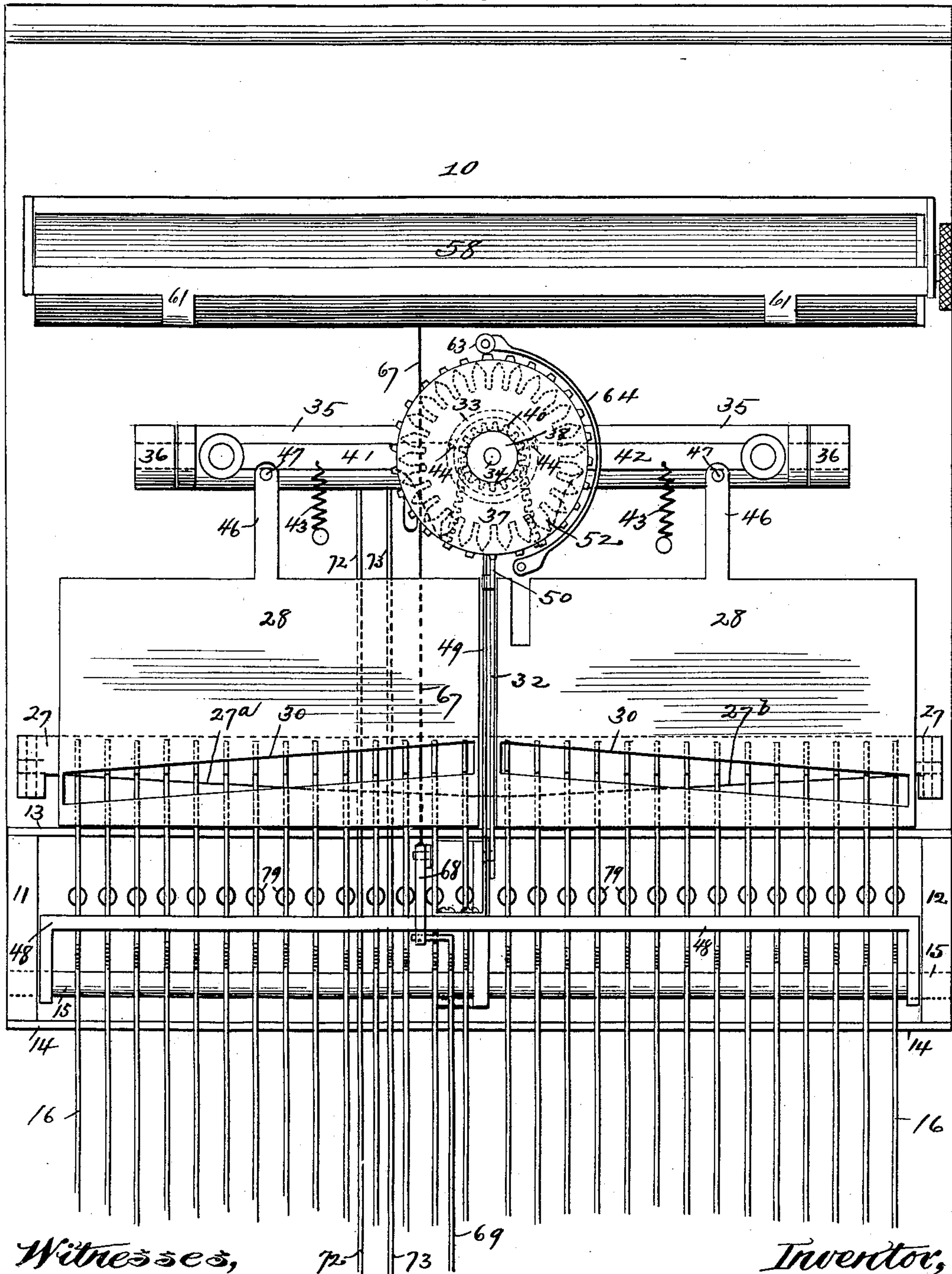
W. P. QUENTELL.
TYPE WRITER.

(Application filed Apr. 29, 1897.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.



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4 Sheets—Sheet 2.

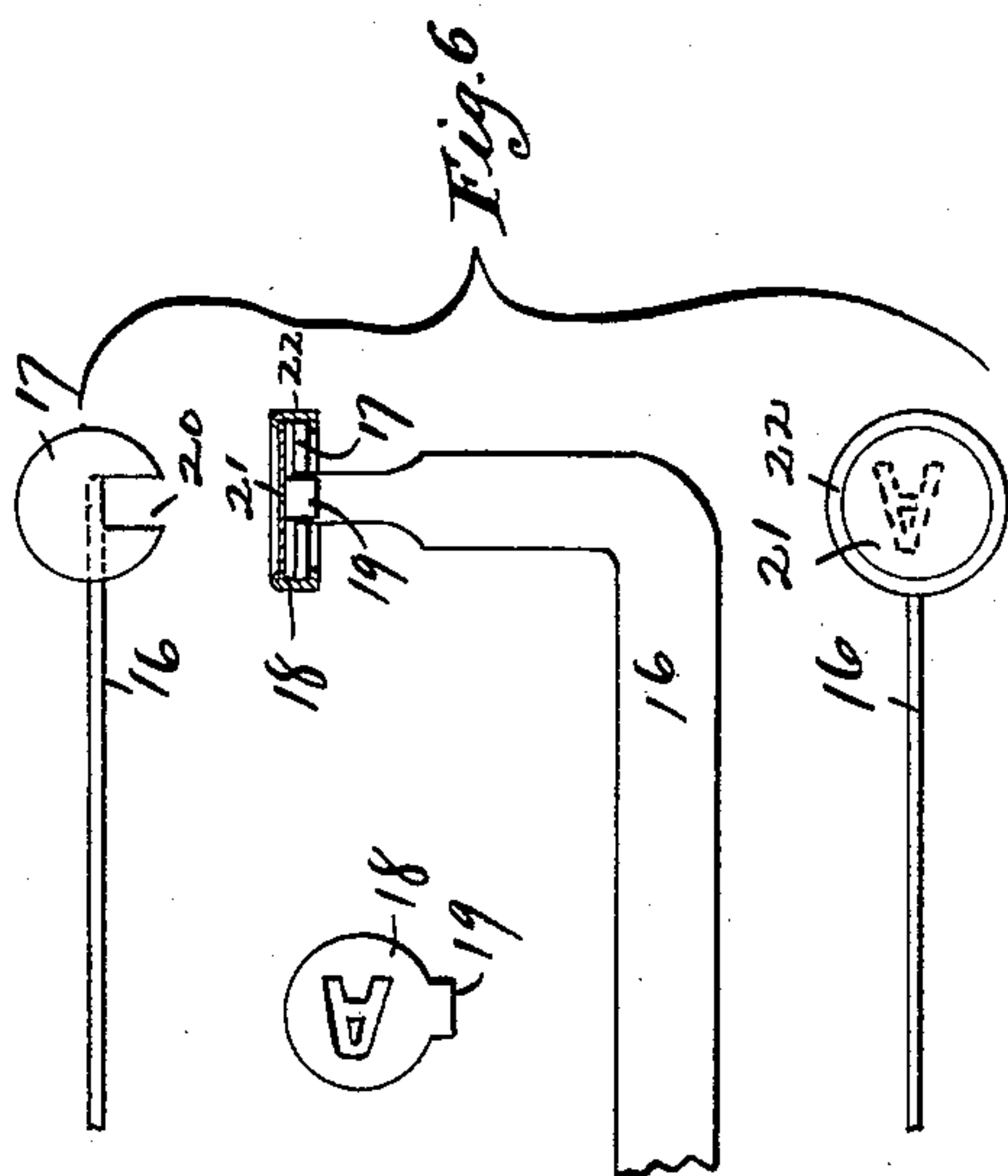
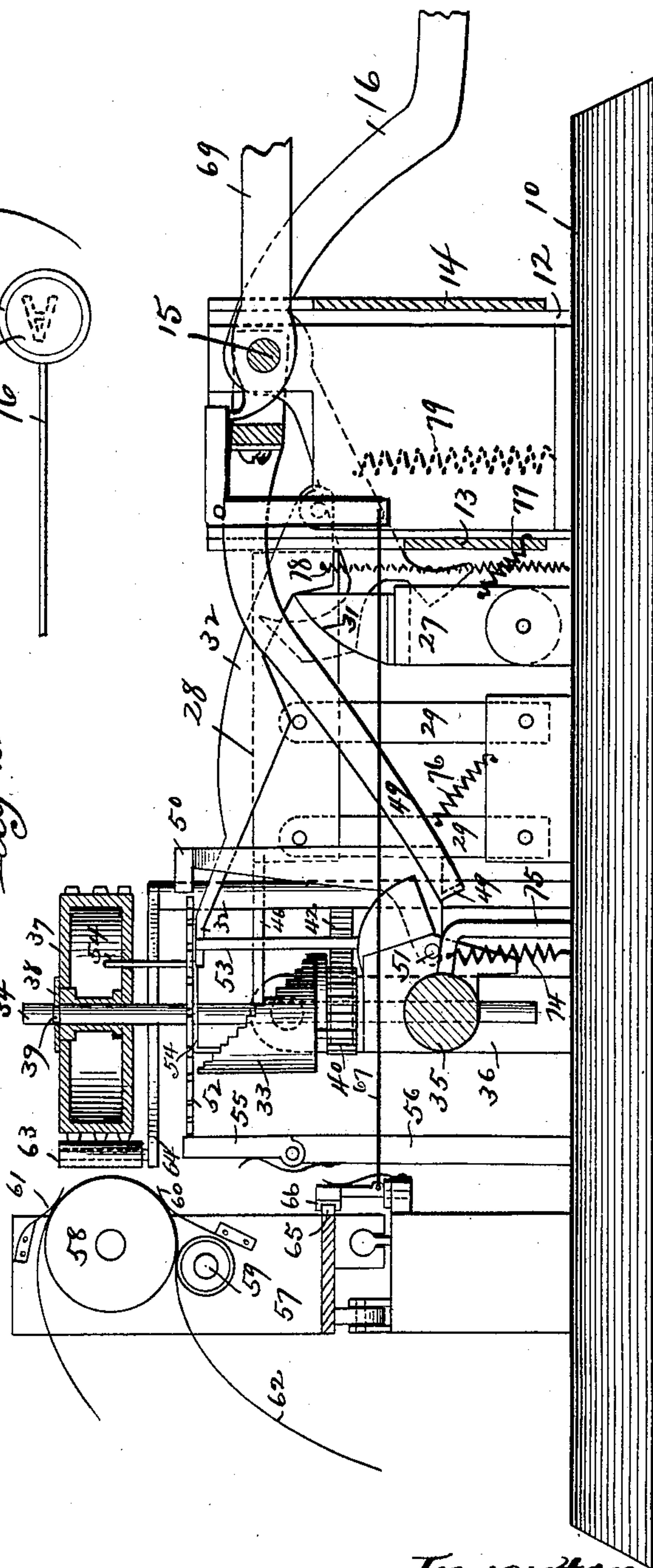


Fig. 6.



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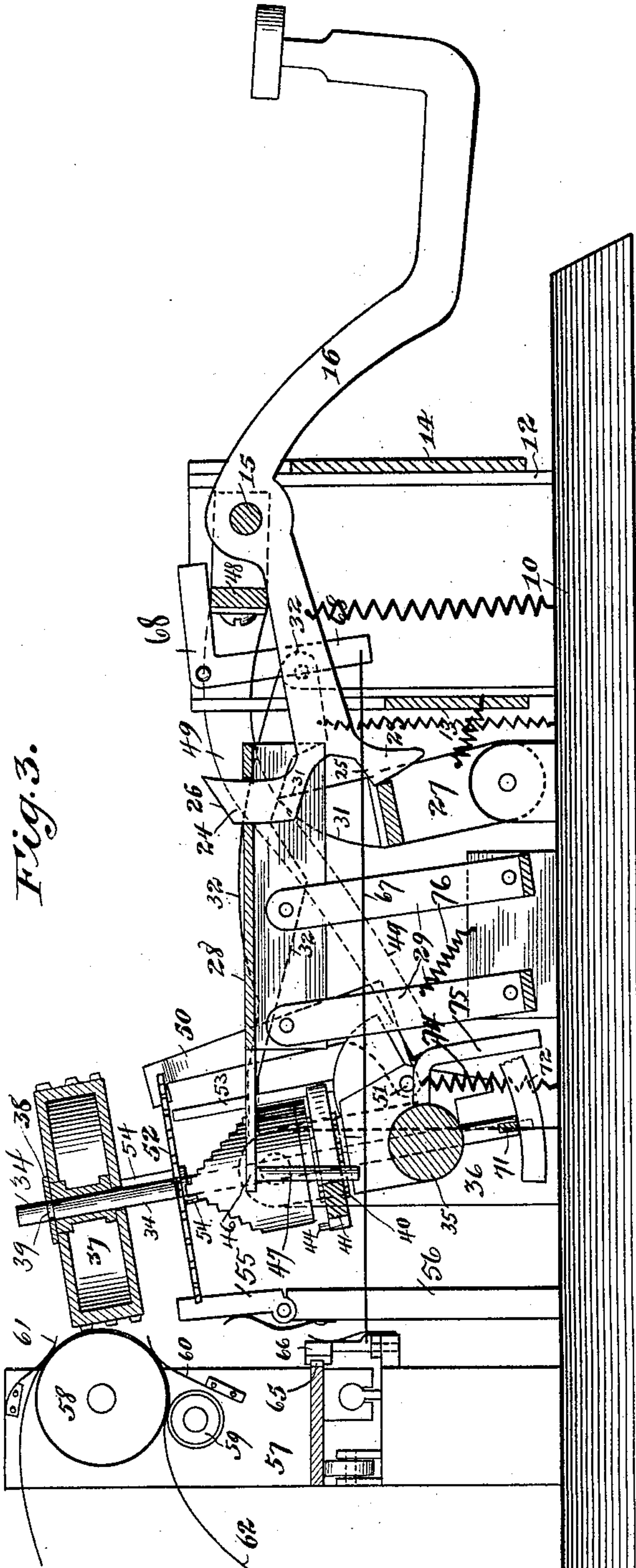
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4 Sheets—Sheet 4.

Fig. 4.

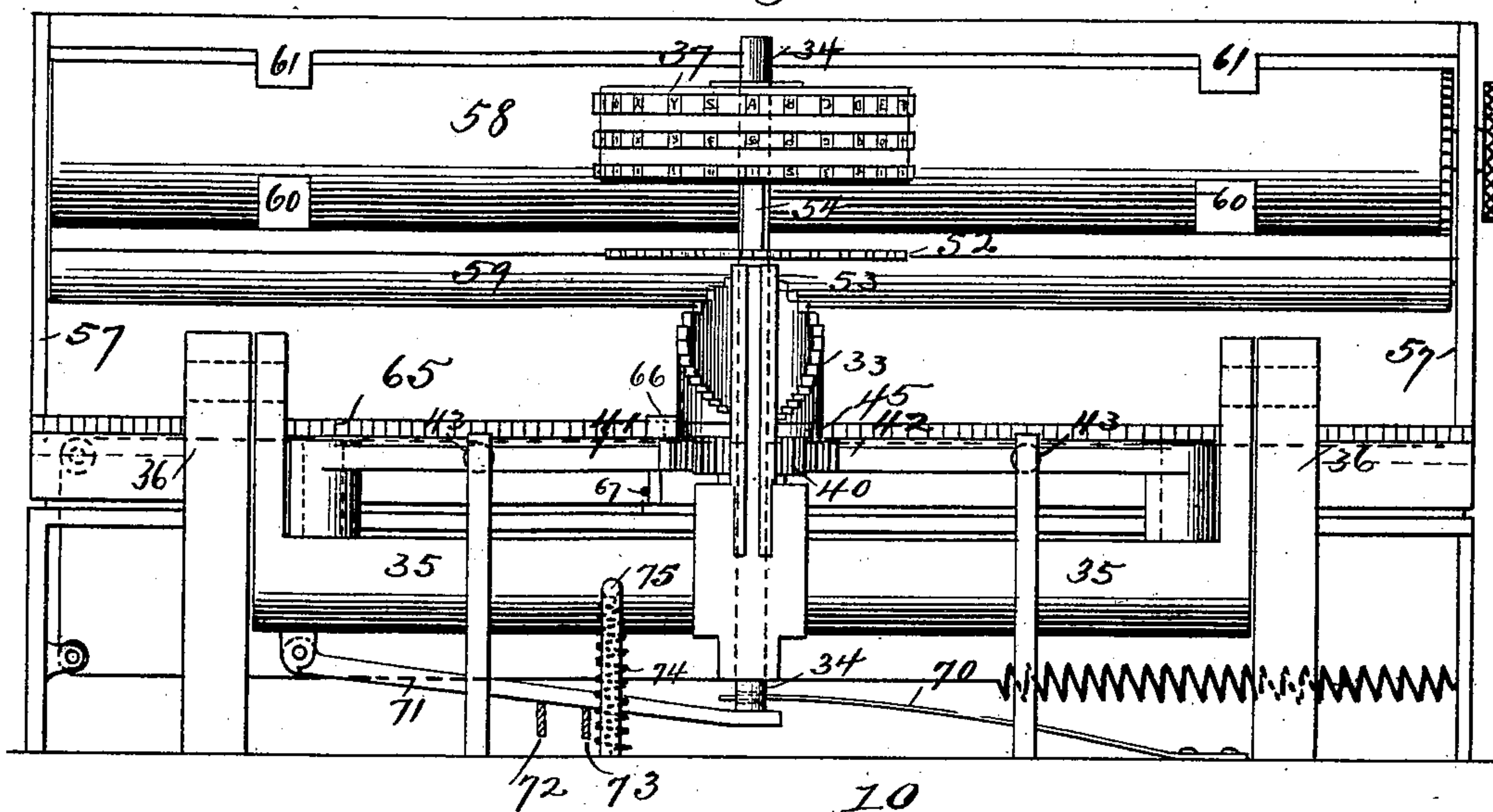
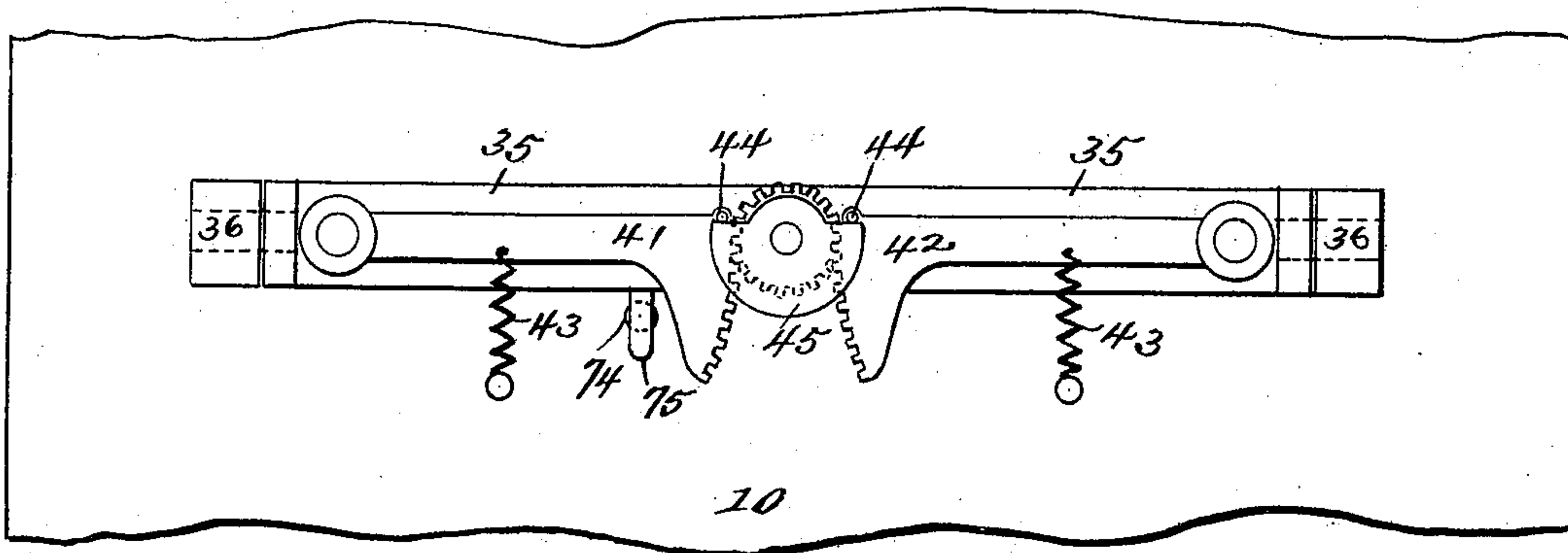


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM P. QUENTELL, OF NEW YORK, N. Y.

TYPE-WRITER.

SPECIFICATION forming part of Letters Patent No. 607,193, dated July 12, 1898.

Application filed April 29, 1897. Serial No. 634,446. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. QUENTELL, of New York city, New York, have invented certain new and useful Improvements in
5 Type-Writers, of which the following is a specification.

This invention relates to that class of type-writing machines wherein the type characters are mounted upon a rotary and oscillatory
10 support, preferably cylindrical in form, and in which the series of key-levers operate, first, through interposed cams and suitable gearing to rotate the type-holder, so as to bring the desired character opposite the printing position, and, second, by their continued move-
15 ment to oscillate the type-holder, whereby to move it into printing position and effect the printing.

The invention consists in certain novel devices and combinations of devices, as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view with the ends of the key-levers broken away. Fig. 2 is a side elevation, partly in section and with parts broken away. Fig. 3 is also a sectional elevation showing the type-holder in the printing position. Fig. 4 is a front elevation of the type-holder, its
30 supports, and a locking-cam used in connection therewith. Fig. 5 is a top or plan view of the gearing for rotating the type-holder. Fig. 6 shows in several views the details of construction of the button end of the key-
35 lever.

In the drawings, 10 represents the base of the machine, near the sides of which are standards 11 12, to the edges of which are secured vertically-slotted plates 13 14. A rock-shaft 15, pivoted in the standards 11 12, affords a pivotal support for a series of key-levers 16, said key-levers being preferably stamped out from sheet metal and of approximately the outline shown in the drawings, Figs. 2, 3, and 6. These key-levers work
40 in the slots of the plates 13 14, and are therefore steadied in their movements. The front ends of the key-levers are upturned, as shown in Fig. 6, and their extremities are provided
50 with the integral disks 17, forming the support for the letter-tabs 18, which may be of

paper and have the lip 19 to engage within the notch 20 of the disk 17. The tabs are covered with a sheet of celluloid or other transparent material 21, and the edges of the several parts are protected and united by the
55 band 22, which may be of metal. The forward ends of the key-levers are bifurcated and the arms thereof are marked 23 24. The arm 23 has the oblique cam-surface 25 and the arm 60 24 has the oblique cam-surface 26. The arm 23 operates to rock a pivoted bail 27, and the arm 24 operates to move a plate 28. The plate 28 is supported upon the parallel pivoted arms 29, two of said plates being employed and each having oblique cam-slots 30
65 therein. The front edge of the bail 27 has its ends beveled, as shown at 27^a 27^b, and said beveled surfaces extend in planes which intersect the planes of the slots 30. The bail 70 27 is provided with a lug 31, which operates a pivoted stop-arm 32. Said stop-arm projects forward into the path of a rotary cam 33, through which a shaft 34 passes, the latter being slidably mounted in an oscillating
75 frame 35, which is pivoted upon the standards 36. The cam 33 is tubular and cylindrical and constructed in a single piece, its contact-points being disposed in a plane oblique to its axis of rotation, or, in other
80 words, being determined by the cutting of its cylindrical body by a plane oblique to the axis of the cylinder, the contact-points being thus located at different heights, and the cam may be stepped or serrated, as shown. The
85 determining plane lies in equal halves on opposite sides of a vertical plane through the axis of rotation of the cylinder, so that the contact-points occupy the entire edge of the cam and are located in equal and symmetrical
90 halves on opposite sides thereof. The stop-arm 32 moves in a direction substantially parallel to the axis of the cam. The shaft 34 also carries at its upper end a type-holder 37, having thereon three circumferential rows of
95 type characters. The type-wheel 37 has a collar 38 secured thereon, and said collar turns in a groove 39 in the shaft. The type wheel or holder is turned upon the shaft by means of a pinion 40, sleeved upon the shaft
100 and engaged with the rack-segments 41 42, which are pivoted upon the frame 35. The

arms of said segments are drawn back by the springs 43 and are held in alinement by pins 44 thereon, which engage with the shoulders of a mutilated disk 45, secured to or formed integrally with the base of the cam 33. The gear-segments are moved by means of the plate 28, which has an extension 46 and a pendent pin 47, engaging with the segment-arm. A bail 48 is hung upon the shaft 15 and has a forwardly and downwardly extending arm 49, engaging loosely the lower end of a pivoted locking-dog 50, said dog being pivoted at 51 on the swinging frame 35. On the shaft 34 is also loosely mounted a toothed locking-disk 52, with which the upper end of the dog 50 engages during one part of the operation, and the rocking frame 35 has a slotted guide 53 for the forward end of the stop-lever 32. The locking-disk 52 is secured to a driving-arm 54 in the form of a flat bar, the lower end of which is secured to the cam-disk 33 and projects through an aperture in the lower surface of the type-holder 37, and thus when the pinion or gear 40 is turned it carries with it the mutilated locking-disk, the cam, the serrated or toothed locking-disk 52, the driver 54, and the type-holder 37, said several parts moving as one. In order to steady the swinging frame 35 and the type-holder, I show a second locking-dog 55, which is mounted in a slot or groove in a standard 56, so that while rigid in one direction it may yield in the opposite direction and engaging with the notches of the disk 52 the latter will be securely locked on opposite sides of its axis of rotation. A sliding paper-carriage 57 is mounted in the rear of the type-holder and has journaled therein the platen-roll 58, the tension-roll 59, and carries the paper-clamps 60 and 61.

62 represents the paper.

In order to ink the type, I have mounted an ink-roller 63 on the end of the curved spring-arm 64.

The base of the paper-carriage is provided with a toothed rack 65, and a pivoted locking-dog 66 normally engages the teeth of the rack, said dog being connected by the cord or wire 67 with one end of a bell-crank lever 68, pivoted on a suitable support, and having its other arm extended over the bail 48.

In order to space without printing, I have shown a space-key 69, which is connected to the bell-crank 68.

In order to bring the several rows of type into printing position, the shaft 34 is, as before described, mounted so as to slide in the frame 35 and through the several parts of which it constitutes the axis—namely, the pinion, the mutilated locking-disk, the cam, the driver-bar, and the toothed locking-disk—and said shaft is normally held down by the spring 70, and it is raised by means of an arm 71, through the intervention of the levers 72 73, which are shown in section in Fig. 4 and in plan view in Fig. 1. Said arm 71 is pivoted at one end to the frame 35 and inclines

toward its opposite end, so that the levers 72 73 engage therewith at different elevations. The ends of said levers are also curved in an arc concentric to the axis of the swinging frame 35, and by their depression the shaft carrying the type-holder is raised in its bearing, thus elevating a new row of type into the printing position.

The operation of the parts above described is as follows: Upon the depression of any one of the key-levers its arm 23 will engage and rock the bail 27, thus moving the lug carried thereby and permitting the stop-arm to drop down into the path of the cam 33. The extent to which the stop-arm will descend is regulated by the distance from the center at which the key-lever engages the oblique front edge of the pivoted bail, and the cam itself, as previously stated, may have its edge serrated, as shown; but it will be arrested whether serrated or not when it is turned so that it strikes upon the projecting end of the stop-arm. By the same movement the arm 24 of the key-lever will engage through its cam-surface 26 with the wall of the slot 30, and will therefore move the plate 28 forward, the latter preserving its parallelism with the base of the machine by reason of its form of support. This plate 28 will have a greater or less movement, depending upon the position of the key-lever which is actuated with reference to the center of the machine. The key-levers nearest the center of the machine will move the plate the shortest distance, while those farthest from the center will move it correspondingly greater distances. The extent to which this plate is moved forward regulates the extent to which the segments are swung upon their pivots, and consequently the extent of rotation of the pinion and its connected mechanisms, including the type-holder. The type characters will be arranged with definite relation to the key-levers, and consequently the depression of any particular key-lever will operate through the intervening and connecting mechanisms to turn the type-holder, so as to bring the appropriate character opposite the printing position. During the first part of the movement therefore the stop-arm is lowered. Then the segment is shifted and the type-holder is turned until it is brought to rest by the engagement of the cam-disk with the stop-arm. By the continued movement the key-lever lifts the bail 48 and through its arm 49, acting on the locking-dog 50 below the pivot 51, tilts the frame 35 to the position shown in Fig. 3. During this movement the ink-roller is pressed out of the way and the type strikes the paper. The tilting frame 35 is returned to its normal position by a spring 74, and may be provided with the stop-arm 75, which contacts with the base of the machine. Several of the movable parts are also provided with springs to return them to their normal positions—such, for example, as the movable plates 28, which have the springs 76, the bail 27, which has a

spring 77, and the stop-arm 32, which has a spring 78. The several key-levers are also normally held down by springs, as shown at 79.

While I have described the preferred construction, I may of course vary some of the details thereof.

I claim—

1. In a type-writing machine, the combination with a rotary type-holder and a series of finger-keys operatively connected therewith, whereby to rotate the type-holder, of a stop mechanism comprising a tubular cam concentric with the axis of the type-holder, rotating in unison therewith, constructed in a single piece and having its contact-points in a plane oblique to said axis and arranged at equal distances in two symmetrical halves around the entire edge of said cam, and a pivoted stop-arm moving in a path substantially parallel to said axis, actuated by said finger-keys and adapted to be projected into the path of said cam to arrest the rotation of the cam and type-holder, substantially as described.

2. In a type-writing machine, the combination with a rotary type-holder and oscillating frame whereon said type-holder is mounted a pinion for driving said type-holder, a segment mounted upon said frame enmeshed with said pinion and a reciprocating frame interposed between said segment and the ends of the key-levers, whereby the depression of the key-lever operates through said frame to move said segments and thereby the pinion and type-holder, substantially as described.

3. In a type-writing machine, the combination with a series of pivoted keys, a rotary type-holder mounted upon a swinging frame, gearing operated by said keys for rotating the type-holder, a stop mechanism for arresting said type-holder, comprising a vertically-moving stop-arm actuated by the key-levers and a tubular cylindrical cam mounted on the axis of the type-holder and having an

oblique cam surface, and a pivoted bail adapted to be rocked by the key-levers and having an arm to engage the swinging frame, whereby the latter may be oscillated, substantially as described.

4. In a type-writing machine, the combination with a rotary type-holder, gearing for rotating said type-holder, a sliding frame, a series of key-levers engaging said frame at variable distances from their pivots, a stop mechanism comprising a cam concentric to the axis of the type-holder, a pivoted stop-arm projecting into the path of the cam, a bail for operating said stop-arm and said key-levers also engaging said bail at variable distances from their pivots, substantially as described.

5. In a type-writing machine, the combination with a rotary type-holder, a shaft on which said type-holder is mounted, a gear-wheel or pinion loosely mounted on said shaft, a mutilated locking-disk moving with said gear, gear-segments pivoted eccentrically to said shaft enmeshed with said gear, said segments having stop-pins thereon and adapted to engage the mutilated locking-disk to retain said type-holder in its normal position, substantially as described.

6. A key-lever for a type-writer constructed from a sheet-metal blank having its terminal portion in the form of a disk separated from the body of the key by two parallel slits and disposed at right angles to the plane of the body of the key and adapted to receive a suitable label or tab, said disk having a notched or recessed portion and said tab having a lip adapted to engage said recess, and means for binding the parts together, substantially as described.

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Witnesses:

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