

No. 691,776.

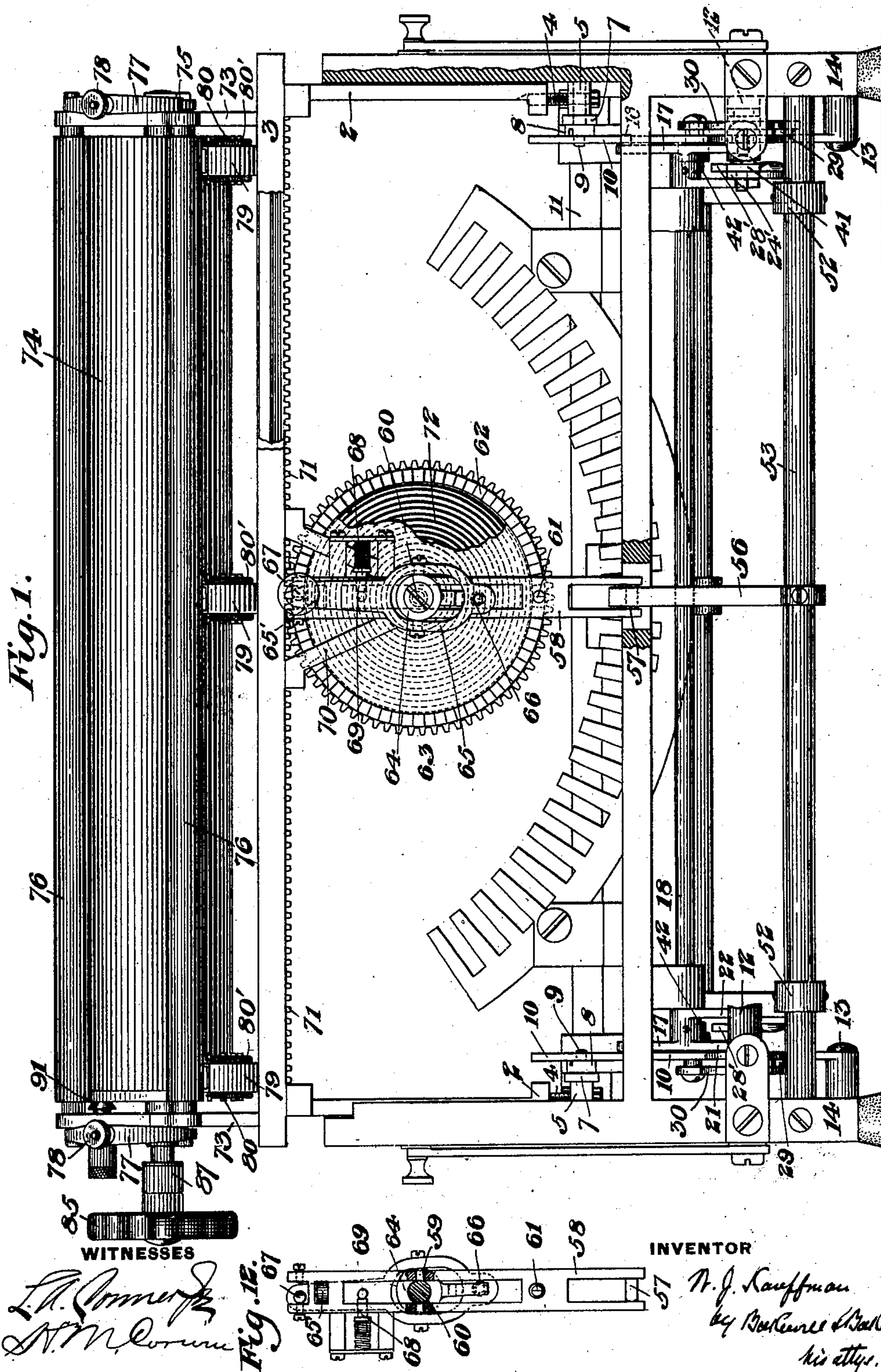
Patented Jan. 28, 1902.

W. J. KAUFFMAN.  
TYPE WRITING MACHINE.

(Application filed June 1, 1899. Renewed Apr. 12, 1901.)

(No Model.)

6 Sheets—Sheet 1.



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6 Sheets—Sheet 2.

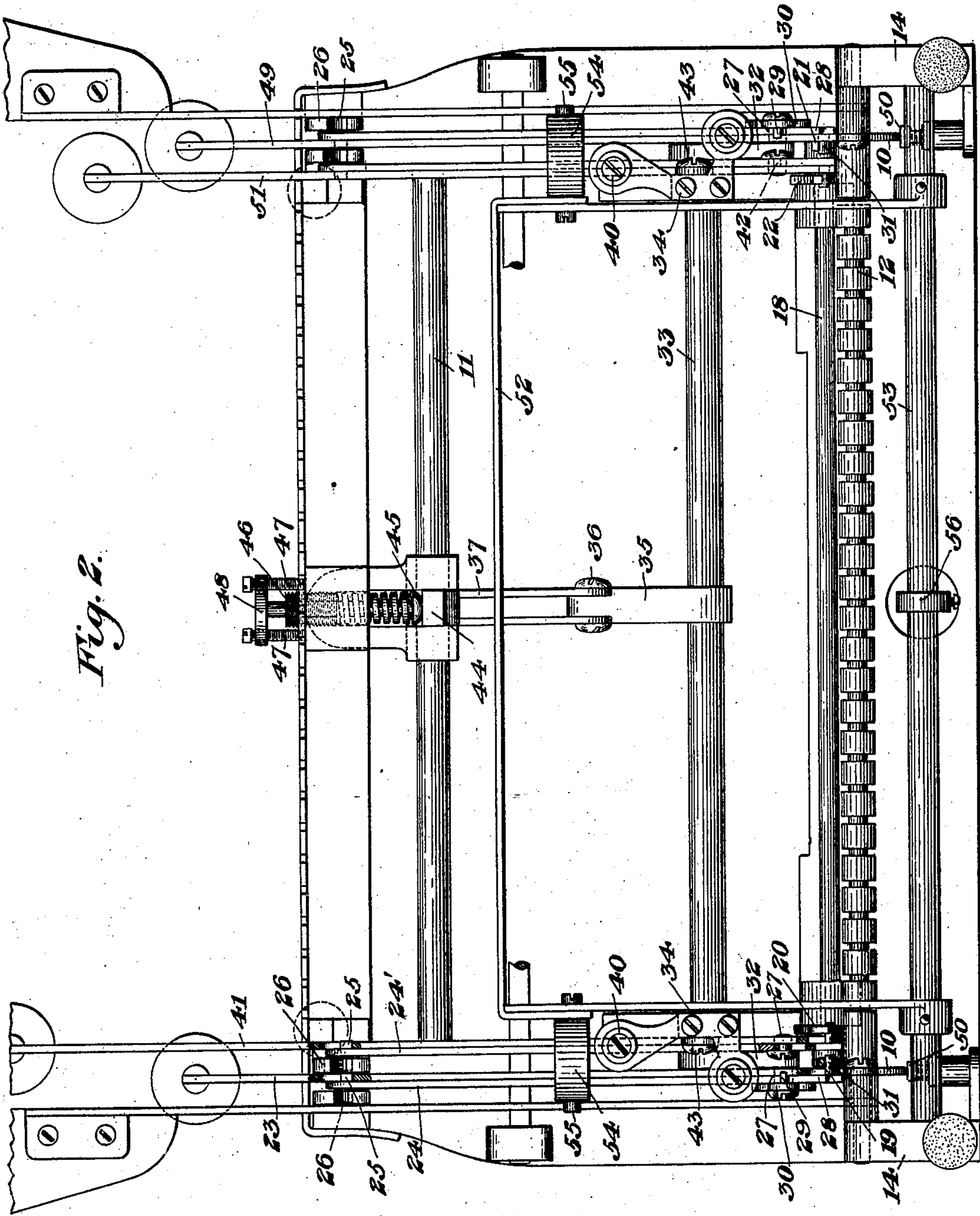


Fig. 2.

WITNESSES

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6 Sheets—Sheet 3.

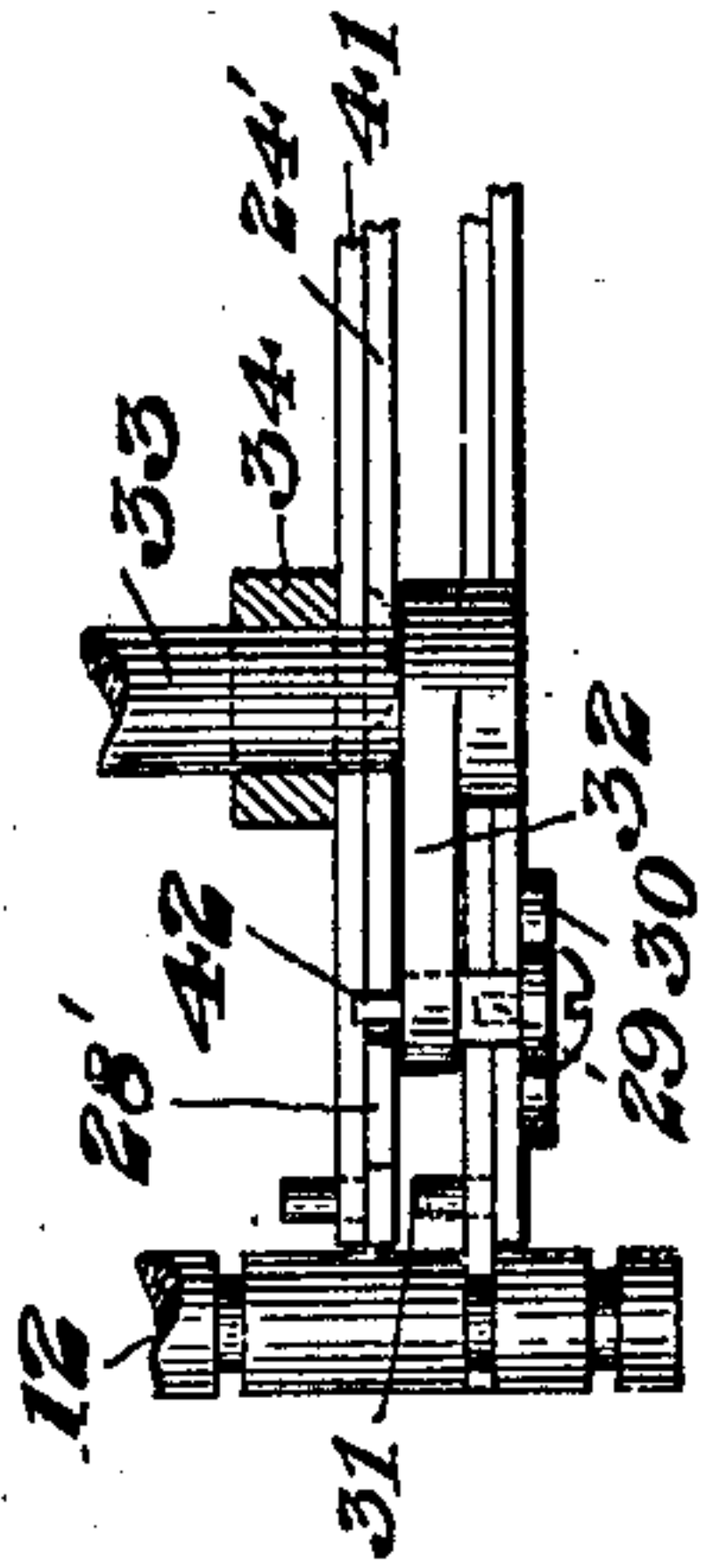


Fig. 6.

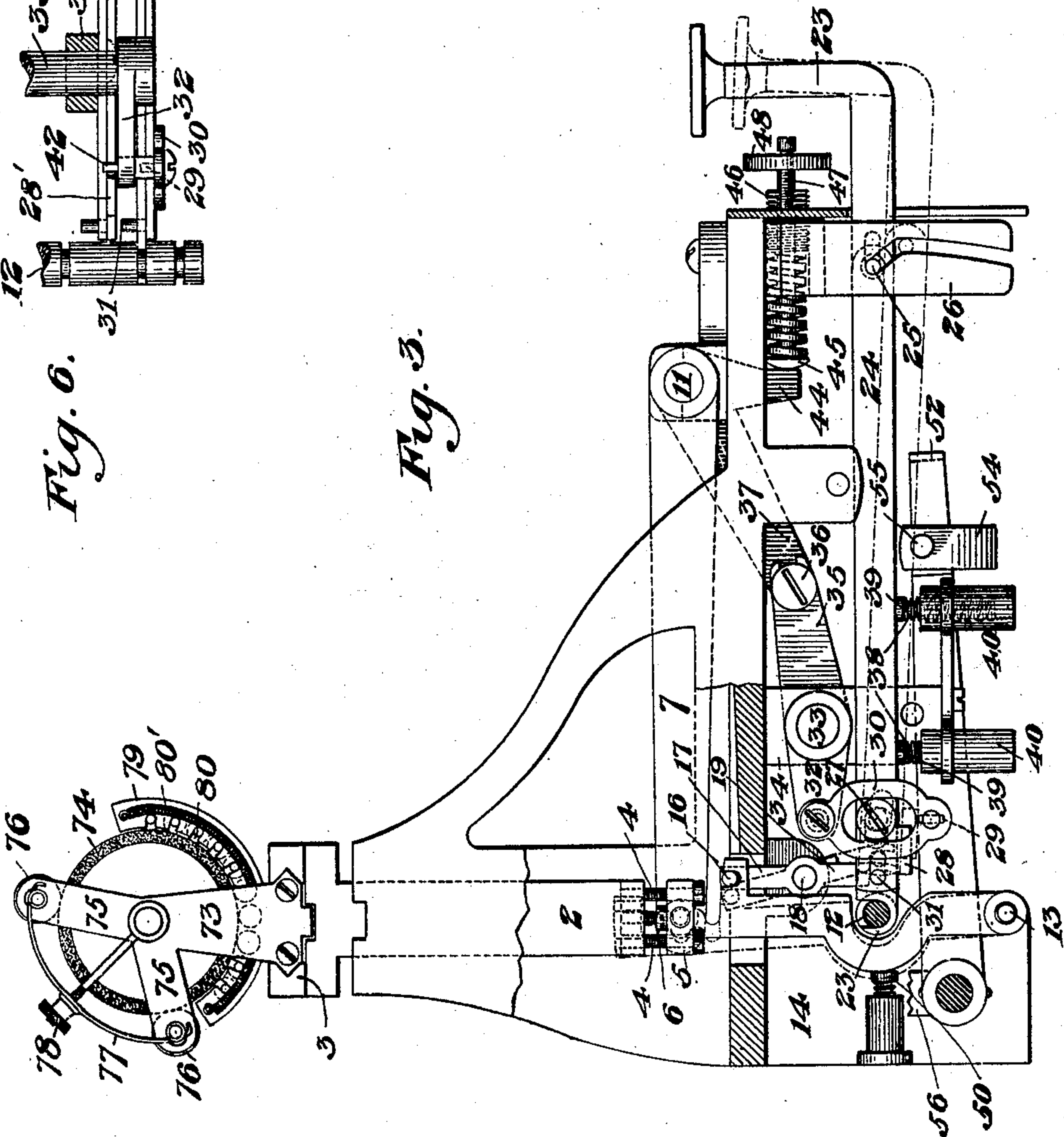


Fig. 3.

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(No Model.)

6 Sheets—Sheet 4.

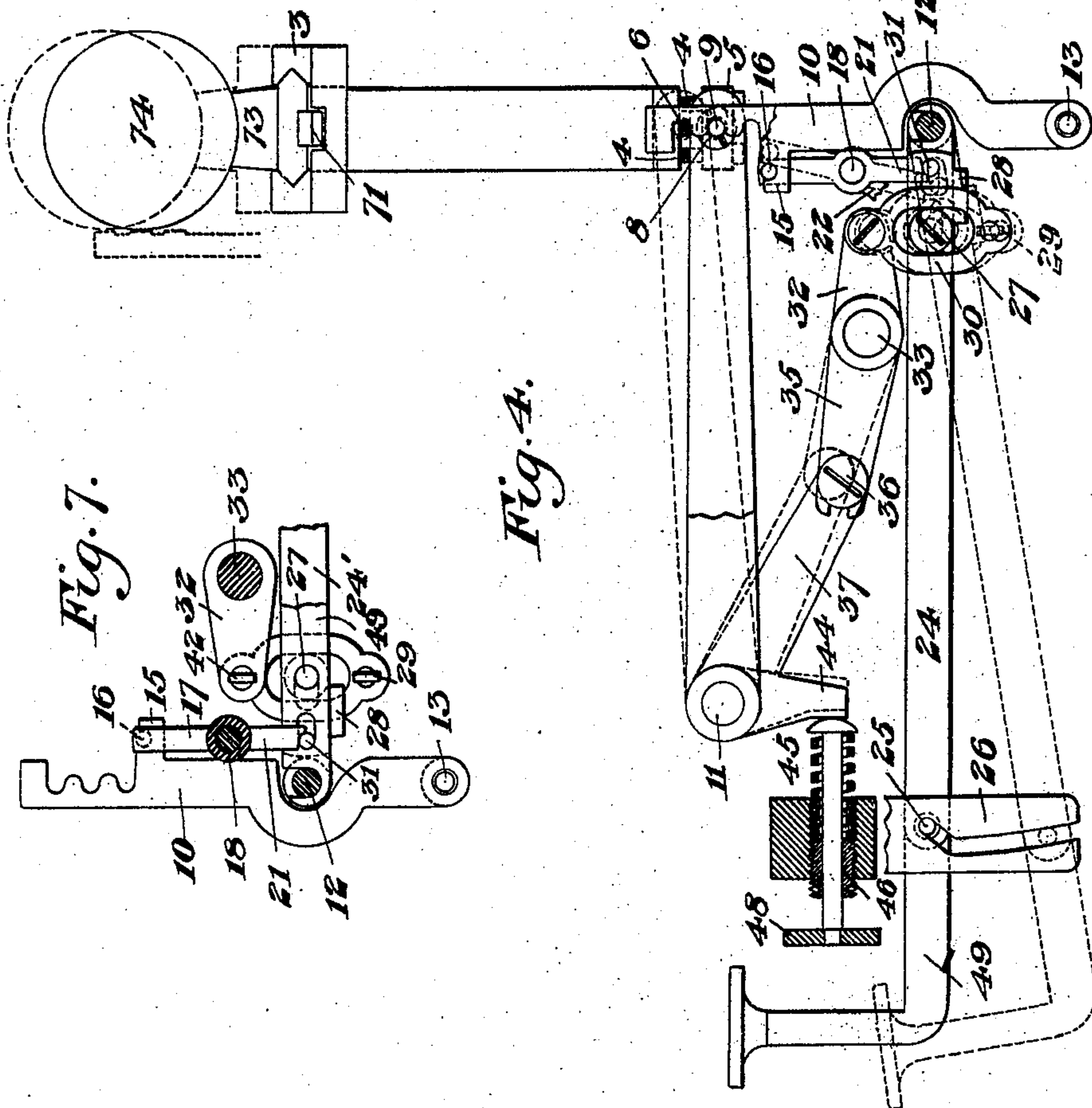


Fig. 4.

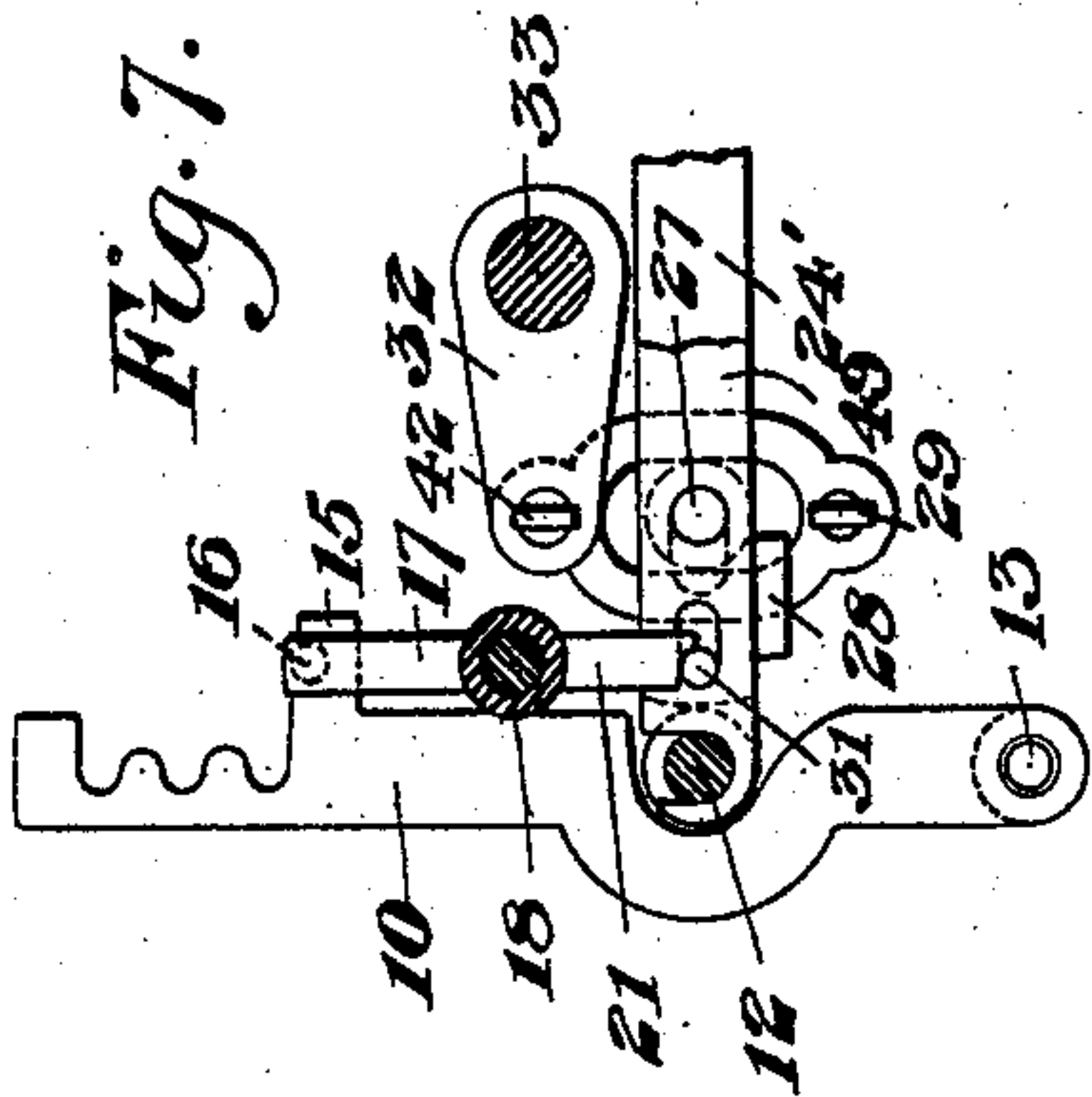


Fig. 7.

Fig. 9.

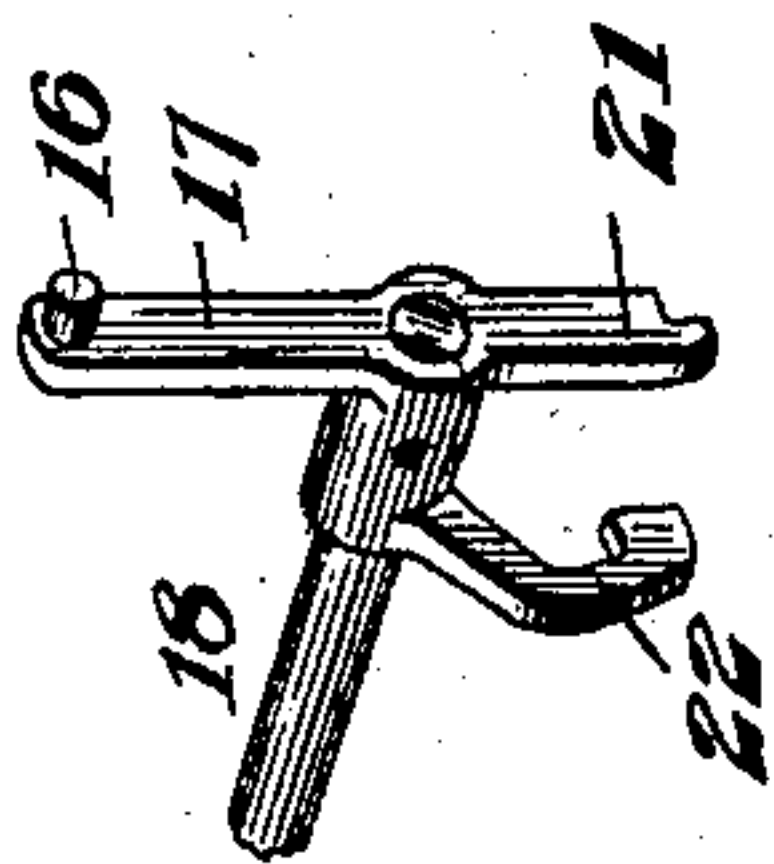
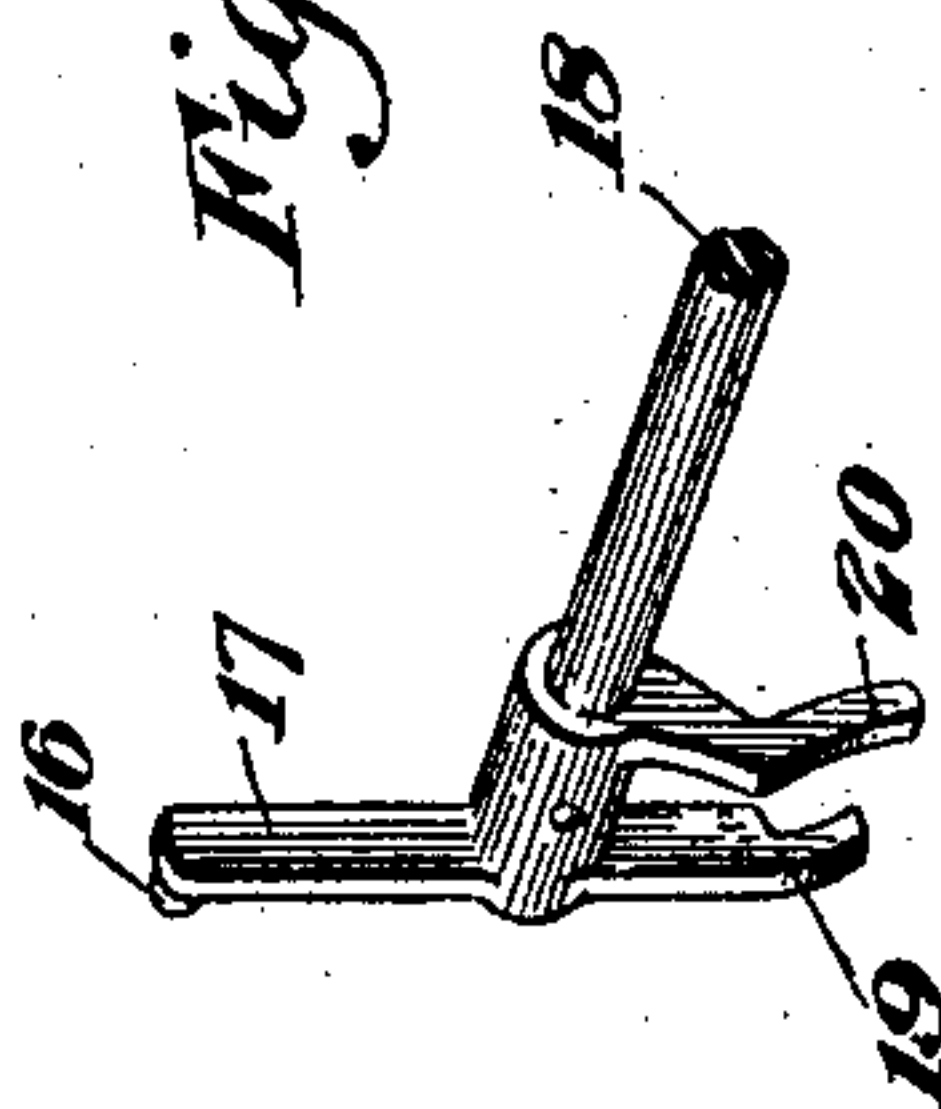


Fig. 10.



WITNESSES

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6 Sheets—Sheet 5.

Fig. 8.

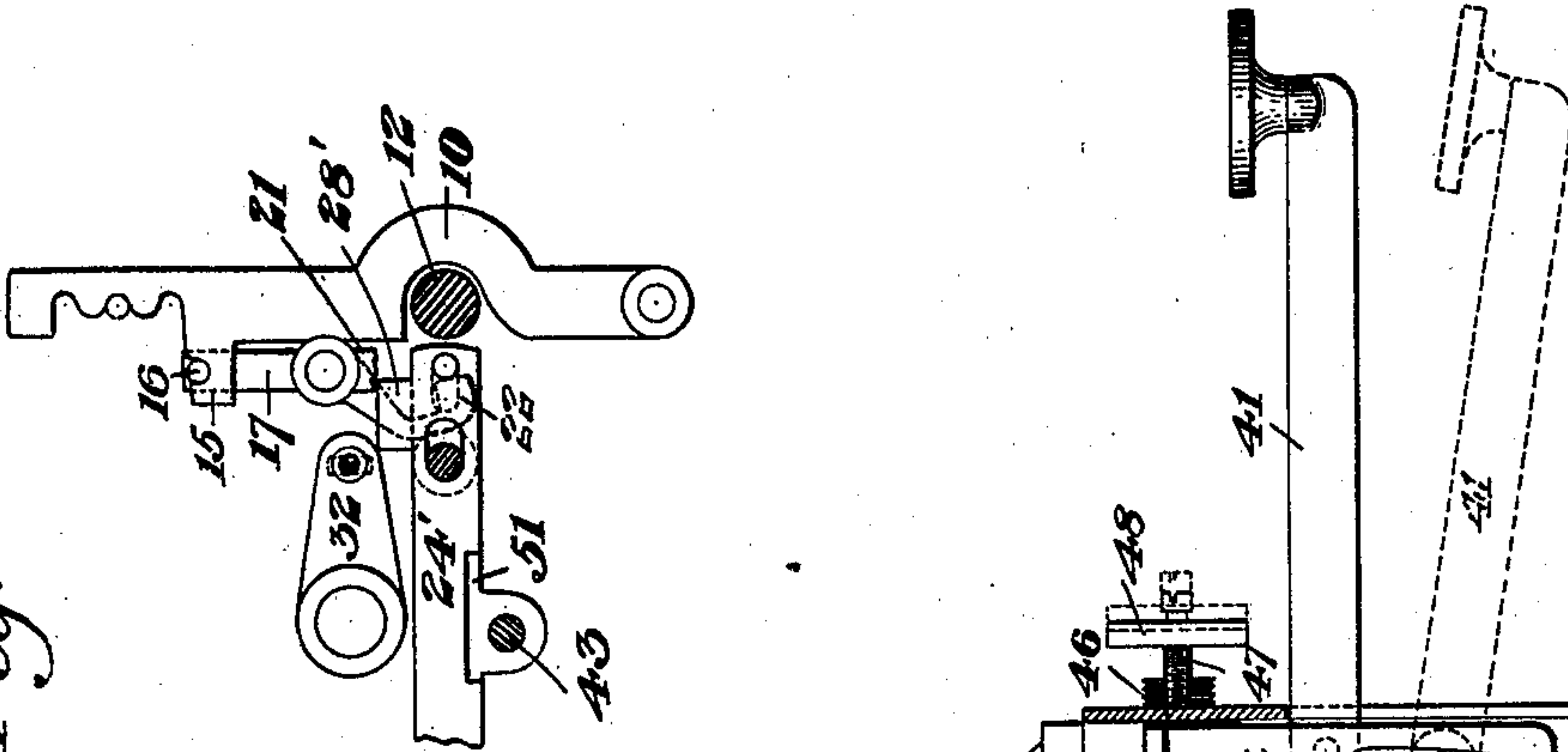


Fig. 5.

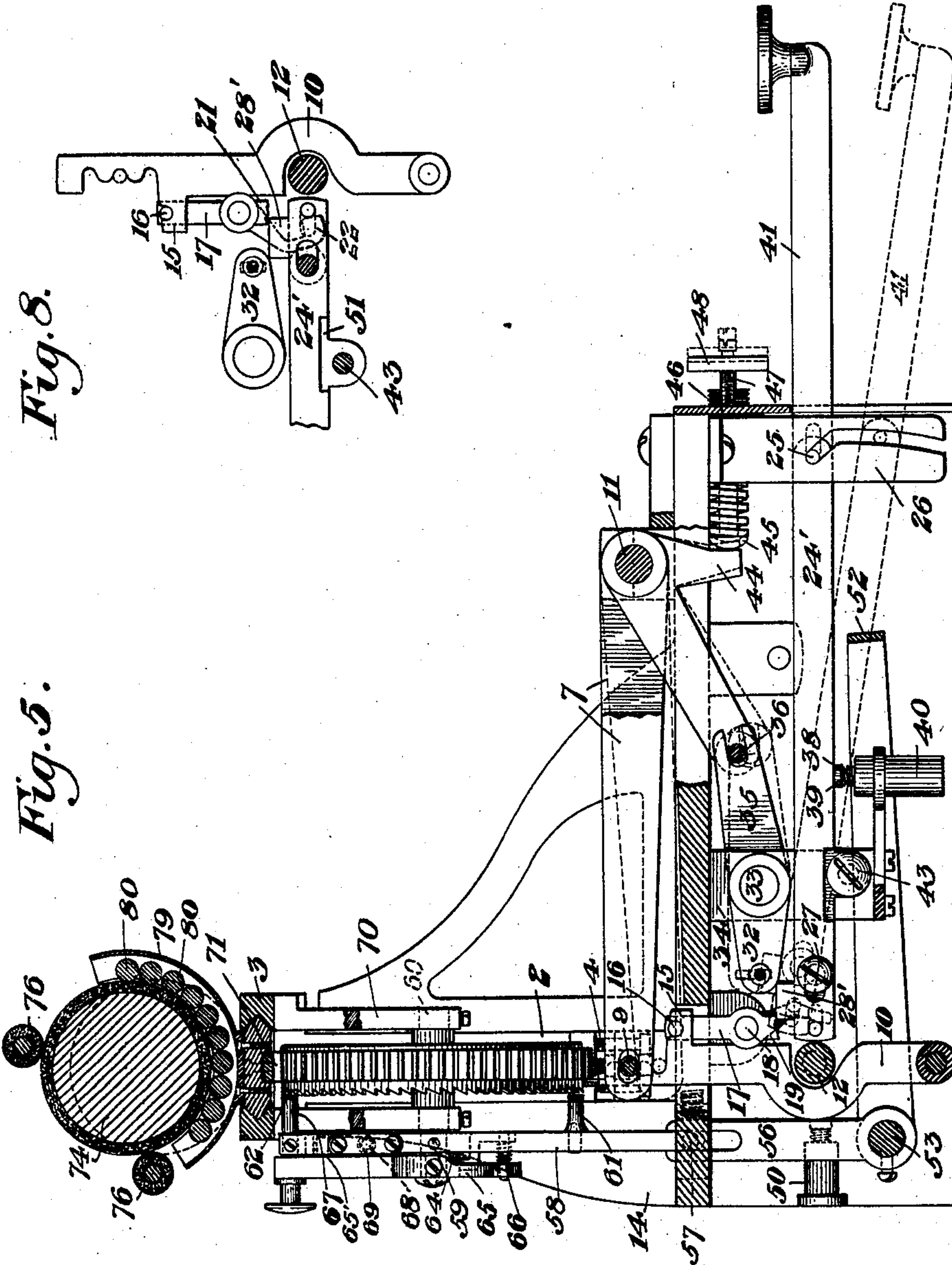
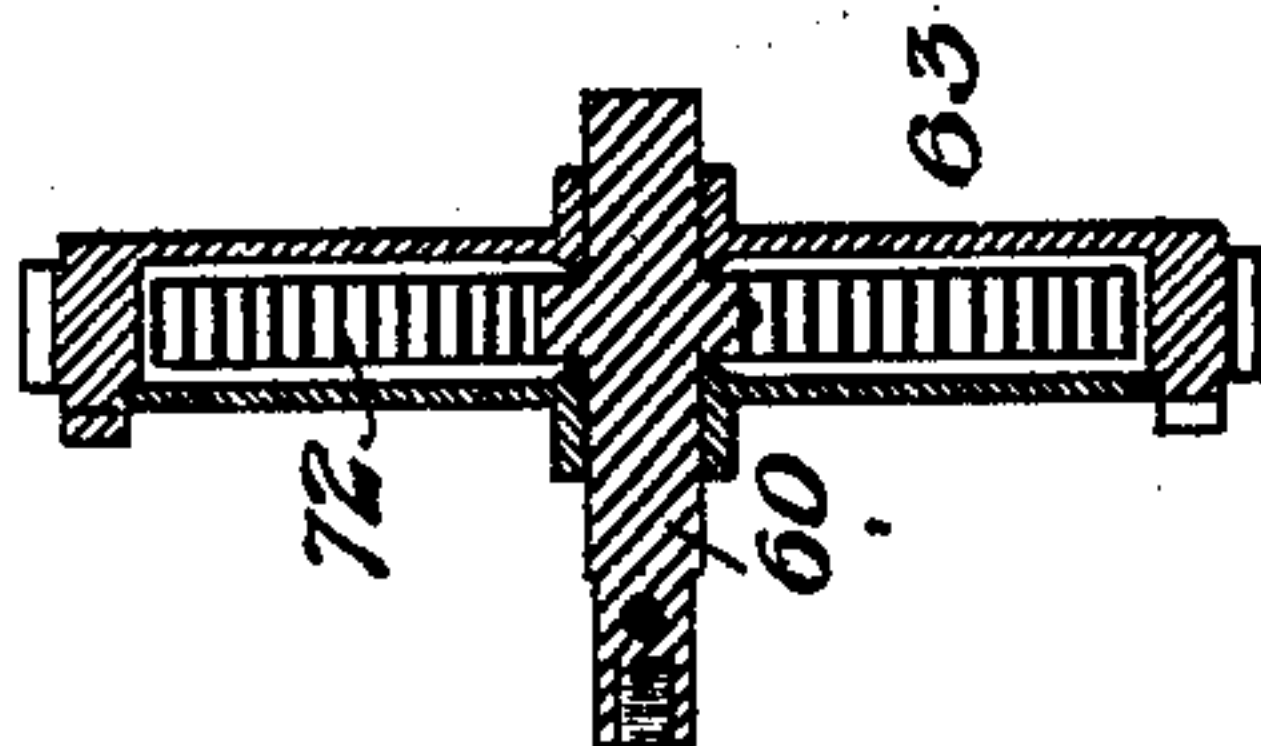


Fig. 11.



WITNESSES

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6 Sheets—Sheet 6.

Fig. 13.

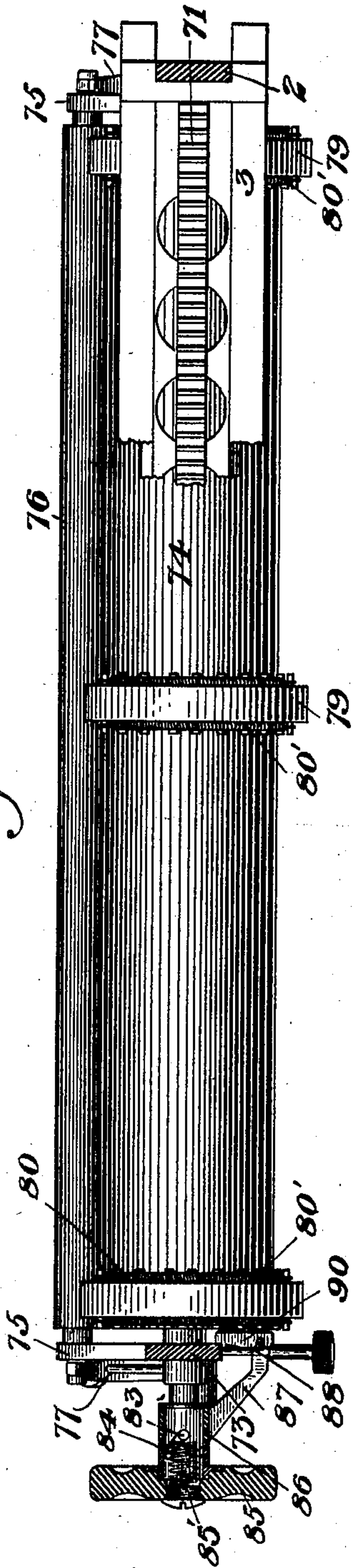


Fig. 14.

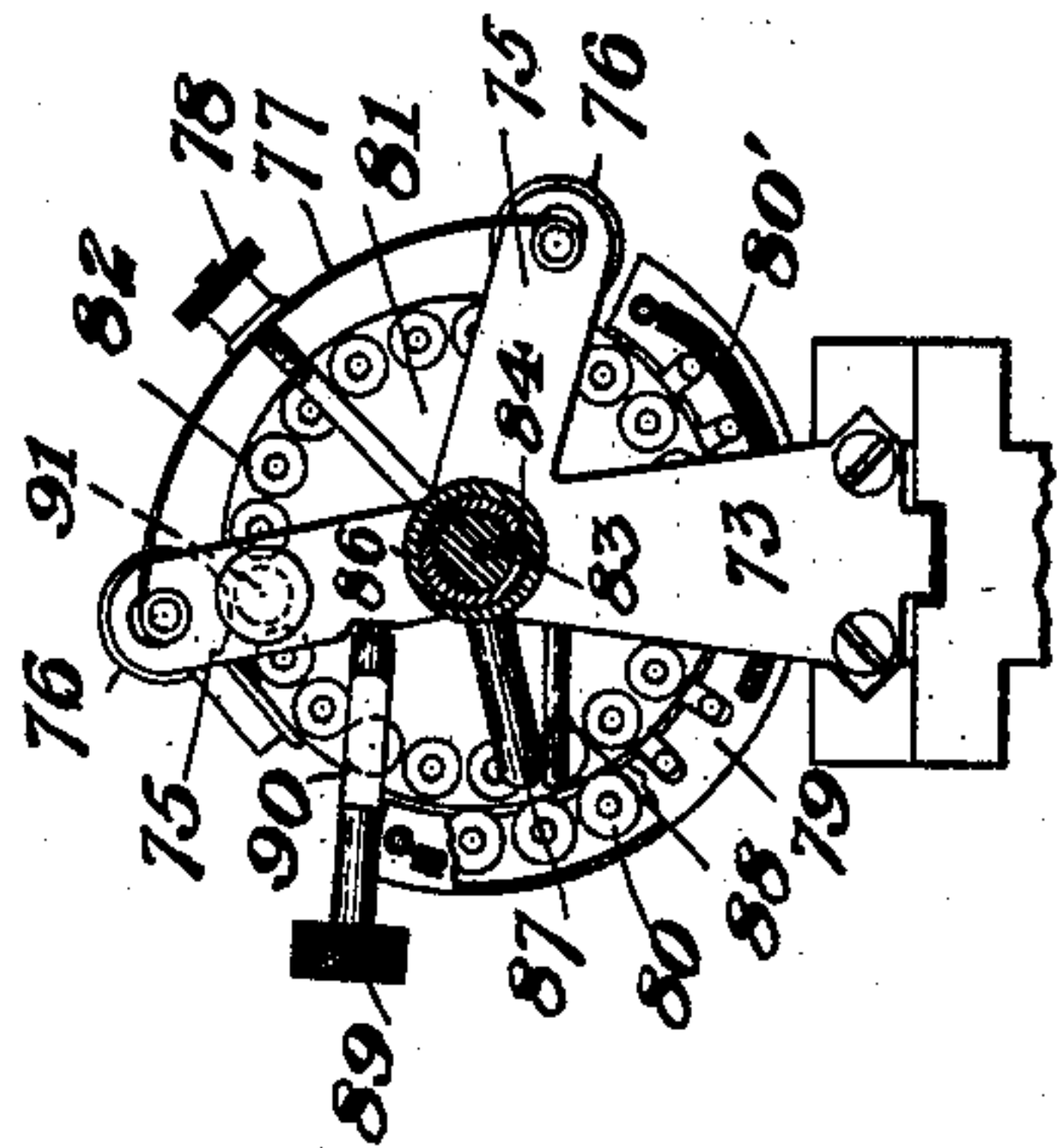
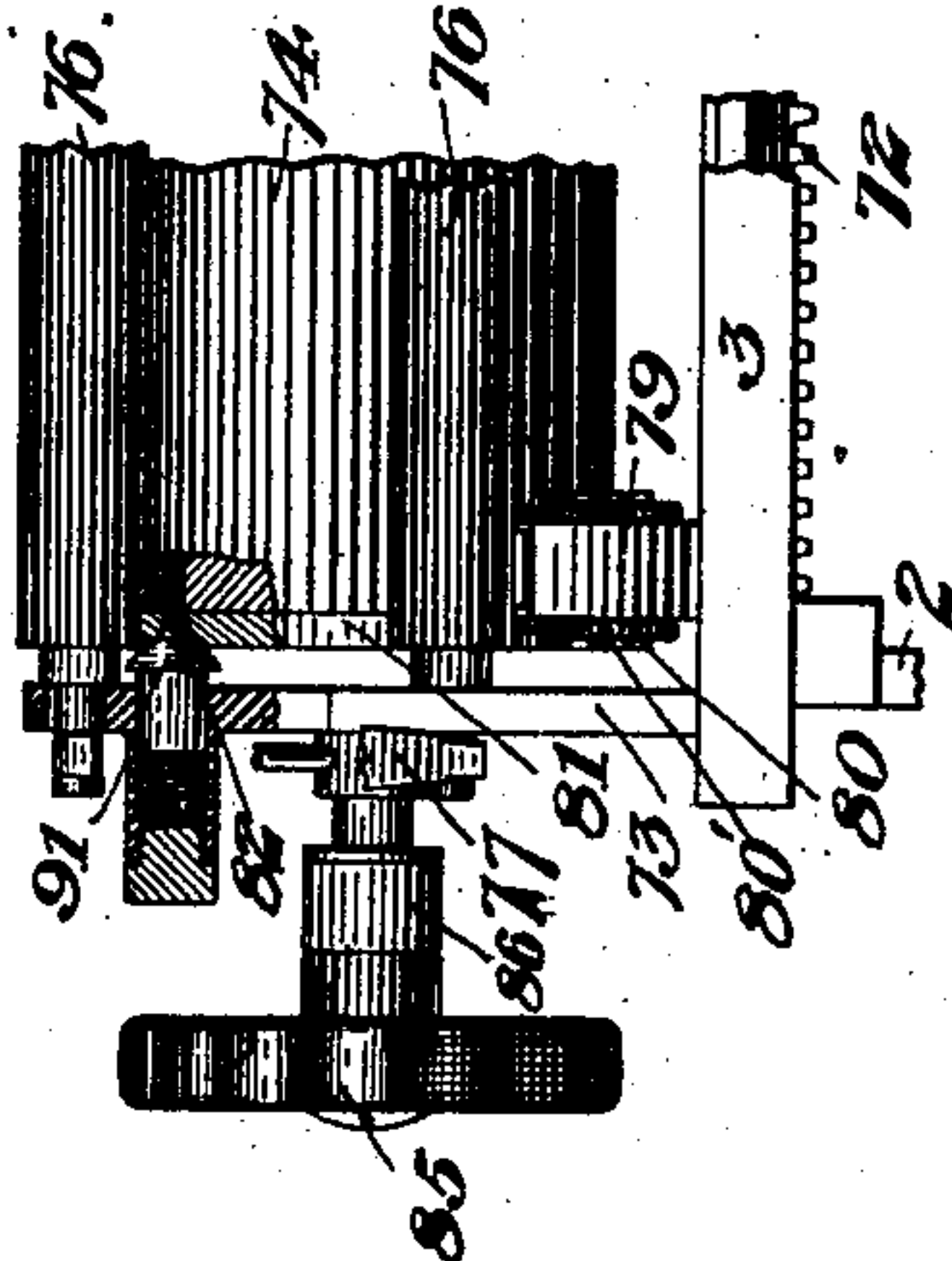


Fig. 15.





# UNITED STATES PATENT OFFICE.

WILLIAM J. KAUFFMAN, OF CANTON, OHIO, ASSIGNOR TO THE KAUFFMAN TYPEWRITER COMPANY, A CORPORATION OF OHIO.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 691,776, dated January 28, 1902.

Application filed June 1, 1899. Renewed April 12, 1901. Serial No. 55,571. (No model)

*To all whom it may concern:*

Be it known that I, WILLIAM J. KAUFFMAN, of Canton, in the county of Stark and State of Ohio, have invented a new and useful  
5 Improvement in Type-Writing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—  
10 Figure 1 is a rear elevation, partly broken away, showing parts of my improved mechanism. Fig. 2 is a bottom plan view of the machine with parts removed. Fig. 3 is an end elevation, partly broken away, showing  
15 the left-hand end of the machine. Fig. 4 is an end elevation of the carriage-actuating mechanism at the right-hand end of the machine, the frame being broken away. Fig. 5 is a vertical section near the end of the ma-  
20 chine, showing the feeding mechanism for the carriage, as well as the shifting mechanism. Fig. 6 is a detail plan view of the elevating and depressing levers and slides. Fig. 7 is an inside elevation of part of the shifting  
25 mechanism shown in Fig. 4. Fig. 8 is an outside elevation of the depressing mechanism for the carriage at the right-hand end of the machine. Fig. 9 is a detail perspective view of the rock-shaft levers at the right hand of  
30 the machine. Fig. 10 is a similar view of the rock-shaft levers at the left-hand end of the machine. Fig. 11 is a vertical section of the carriage-actuating drum, detached. Fig. 12 is an inside elevation of the rocking-lever  
35 connections for the feed-drum of Fig. 11. Fig. 13 is a bottom plan view of the carriage, partly broken away. Fig. 14 is a right-hand elevation of the carriage, partly in section; and Fig. 15 is a partial rear elevation of the  
40 carriage, partly broken away.

My invention relates to type-writing machines, and is designed to provide improved mechanism for shifting the platen-carrying carriage into different vertical positions and  
45 retaining it in any such position desired, to provide simple and effective mechanism for feeding the carriage, and, further, to improve the paper holding and feeding devices and the spacing mechanism upon the carriage.

50 In the drawings, in which I have omitted the key-levers for clearness, said key-levers

operating type-arms provided with type at different points in their length, referring more especially to the first five figures, 2 2 represent the vertical standards or slides upon  
55 which the carriage-bed 3 is supported. The lower end of each standard is secured by screws 4 4 to an adjustable block 5 6, being a regulating-screw, the head of which abuts against the top of the block 5. This adjust-  
60 ing mechanism enables the elevation of the carriage to be accurately regulated, so the type will strike at the desired point thereon. The blocks 5 are pivotally connected with rocking levers 7 by screws 8, which  
65 pass through short slots in the levers and are secured to the blocks. The head of each screw 8 is provided with a central projecting pin 9, these pins 9 normally engaging notches in vertically-extending rock-arms 10. The  
70 levers 7 are secured to a common rock-shaft 11, which extends across the machine below the type-levers. The rock-arms 10 are bent or curved to extend around the key-lever shaft 12 and are pivoted upon screws 13, se-  
75 cured to the end frames 14 of the machine. Each of the rock-arms 10 is provided below the notches, of which there are preferably three, with forwardly-projecting lugs 15, having notches engaged by pins 16 upon short  
80 rock-arms 17. The rock-arms 17 are secured to a transverse shaft 18, which at the left-hand end of the machine is provided with two downwardly-projecting arms 19 and 20 of the form shown in Fig. 10, while its right-hand  
85 end is provided with the shorter arm 21 and notched arm 22 of the form shown in Fig. 9.

Referring now to the left-hand shifting mechanism, which is adapted to merely un-  
90 lock and raise or lower the carriage, the carriage being held in either its highest or lowest position by the operator, 23 is the elevating-lever, which at its rear end is pivoted to the key-lever shaft, as shown in Figs. 3 and 4. A slide 24 is movably carried on this  
95 key-lever, the slide having at its front end a pin 25, which projects into a horizontal slot in the key-lever, while the other end of the pin engages a curved slot in a cam-plate 26. The upper part of this slot is inclined, while  
100 the lower part is curved on a radius whose center is the fulcrum of the key-lever. Near



the other end of the slide a screw 27 passes through a slot in the slide and is secured in the lever, and this rear end of the slide is provided with a small depending lug 28, which when the slide is drawn forwardly engages a pin 29 at the lower end of a swinging yoke 30. At the rear end of the slide is a pin 31, which projects through a slot in the key-lever and engages the arm 19, (shown in Fig. 10,) and the portion of the arm 19 with which this pin engages is curved on an arc struck from the axis of the key-lever as a center when the arm 19 is in its forward position.

The yoke 30 is pivoted to a rock-arm 32, mounted on a rock-shaft 33, which extends across the machine and is carried in brackets 34 just above the key-levers. To the central portion of the shaft 33 is secured a rock-arm 35, the end of which is slotted to receive a screw 36 on rock-arms 37, thus forming a loose pivotal joint. A coil-spring 38, acting upon a plunger 39 and supported in a barrel 40, acts upon the shifting-lever and its slide, as shown in Fig. 3, to restore the parts to their normal position when released.

The operation of the parts just described is as follows: When the shifting-lever is depressed, the pin upon the slide engaging the cam-slot in plate 26 first draws the slide forwardly and through the arm 19 tilts the rock-arm 10 rearwardly, as shown in dotted lines in Fig. 3, and disengages the middle notches of these levers from the pins 9, thus unlocking the carriage-standard. The further downward motion of the shifting-lever causes the lug 28, which has been drawn forward in the first motion of the slide to engage the pin 29 upon the yoke 30 and through the arm 32, rock-shaft 33, and arms 35 and 37 rock the shaft 11 and through the arms 7 elevate the carriage, so as to bring it to its uppermost position, where the type for the capital letters will strike it. On releasing the shifting-lever the carriage will first descend to its normal intermediate position, and the notched arms then engage the pins, again locking it in such position. To depress the carriage to its lowermost position, I use the shifting-lever 41, which, with its slide, is similar in construction to the lever 23. The lug 28' upon the slide is upon the upper side of the slide and engages a pin 42, secured to the inside of the rock-arm 32, so as to lift this rock-arm after the slide has been moved forwardly. The pin at the rear end of this slide 24' contacts with the arm 20, the rear face of this arm being curved on an arc struck from the pivot 43 of the lever 41 as a center when the arm is in its forward position. It is evident that when this shifting-lever 41 is depressed the slide will first be moved forwardly to unlock the carriage, and the lug upon the slide will then engage the pin upon the arm 32 and rock the shaft 33, so as to depress the carriage. The rock-shaft 11 is provided with a depending arm 44, which engages a spring-pressed plunger 45, the tension of the spring being

regulated by a threaded sleeve 46. The movement of the plunger is regulated by screws 47, passing through a head 48 at the outer end of the plunger and bearing on the frame of the machine. When the carriage has been depressed and the depressing-key is released, this spring-pressed plunger will restore the carriage to its normal intermediate position, in which it is again locked.

Referring now to the shifting mechanism at the right hand of the machine, which is adapted to unlock and raise or lower the carriage and then lock it in its new position, 49 is the shifting-lever for lifting, this lever having the same slide and slide connection as the lever 23. The arm 21, however, is shorter than the arm 19, so that after the pin has drawn this forwardly to unlock, the arm 21 becomes freed from the slide-pin and the spring-pressed plungers 50 force the levers 10 forwardly, so that their upper notches engage the pins 9 and relock the carriage in elevated position. By again striking the left-hand shifting-lever for elevating the carriage will again be lowered and locked at its intermediate normal position. The shifting-lever 51 at the righthand of the machine for depressing the carriage acts in the same way as the depressing-lever at the left hand, except that the pin 31' upon its slide is cut away and engages the notched or recessed arm 22, which arm is released after depressing as the pin or slide enters the notch or recess in the arm 22, so that the plungers 50 will lock the carriage in lowered position. Upon depressing the corresponding left-hand lever the carriage will be released and locked in its normal position, being lifted by the plunger 45.

In Fig. 7 I show the position of the arm 21 when the parts are locked, while in Fig. 8 I show that of lever 22 in a similar position.

Referring now to the feed mechanism for the carriage, 52 is the universal bar, of U form, which extends across the machine below the rear portions of the key-levers, its arms being secured to the rock-shaft 53, pivotally mounted at the rear portion of the framework. To the arms of this universal bar are secured curved strips 54, having pins 55, arranged to be acted upon by levers 55', to which the spacing-keys are secured, the curved strips or braces giving the necessary space for operating the shifting-levers. Adjustably secured to the central portion of the rock-shaft 53 is a vertical rock-arm 56, which is slotted at its upper end to receive a pin 57, connecting the sides of a tilting lever 58, trunnioned on a pin 59, extending through shaft 60. The tilting lever 58 is provided with a dog 61, which engages ratchet-teeth 62 on the rear face of a drum 63, which is loose on the shaft 60. Trunnioned to a ring or collar 64, loose on a shaft 60, is a swinging pawl-carrying arm 65, having secured therein the pawl 67, which also engages the ratchet-teeth on the drum. The pawl is normally held in



engagement with these teeth by spring 66, pressing upon the lower end of the arm 65. To tilt the lever or arm 75 laterally when the pawl is released, I provide the spring-pressed  
 5 plunger 68, which presses upon a pin 69, as shown in Fig. 12. The arm 65 bears upon an antifriction-roller 65', carried by the tilting lever 58, so that it will move freely over the face of said lever when feeding the carriage  
 10 forward. The drum is supported in bearings upon depending braces 70 and is provided on its periphery with teeth engaging a rack 71, secured to the lower face of the carriage, and contains a coiled spring 72, whose ends are  
 15 secured to the shaft and the inner face of the drum, respectively. The operation of these parts is apparent, since when either a key-lever or spacing-lever is depressed the swinging of the rock-shaft 53 causes the dog 61 to engage  
 20 the lower teeth of the ratchet, while the pawl is freed and moved laterally, so that it engages the next tooth as soon as the dog is released. The carriage-bed is provided with vertical end supports 73, within which are supported the  
 25 trunnions of the cylindrical platen 74. These standards are provided with two arms 75, having slotted bearings at their ends within which rest the trunnions of two small rollers 76, which are arranged to bear upon the paper  
 30 on the platen. A leaf-spring 77 bears upon the trunnions of these rollers at each end, the pressure of these springs being regulated by thumb-nuts 78 upon pins which pass through the springs and enter the standards.

35 In place of the usual shield for the platen I provide several arc-shaped supports 79, of which I have shown three having side flanges provided with slots which receive the trunnions of small rollers 80. These plates or  
 40 supports 79 are secured to the bed, as shown in Fig. 5, and the rollers 80 are normally pressed against the platen by spiral springs 80', which are secured at their ends to the ends of the flanges and bear upon the pro-  
 45 truding shafts of the rollers. These sets of spring-pressed rollers serve to firmly hold and guide the paper and prevent wrinkling or displacement of it.

At one end the platen is provided with a  
 50 plate 81, having a circular series of bevel recesses or holes 82. The trunnion of the platen at this end projects some distance beyond its bearings and is provided with a small screw 83, which projects into an interior cam-slot  
 55 in a sleeve 84, to the outer end of which is secured the shank of a line-space, button, or wheel 85. A spiral spring 85' is interposed between the end of the trunnion and the but-  
 60 ton, so that the latter is forced outwardly. Surrounding the sleeve between the shank of the button and its enlarged inner portion is a loose collar 86, provided with a gravity-  
 65 pawl 87, having a beveled end arranged to enter and fit in the recesses or holes 82. This pawl normally rests upon a supporting-pin 88, projecting from the standard, and is lim-

ited in its upward movement by a stop-pin 89. This stop-pin is provided with a laterally-projecting lug 90, and by turning the stop-pin this lug may be brought into de-  
 70 pending position, where it will contact with the pawl and stop it, so as to give single spacing. When turned upwardly, it allows the platen to turn the distance of two recesses and gives double spacing. The platen is held  
 75 in any adjusted position by a spring-pressed pin 91, which projects through the standard into the recesses and is provided with a beveled head, as shown in Fig. 15. On turning  
 80 the button 85 the cam-slot will cause the end of the gravity-pawl to be forced forward into one of the holes 82. The button and the plate 81 being thus connected, a further turning of the button turns the platen at the same time. On releasing the button the gravity-pawl at  
 85 once drops back into its normal position.

The advantages of my invention result from the simplicity and compactness of the mechanism, the machine being of very slight weight and size compared with ordinary ma-  
 90 chines, while it will perform the same work. The machine has a large capacity for different characters and may be easily adjusted therefor by raising or lowering the carriage, the carriage being either held or locked in its  
 95 different positions, as may be desired.

The carriage-feeding mechanism is simple and may be cheaply made and is not liable to get out of order. The line-space feed, with its loose gravity-pawl, is simple and positive  
 100 in its action and may be easily adjusted for single or double spacing.

Many variations may be made in the form and arrangement of the various parts with-  
 105 out departing from my invention, since

I claim—

1. In a type-writer, a vertically-adjustable carriage carrying a platen and normally held in intermediate position, lever mechanism  
 110 arranged to lift the carriage to a higher position, and also lower it to a lower position, and automatic locking mechanism arranged to secure the carriage in the higher and lower positions; substantially as described.

2. In a type-writer, a vertically-adjustable  
 115 carriage normally held in intermediate position, lever mechanism arranged to lift it to a higher position, other lever mechanism arranged to move it to a lower position, auto-  
 120 matic mechanism arranged to lock the carriage in both higher and lower positions, and a spring or similar device arranged to return it to the normal intermediate position; substantially as described.

3. In a type-writer, a vertically-adjustable  
 125 carriage normally held in intermediate position, lever mechanisms arranged to raise and lower it from the normal position, locking mechanism arranged to hold it in any ad-  
 130 justed position, and mechanism for returning it to its normal position when released; substantially as described.



4. In a type-writer, a vertically-adjustable carriage normally held in the ordinary position by locking mechanism, directly engaging the carriage mechanism, and lever mechanism arranged to first unlock the carriage and then to adjust it to a different vertical position; substantially as described.

5. In a type-writer, a vertically-adjustable carriage having end supports, swinging arms arranged to engage and lock the supports in adjusted position, a swinging lever engaging one of the arms, a key-lever connected to said lever, and lifting-arms connected to and actuated by the key-lever; substantially as described.

6. In a type-writer, a vertically-adjustable carriage, having swinging locking-arms arranged to hold it in adjusted position, lever mechanism arranged to move the carriage vertically, a key-lever connected to the lever mechanism, and a device carried upon the key-lever and arranged to actuate the locking-arms; substantially as described.

7. In a type-writer, a vertically-adjustable carriage, mechanism arranged to move the carriage vertically, a key-lever connected to said mechanism, locking mechanism arranged to hold the carriage in adjusted position, and a movable member upon the key-lever arranged to actuate the locking mechanism; substantially as described.

8. In a type-writer, a vertically-adjustable carriage, mechanism for locking the same in adjusted position, lever mechanism arranged to raise and lower the carriage and connected to a key-lever, and a slide upon the lever connected to the locking mechanism and having a cam connection arranged to actuate the locking mechanism; substantially as described.

9. In a type-writer, a vertically-adjustable carriage having locking mechanism arranged to hold it in adjusted position, a key-lever having a slide arranged to actuate the locking mechanism, a cam device arranged to move the slide as the key-lever is depressed, and lever mechanism arranged to be actuated by the slide after its first movement and arranged to vertically adjust the carriage; substantially as described.

10. In a type-writer, a vertically-adjustable carriage, a rock-shaft having arms arranged to raise and lower the carriage, locking mechanism arranged to hold the carriage in adjusted position, and lever mechanisms arranged to actuate the locking mechanism and the rock-shaft, one of said lever mechanisms being arranged to release the locking mechanism and allow it to hold the carriage in adjusted position; substantially as described.

11. In a type-writer, a vertically-adjustable carriage normally held in intermediate position, lever mechanism arranged to raise and lower it, locking mechanism for holding it in adjusted position, a key-lever arranged to lift the carriage, a key-lever arranged to lower it,

and other similar key-levers having connections arranged to release the locking mechanism and allow it to hold the carriage in adjusted position; substantially as described.

12. In a type writer, a vertically-adjustable carriage, spring-pressed arms arranged to lock the carriage in adjusted positions, a key having lever connections arranged to move the carriage vertically and a connecting element between the key-lever and the locking-arm; substantially as described.

13. In a type-writer, a carriage having a rack, a pinion engaging the rack, and having a face-ratchet, a dog engaging the ratchet, and carried on a tilting lever-arm pivoted to the pinion-shaft, an actuating connection between the tilting arm and the universal bar, and a second laterally-tilting arm independent of the other arm, and having a spring-pawl engaging the ratchet; substantially as described.

14. In a type-writer, a carriage having a rack, a pinion engaging the rack, and supported in bearings secured to the carriage-bed, a ratchet-wheel upon the pinion, a pivoted arm arranged to swing in a plane at right angles to that of the ratchet, and having a dog engaging the ratchet, an actuating connection between said arm and the universal bar, and another arm arranged to tilt side-wise independently of the first arm, and having a spring-pressed pawl engaging the ratchet; substantially as described.

15. In a type-writer, a carriage having a rack, a pinion engaging the rack and supported in bearings secured to the carriage-bed, an integral ratchet-wheel upon the face of the pinion, a vertically-extending lever with a yoke pivoted to the pinion-shaft, and having at its lower end a loose connection to the universal bar, a dog upon the lever engaging the ratchet, and another independently-swinging arm movable in a plane at an angle to that of the lever, and having a spring-pressed pawl engaging the ratchet, substantially as described.

16. In a type-writer, a carriage having a rack, a pinion engaging the rack and having a ratchet, a swinging lever having a loose connection with a swinging arm connected to and actuated by the universal bar, escapement mechanism on the lever engaging the ratchet, and mechanism for raising and lowering the carriage; substantially as described.

17. In a type-writer, a platen having two holding-rollers pressing thereon, said rollers being mounted in slotted bearings, and a single leaf-spring bearing upon a trunnion projecting from each roller; substantially as described.

18. In line-spacing mechanism, a plate at the end of the platen having a circular series of holes, a button loosely mounted upon the platen-trunnion and having a connection therewith, and a loose gravity-pawl carried by the button and arranged to engage the



holes in the platen-plate; substantially as described.

19. In line-spacing mechanism, a plate having a circular series of holes, a button or wheel carried upon the platen-trunnion and having cam connection therewith, a spring between the trunnion and the button arranged to force the button outwardly, a loose gravity-pawl carried upon the button arranged to engage the holes, and stops for the pawl; substantially as described.

20. In line-spacing mechanism, an end plate upon the platen having a circular series of holes, a rotary button having a loose pawl arranged to engage the holes, and stops for the pawl; substantially as described.

21. In line-spacing mechanism, a platen having an end plate provided with a circular series of holes, a button having a sleeve loosely surrounding the platen-trunnion and provided with a cam-slot engaging a pin on the trunnion and a gravity-pawl secured to a loose collar on the button-sleeve and ar-

ranged to engage the holes; substantially as described.

22. In line-spacing mechanism, a platen-plate having a circular series of holes, a rotary button having a loose pawl arranged to engage the holes, and an adjustable stop having a projection to engage the pawl; substantially as described.

23. In a type-writer, a vertically-adjustable carriage carrying a platen and normally held in intermediate position by locking mechanism, lever mechanism arranged to unlock and move the carriage to a different vertical position, and lever mechanism arranged to unlock the carriage, move it to a different vertical position and automatically lock it in such new position substantially as described.

In testimony whereof I have hereunto set my hand.

WILLIAM J. KAUFFMAN.

Witnesses:

C. W. STROHN,  
J. L. WESTFALL.