

No. 767,029.

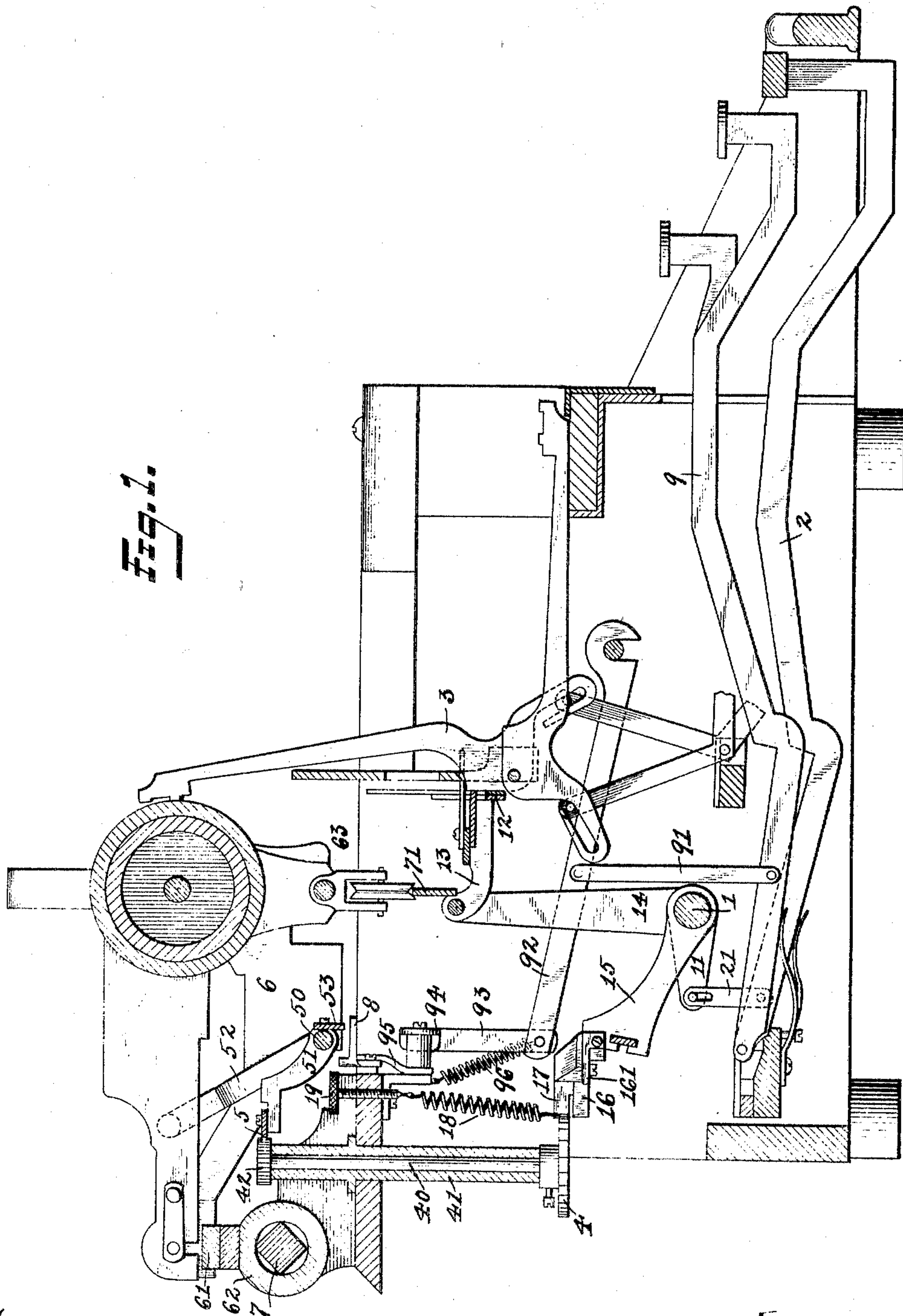
PATENTED AUG. 9, 1904.

J. ALEXANDER.
TYPE WRITER FEED MECHANISM.

APPLICATION FILED NOV. 8, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses

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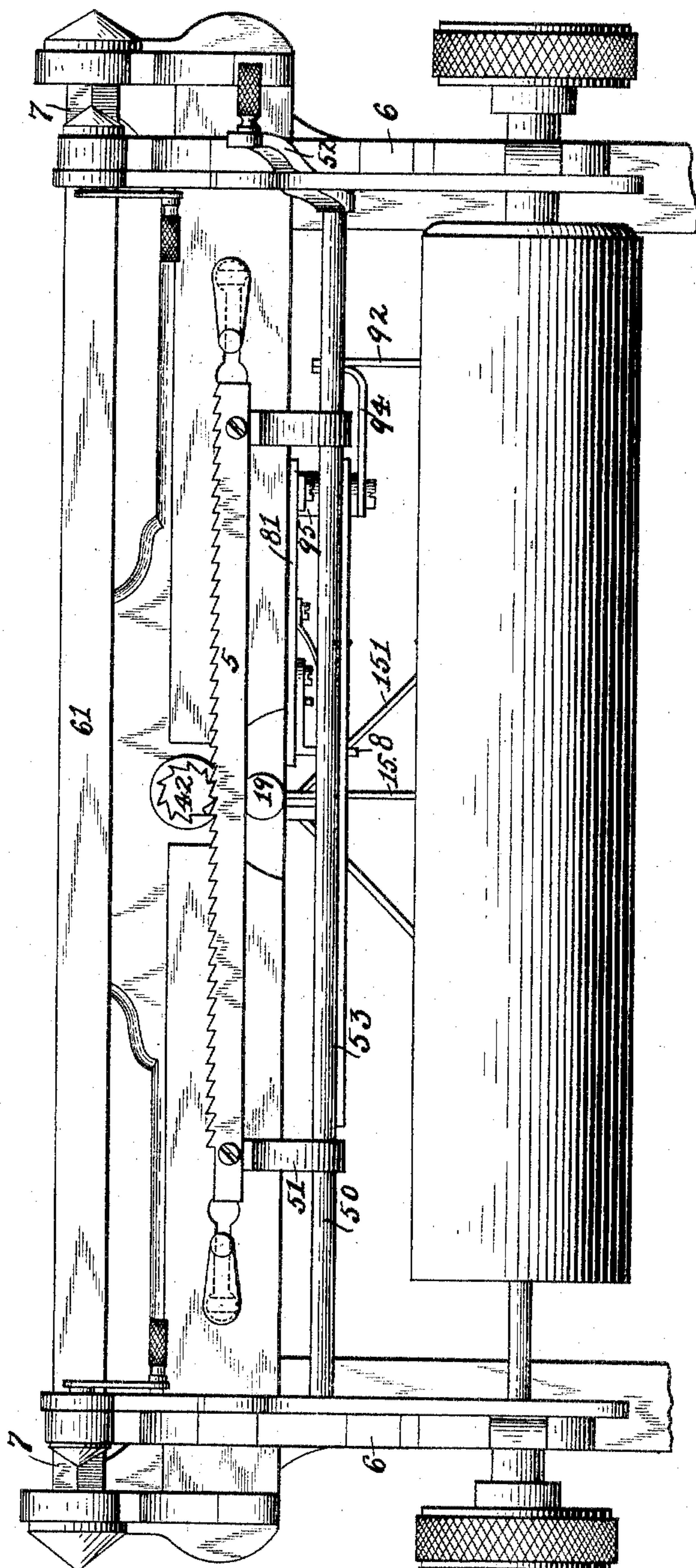
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3 SHEETS—SHEET 2.

Fig. 2.



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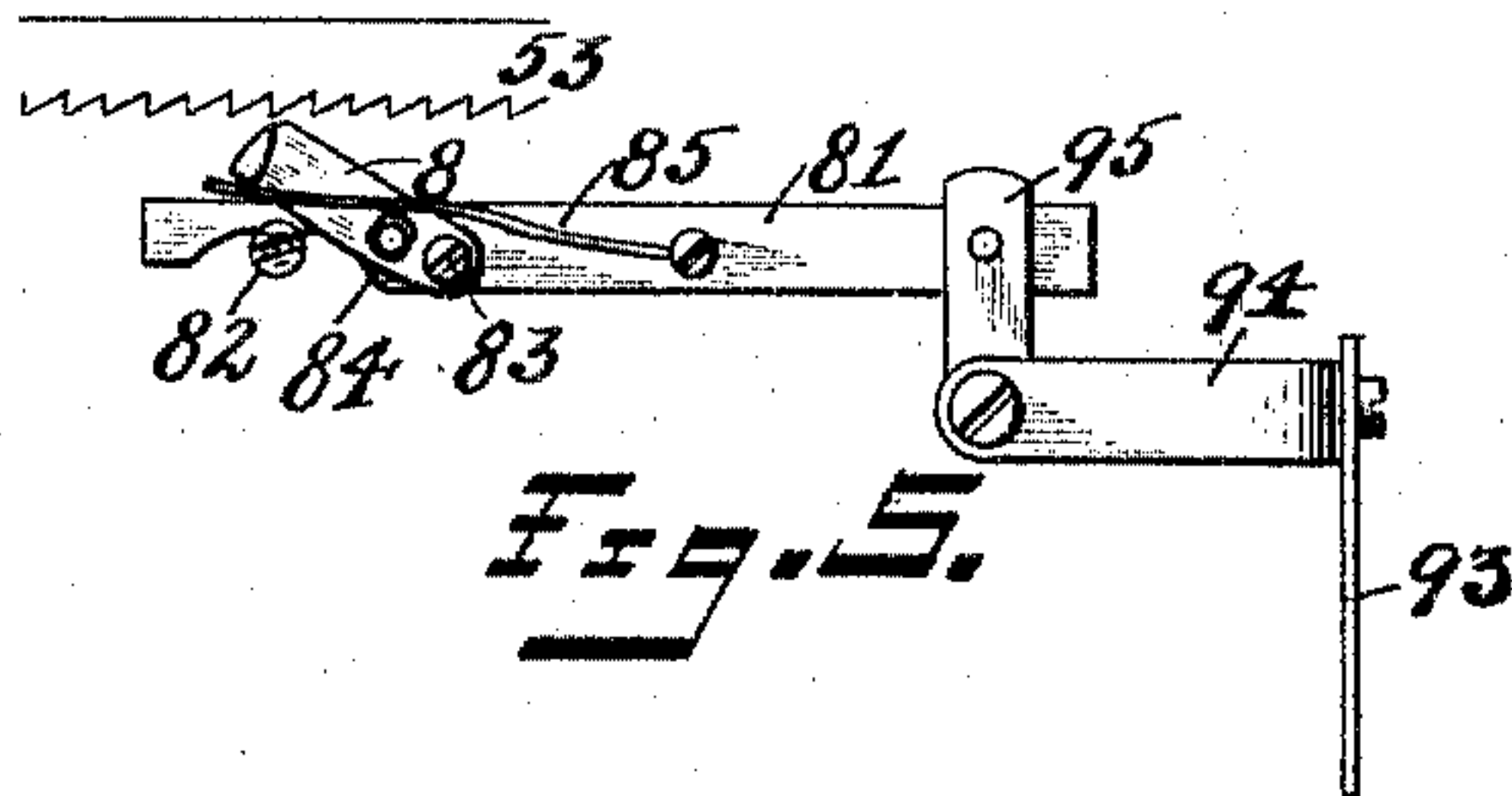
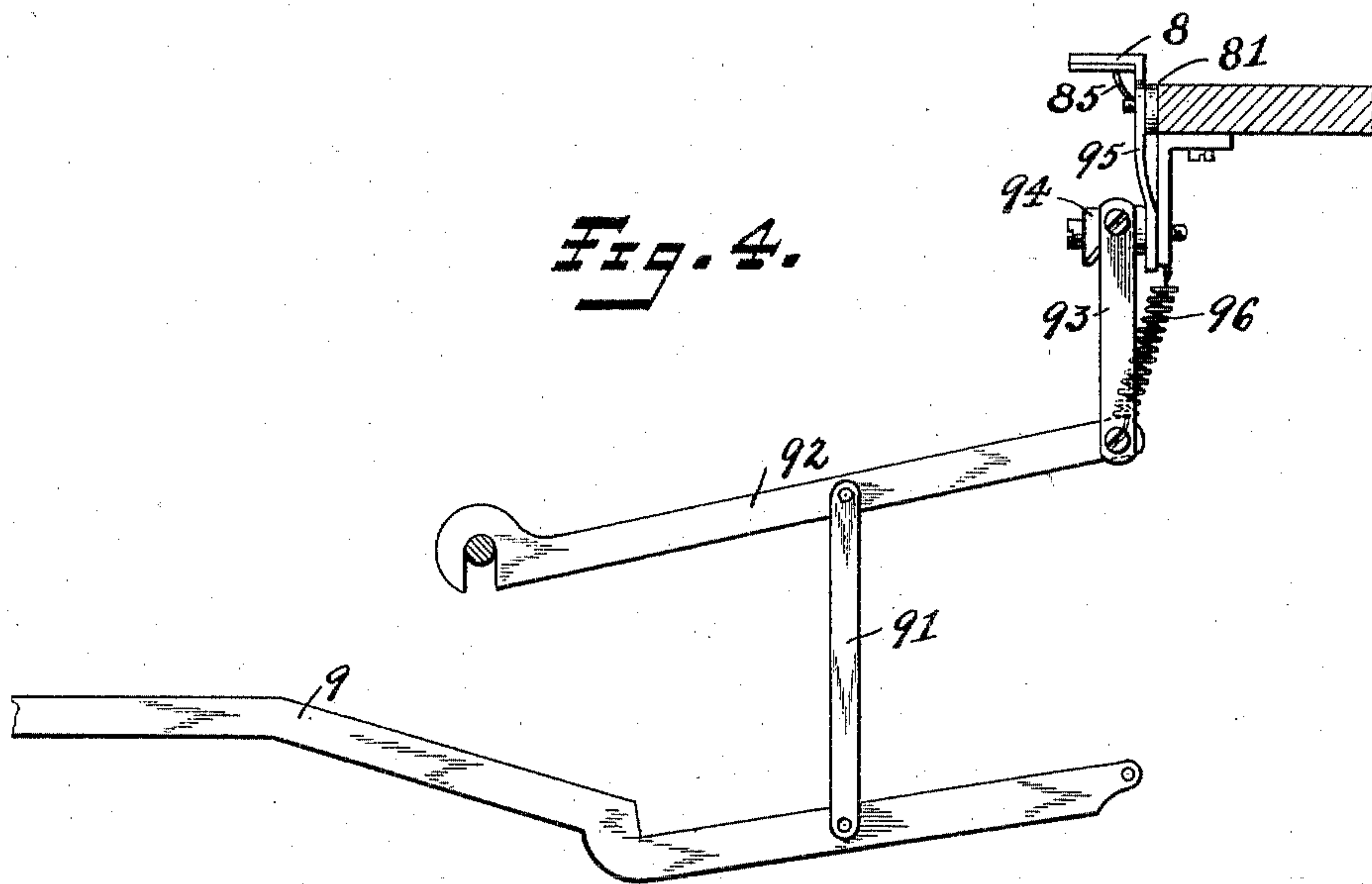
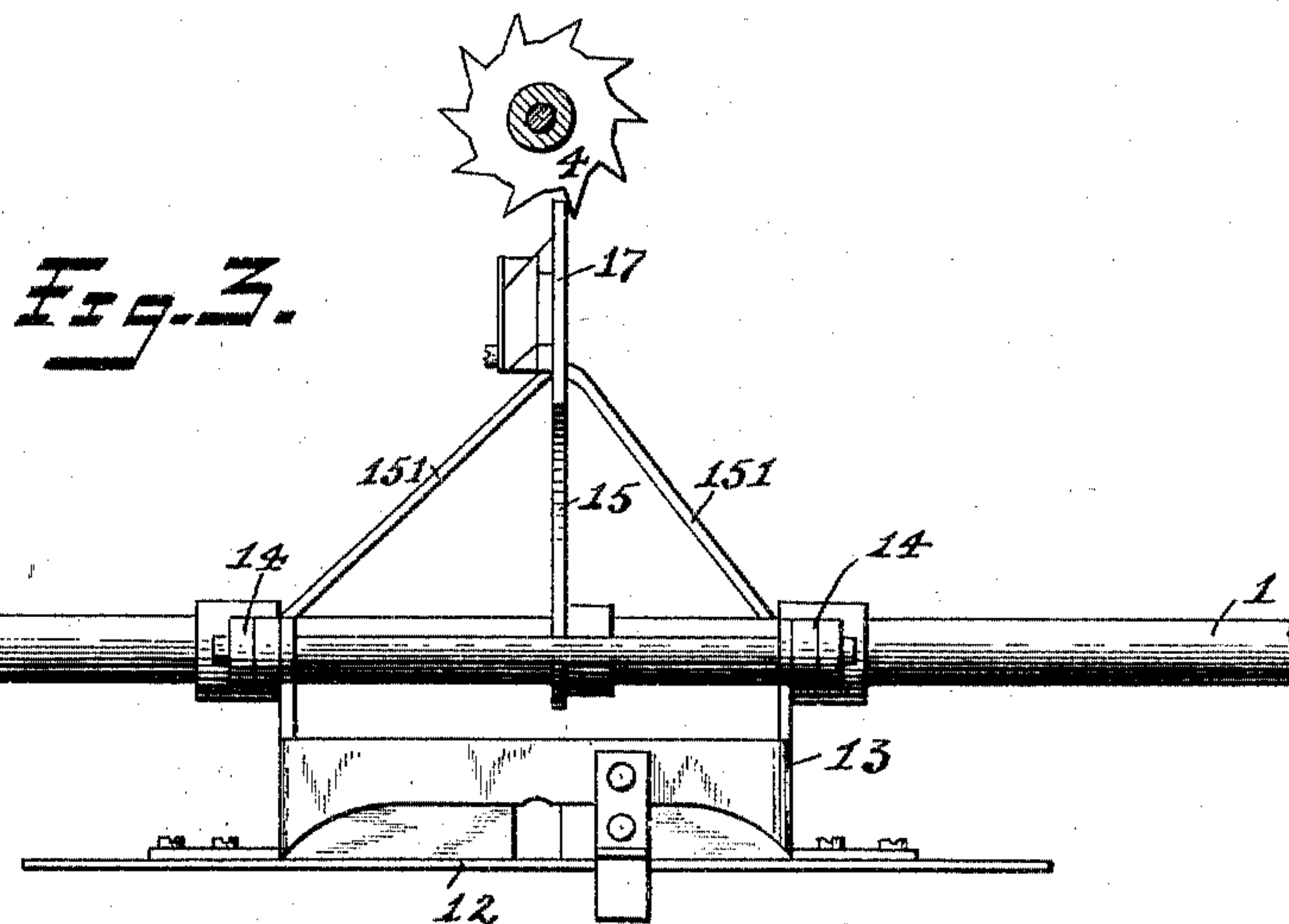
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3 SHEETS—SHEET 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

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TYPE-WRITER FEED MECHANISM.

SPECIFICATION forming part of Letters Patent No. 767,029, dated August 9, 1904.

Application filed November 8, 1902. Serial No. 130,549. (No model.)

To all whom it may concern:

Be it known that I, JESSE ALEXANDER, a citizen of the United States, residing at New York city, in the borough of Brooklyn, county of Kings, State of New York, have invented certain new and useful Improvements in Type-Writer Feed Mechanism, of which the following is a full, clear, and exact description.

My invention relates to type-writers, and particularly to the mechanism for feeding the carriage and platen from one side to the other.

The invention is illustrated as applied to machines of that class in which the characters are impressed upon the paper in a horizontal line appearing before the operator at the time of writing.

It is my object to provide improved mechanism by which the carriage may be fed normally in one direction by the operation of the usual keys and spacer-bar and, when desired, in the opposite direction by an efficient key-controlled means.

An examination of the accompanying drawings and the following specification will show that my invention consists in providing a new and improved construction of the parts necessary to feed a carriage and platen from right to left of the machine in an effective and reliable manner. An independent mechanism is provided for moving the carriage step by step in the opposite direction, or from left to right, as desired, in a convenient manner. The parts by which this movement is effected are of simple construction and may be produced and maintained in operative condition at a reasonable cost. I have said that the mechanism for moving the carriage from left to right was independent of the mechanism for feeding the carriage in the opposite direction. This is true so far as the operator and his method of manipulation is concerned. As a matter of fact, however, the successful operation of this second mechanism depends, in the particular form herein shown, upon the continued presence and operativeness of a part of the mechanism for giving the carriage its normal direction of feed from right to left.

In the accompanying drawings, Figure 1 is

a side elevation and section of a machine embodying the improvements of this application. Fig. 2 is a plan view of the carriage mechanism, showing a part of my construction. Fig. 3 is a detail plan view and section of part of the mechanism for controlling the movement of the carriage from right to left. Fig. 4 is a detail side elevation in section of the operating mechanism for moving the carriage from left to right. Fig. 5 is a detail front elevation of a part of the same.

Referring more particularly to the construction shown in Fig. 1, I have designated the universal shaft by the numeral 1. This shaft is operated when desired by means of the spacer-bar 2 through the intermediate link 21 and the arm 11, extending from the universal shaft. At other times the universal bar may be operated by means of a type-bar 3 striking against the universal bar 12, which is connected, by means of the link 13 and arm 14, to the universal shaft 1. From the universal shaft projects the arm 15, carrying the dog, which forms one element of the escapement mechanism. For the purpose of strengthening the dog-arm I have provided the strap 151, which engages a shoulder of the dog and moves with the shaft 1. The dog has a pivoted spring-pressed finger 16 and a relatively stationary finger 17. The universal shaft and parts attached thereto are normally held in position by means of the helical spring 18, which is attached to an adjusting-screw 19. The teeth of the dog coact with the teeth of the ratchet-wheel 4, which is carried by the shaft 40. This shaft has bearings in a sleeve 41 and carries at the upper end a small pinion 42 for engagement with the teeth of a rack 5, mounted on the carriage structure 6. The side frames of this carriage structure 6 are connected together at the rear by means of a bar 61. This bar is secured upon a guide-sleeve 62, which slides upon a guide-rod 7, carried by the frame of the machine. In front the carriage is supplied with an auxiliary guide-wheel 63, which runs upon a track 71. The carriage is given a normal tendency to move toward the left by any suitable means, so that

the rack 5 gives the pinion 42 a normal tendency of rotation clockwise, as viewed in Fig. 2. The pinion 42, however, being mounted on the shaft 40, is restrained by means of the ratchet-wheel 4, which is in engagement with a tooth 16 of the escapement-dog.

When the universal shaft 1 is operated either by means of the space-bar 2 or by means of a type-bar 3, the dog-tooth 16 is retracted from its engagement with a tooth of the ratchet 4, and the tooth 17 comes into play. The hinged tooth has then been pressed to the right. Upon the release of the universal shaft the hinged tooth 16 comes into position in front of the next adjacent tooth of the ratchet 4, at which time the ratchet is permitted to rotate through the space of one tooth and the carriage carrying the platen will move a corresponding distance from right to left, the tooth 16 coming to rest against the stationary part of the dog. The carriage is thus moved step by step as desired. The connection from the universal shaft will thus be seen to be direct and the action positive.

The rack 5 is preferably mounted upon arms 51, which are carried by the shaft 50. When it is desired that the carriage shall be moved freely from one side to the other without the restraining action of the ratchets and escapement-dog, the rack 5 may be moved from its engagement with the pinion 42 by means of the lever 52, which is connected to the shaft 50. This shaft 50 is pivoted in side frames 6 of the carriage in a convenient manner.

I have also provided the rack 53, by means of which the carriage may be moved step by step from left to right of the machine. The pawl 8 is adapted to coact with the teeth of this rack, as will appear more particularly on inspection of Figs. 4 and 5. This pawl 8 is operated by means of a bar 9 and intermediate mechanism. This mechanism consists of a link 91, a pivoted lever 92, a link 93, and a bell-crank lever 94 95. A pawl-carrying slide 81 is pivoted to this last-mentioned member 95. The left-hand end of the pawl-carrying slide is guided by a pin or screw 82, secured in the frame of the machine. The pawl 8 is pivoted at 83 to the slide and is provided with a slot for engagement with the stop-pin 84. The spring 85 holds the pawl 8 up in its normal position. When the bar 9 is depressed, it carries with it the link 91, lever 92, link 93, and rotates the bell-crank lever 94 95, so that the slide 81 is moved to the right of the machine. The end of the slide 81 has a cam-face so shaped that upon movement to the right the outer end of the slide is raised slightly and the pawl 8 engages with a tooth of the rack 53, thus moving the carriage backward. Upon release of the bar 9 the spring 96 will bring the parts back into their normal position. The pawl, having a slight movement permitted by the slotted portion about the stop 84, releases readily from the rack 53, while

the spring 85 throws it up ready for action. This operation may be repeated as often as desired and the carriage gradually moved step by step from left to right of the machine any number of spaces which may be necessary. This feature is of great value in correcting errors in printing or in returning to a portion of the work formerly written to underscore or otherwise mark the same.

I insure a greater range of movement of the pawl 8 by means of the intermediate lever 92.

What I claim is—

1. In a type-writing machine, the carriage-feed mechanism including a horizontal universal shaft, a vertical ratchet-carrying shaft, a ratchet carried thereby, an arm projecting upwardly and backwardly from said universal shaft, an escapement-dog carried by said arm, and a reinforcing-band carried by said universal shaft and passing around the outer end of said arm.

2. In a type-writing machine, the carriage-feed mechanism including a horizontal universal shaft, a vertical ratchet-carrying shaft, a ratchet carried thereby, an arm projecting upwardly and backwardly from said universal shaft, an escapement-dog carried by said arm, a spacer-bar, a lever projecting from said universal shaft, and a slotted link engaging a pin and connecting said bar and said lever.

3. In a type-writing machine, the carriage-feed mechanism including a horizontal universal shaft, a vertical shaft, a ratchet carried thereby, an arm projecting upwardly and backwardly from said universal shaft, an escapement-dog carried by said arm comprising a rigid tooth and a spring-pressed pivoted tooth normally engaging said ratchet, a universal bar, a substantially upright lever rigidly secured to said universal shaft, and means of connection between said universal bar and said lever.

4. In a type-writing machine, a carriage-feed mechanism including a universal shaft, an escapement-carrying arm carried thereby, a reinforcing-band the ends of said band being secured to said universal shaft at some distance from said arm said band passing through a slot in said arm.

5. In a type-writing machine, a carriage-feed mechanism including a universal shaft, a rearwardly and backwardly extending arm carried thereby, an escapement-dog carried by said arm, an adjusting-screw passing down through the frame of the machine, and a spring attached to said screw and to said dog for giving the same a normal upward tension, and a reinforcing-band passing around the outer end of said arm.

6. In a type-writing machine, a carriage-feed mechanism including a universal shaft, a vertical shaft, a ratchet carried by the lower end of said shaft, a pinion carried by the upper end of said shaft, an arm projecting from said universal shaft, an escapement-dog car-

ried thereby for engagement with said ratchet, a pair of carriage side plates, a horizontally-movable rack for engagement with said pinion said rack being pivoted to said plates, a handle for releasing said rack, said handle lying close to one of the carriage-plates and extending upwardly therefrom.

7. In a type-writing machine, a carriage-feed mechanism including side frames, a rod carried between the same, two racks pivotally carried by said rod one of said racks lying in a horizontal plane and the other in a vertical plane.

8. In a type-writing machine, a carriage-feed mechanism including side frames, a rod carried between the same, two racks pivotally carried by said rod one of said racks lying in a horizontal plane and the other in a vertical plane, and means coacting with one of said racks to effect movement of the carriage from left to right, and means coacting with the other of said racks for effecting movement from right to left.

9. In a type-writing machine, a carriage-feed mechanism including side frames, a rod carried between the same, two racks pivotally carried by said rod one of said racks lying in a horizontal plane and the other in a vertical plane, and means coacting with one of said racks to effect movement of the carriage from left to right, and means coacting with the other of said racks for effecting movement from right to left, one of said means being operable either by a type-bar movement or by spacer-bar, and a special key for operating the other of said means.

10. A carriage-feeding mechanism for a type-writing machine including a rack, a slide-bar, a pawl yieldingly carried by one end of said slide-bar, means for causing the end of said bar to approach said rack so that the pawl may engage said rack, and means for retracting the end of said bar, said pawl yielding to slip by the teeth of said rack.

11. A carriage-feed mechanism for type-writing machines including, a rack, a slide-bar, a slotted pawl carried thereby, a stop carried by said slide coacting with the slot in said

pawl, a spring for holding said pawl against said stop, and means for operating said slide. 50

12. A carriage-feed mechanism for type-writing machines including, a rack, a slide-bar, a cam-face formed thereon, a stationary pin coacting with said cam-face to guide the end of said slide-bar toward and from said rack, a pawl yieldingly carried by said bar near said cam-face for engagement with said rack, and means for operating said bar. 55

13. A carriage-feed mechanism for type-writing machines including, a rack, a slide-bar, a cam-face formed thereon, a stationary pin coacting with said cam-face for guiding the end of said bar toward and from said rack, a spring-pressed pawl carried by said bar for engagement with said rack, and means for operating said bar. 60

14. A carriage-feed mechanism for type-writing machines including, a rack, a slide-bar, a cam-face formed thereon, a stationary pin coacting with said cam-face, a pawl carried by said bar for engagement with said rack, and mechanism including bar 9, link 91, lever 92, link 93 and bell-crank 94, 95 cooperating with the same. 65

15. A carriage-feeding mechanism for a type-writing machine including, a longitudinally-movable carriage, a pawl for moving said carriage step by step and mechanism for operating said pawl including a pivoted key-lever, a second lever above said key-lever and pivoted forwardly of the pivot of said key-lever, a link connecting said levers, and a bell-crank lever connected to said second lever. 70

16. A carriage-feeding mechanism for a type-writing machine including a slide-bar, a pawl carried thereby, a bell-crank lever one arm being connected to said slide-bar, a key-lever, a lever 92, a link connecting said levers, and a link 93 connecting said link 92 with the second arm of said bell-crank lever, and a spring for returning the parts to their normal position. 75

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Witnesses:

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