

No. 666,379.

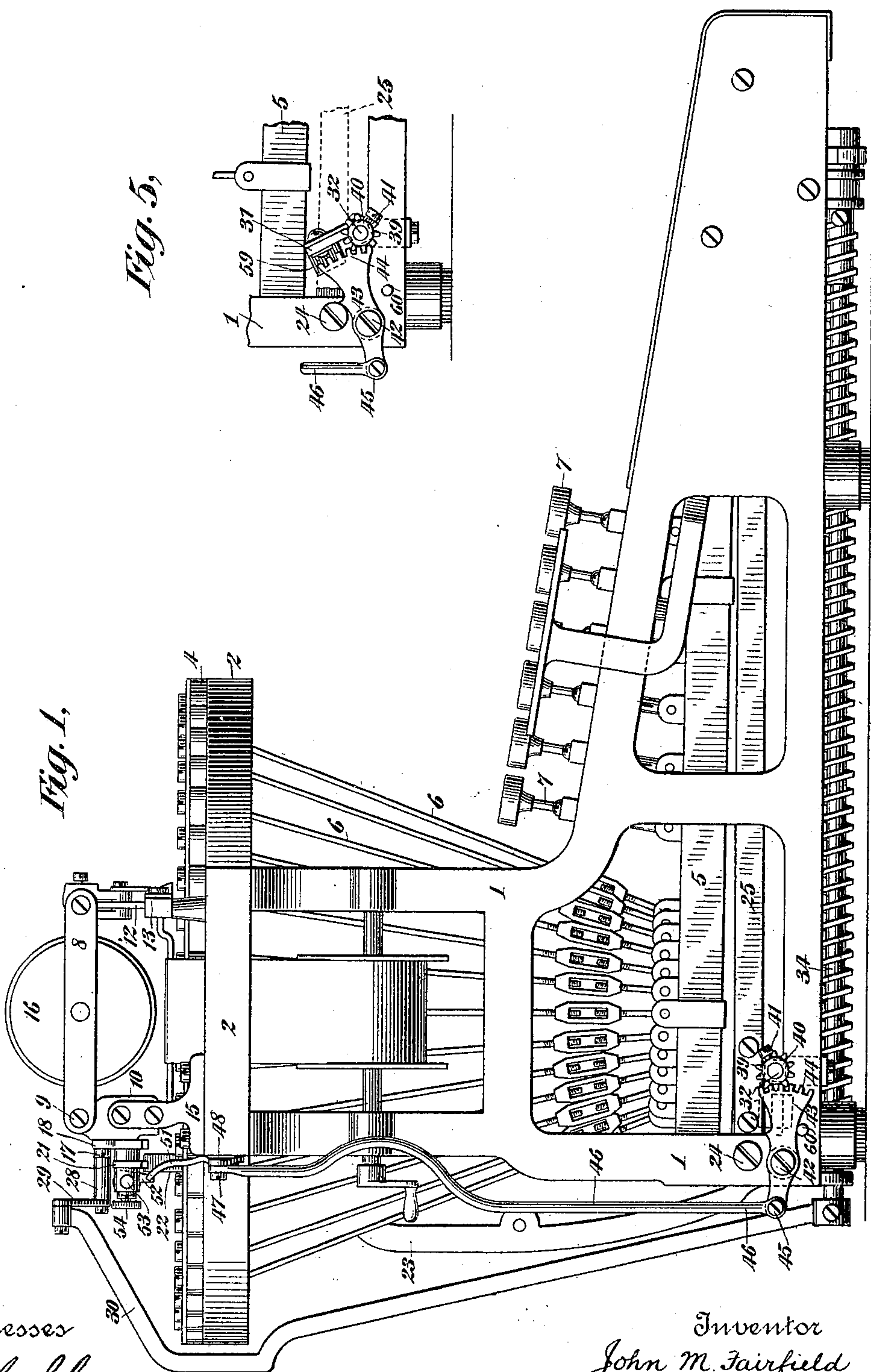
Patented Jan. 22, 1901.

J. M. FAIRFIELD.
TYPE WRITING MACHINE.

(Application filed June 14, 1892.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses
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Inventor
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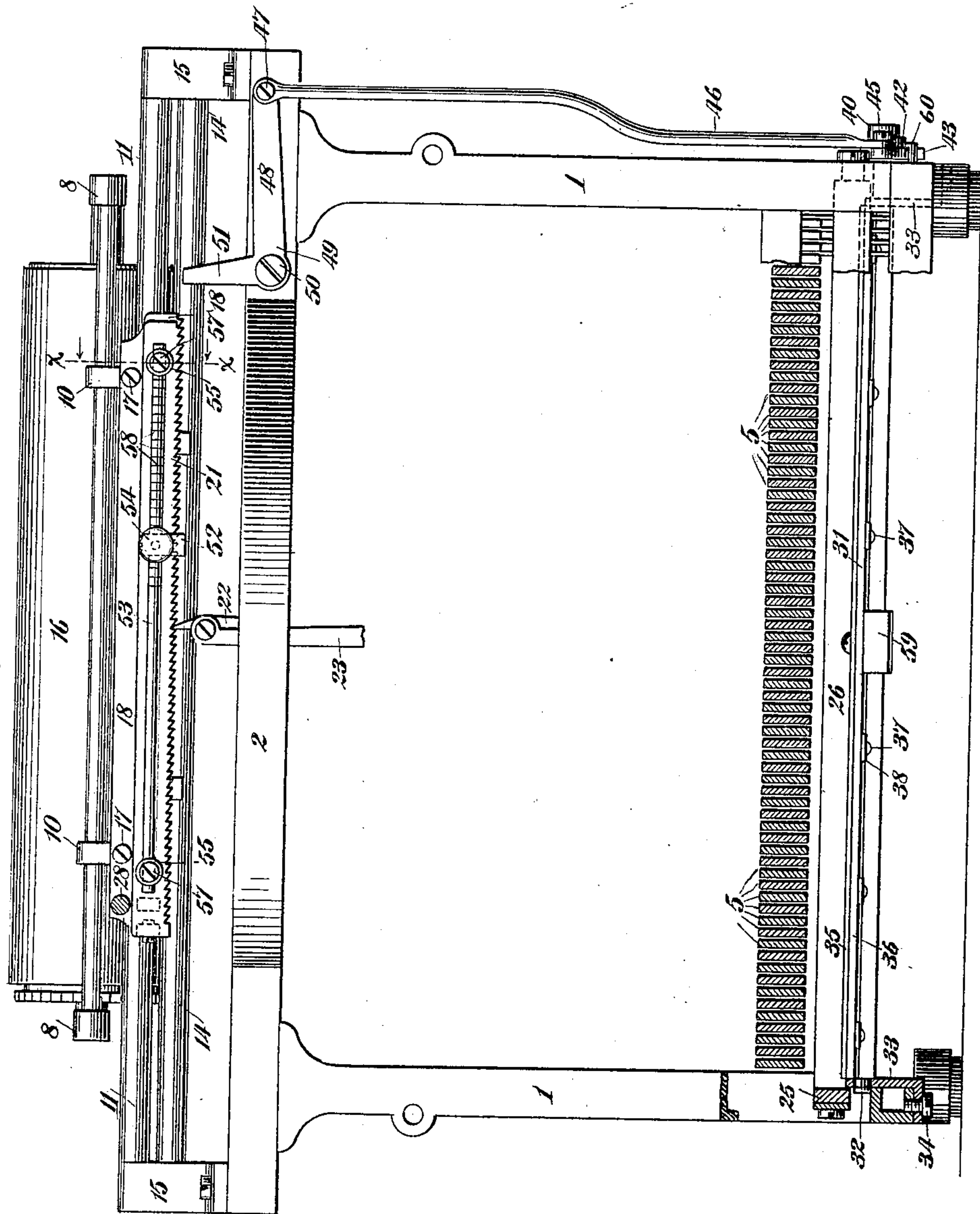
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Fig. 2.



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Fig. 4,

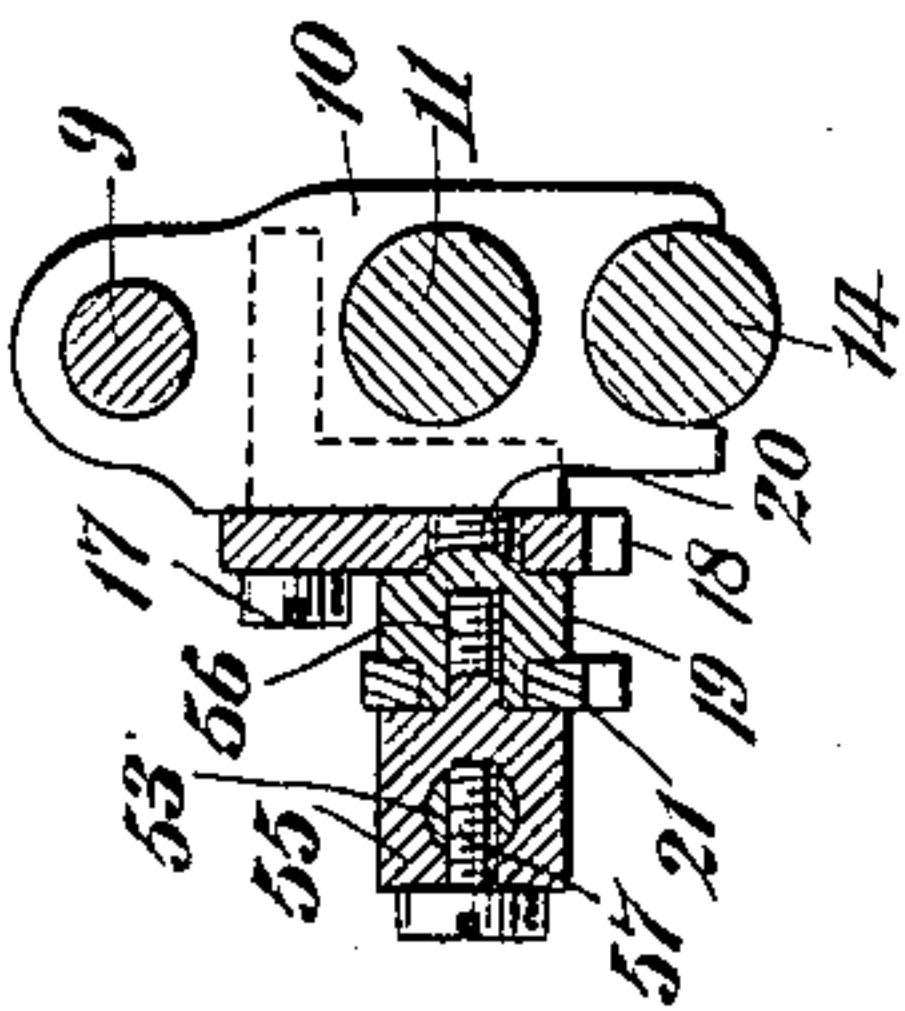
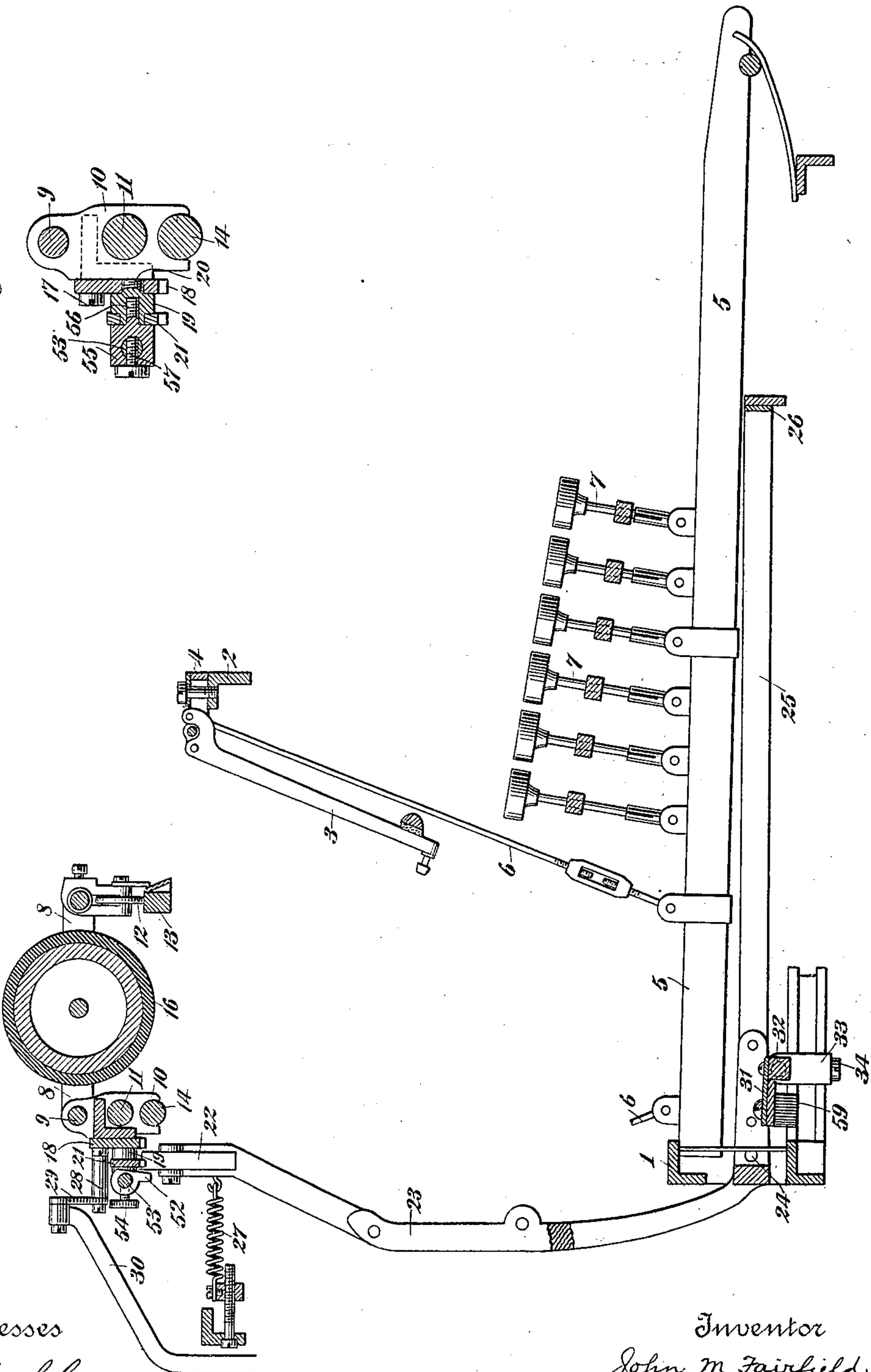


Fig. 3,



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UNITED STATES PATENT OFFICE.

JOHN M. FAIRFIELD, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE
AMERICAN WRITING MACHINE COMPANY, OF SAME PLACE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 666,379, dated January 22, 1901.

Application filed June 14, 1892. Serial No. 436,686. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. FAIRFIELD, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention has for its main object to provide means for locking the type-bars or printing mechanism when the paper-carriage may have arrived at the end of a predetermined line in order to prevent the printing of one letter or character over or upon another after the carriage has come to a standstill; and to this end my invention consists in certain features of construction and combinations of devices, all as will be hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side elevation of a type-writing machine embodying my improvements. Fig. 2 is a back view of the same, but broken away at its lower portion to more fully exhibit the locking-bar and its connecting mechanism. Fig. 3 is a central longitudinal skeleton section. Fig. 4 is an enlarged vertical section taken at the line $x x$ of Fig. 2; and Fig. 5 is a detail view, in side elevation, showing in working position the locking-bar and the gears which act to turn the same.

In the several views the same part will be found designated by the same numeral of reference.

I have shown my improvements carried out in that form of type-writing machines known as the "Caligraph;" but of course they may be applied to any other construction of machines having a series of key-levers and a movable paper-carriage.

1 designates the framework of the machine; 2, the top plate or type-ring; 3, the type bars or levers, pivoted in hangers 4 on the top-plate; 5, the key-levers, and 6 the connecting-rods between the type-bars and the key-levers. Each key-lever is provided with a finger-piece or stem 7.

8 designates a paper-carriage which is pivoted at 9 at its rear side to a yoke 10, that slides upon a guide-rail 11, and the front side

of the carriage is provided with an antifriction-wheel 12, which rides upon a track or way 13, mounted on the top plate. The yoke 10 is bifurcated at each end to embrace a rod 14, which prevents the yoke from turning about the guide-rail 11. The rail 11 and the rod 14 are supported at their ends in standards 15, secured to the top plate. Upon the carriage is mounted in bearings the usual cylindrical platen 16. Attached to the yoke by screws 17 is a fixed rack 18. From the fixed rack extends at each end a stud 19, which is preferably formed with a threaded end 20 and secured by screwing it into a threaded hole in the fixed rack. The rearmost end of each stud 19 is reduced in diameter and is embraced by a slot in a movable rack 21, as customary heretofore. Between the fixed and movable racks is arranged a spring to propel the movable rack toward the left in the feeding operation of the carriage.

22 is a dog pivoted at the upper end of a spacing-rocker 23 and adapted to coöperate with the said racks to effect the step-by-step feed of the carriage. The spacing-rocker is pivoted at 24 on each side near the base of the machine, and to the spacing-rocker is connected by side arms 25 a universal bar 26. To the spacing-rocker is connected one end of a returning-spring 27, the other end of which is connected to a fixed part of the machine.

Projecting rearwardly from the fixed rack is a pin 28, to which is pivoted a link 29, whose opposite end is pivotally connected to a spring-actuated driving-arm 30 of the usual construction and arrangement found in the Caligraph.

When any of the finger-keys are depressed, the key-levers 5 are forced down, the type-bars elevated, the universal bar 26 depressed, the spacing-rocker vibrated forwardly, and the dog 22 moved from engagement with the movable rack 21 into engagement with the fixed rack 18, and upon removing the pressure on the finger-key the parts all return to their first positions, and the paper-carriage travels a letter-space distance.

It will be understood that I have thus far briefly described the construction and operation of the Caligraph as commonly con-

structed. I shall now describe the construction, arrangement, and operation of the devices relating to my present improvements.

31 designates as an entirety a locking-bar which extends transversely beneath all of the key-levers and which is pivoted at 32 at each end in a bracket or support 33, secured by a screw 34 to the under side of the framework and projecting upwardly therefrom, and the said locking-bar is preferably composed of a metal strip 35 and a wooden strip 36, secured together by rivets 37, the head of each of which is provided with an intervening washer 38.

At the left-hand side of the machine the locking-bar pivot is prolonged to extend exteriorly of the side frame of the machine and is there provided with a pinion 39, which is preferably formed integral with a sleeve 40, that is secured to said pivot or journal of the locking-bar by a set-screw 41. Pivoted to the framework at 42 is an arm or lever 43, which is formed at its forward end with a segmental rack 44, that engages with the said pinion 39. To the rearmost end of the arm or lever 43 is pivoted at 45 the lower end of a pitman or connecting-rod 46, the upper end of which is pivotally connected at 47 to the horizontal arm 48 of a bent lever or bell-crank 49, which is pivoted at 50 to the top plate. The vertical arm 51 of the bell-crank or bent lever extends upwardly a sufficient distance to be struck by the paper-carriage or some portion or adjunct thereof. The said arm 51 of the bell-crank may be arranged at the extreme end of travel of the paper-carriage, so that the left-hand end of the feed-rack or the left-hand end of the carriage itself or some projection thereon may contact with the said arm during the last spacing movement of the carriage and cause the locking-bar to block all of the key-levers; but I prefer to provide a construction whereby the key-levers may be blocked at varying points in the range of travel of the carriage in order that postal cards and narrow paper may also be written upon without liability of writing past the edges of such cards or paper and without liability of printing one letter or character upon another at the end of the predetermined line. For this reason I provide adjustable means for throwing the locking-bar into operation when the carriage has arrived at various predetermined points. To this end the carriage preferably is provided with an adjustable trip-piece 52, which is arranged to slide upon a rod 53 and to be secured thereto at any desired locality by means of a thumb-screw which passes through the eye or bearing of the trip-piece and bears at its point on the said rod. The said rod is preferably held in cylindrical supports 55, which are provided with threaded shanks 56, that are screwed into tapped holes into studs 19. The said supports are drilled through transversely to receive the ends of the rod 53, and the rear

end of each of said supports 55 is formed with a longitudinal threaded hole in line with a transverse threaded hole near the end of said rod for the introduction of a fastening or set screw 57. The said rod 53 may be graduated or marked with degrees, as shown at 58, to correspond with the teeth of the rack and the usual scale-bar for the purpose of facilitating the adjustment of the trip-piece on said rod.

Normally the transverse locking-bar lies in a horizontal position below the plane of depression of the key-levers, so that the writing may be proceeded with to the end of the predetermined line without interference of said bar with said key-levers. When, however, the carriage is moving its last letter-space distance in the line being printed, the trip-piece contacts with the bell-crank, vibrates it, and through the pitman 46 and rack-and-pinion connection described operates to turn the locking-bar upwardly until its edge rests against or close to the under sides of the key-levers, as shown at Fig. 5. In this position of the locking-bar it is impossible to depress any of the key-levers a distance sufficient to throw any of the types against the paper on the platen, and thus when the carriage has arrived at the predetermined point it is impossible for the operator to print one letter upon another or, in fact, to print any additional matter. On returning the platen toward the right for the beginning of a new line, the pressure of the carriage being removed from the bell-crank, the locking-bar and the intermediate devices return to their first positions. A spring may be provided for this purpose; but I prefer to employ a weight 59 about centrally of the locking-bar, which I have found in practice promptly and effectually returns all of the parts to their normal positions upon the return movement of the paper-carriage.

The locking-bar may be rocked to an extent such that it touches the under sides of the key-levers, in which case it would operate to limit the movements of the parts connected therewith; but the locking-bar may be rocked to an extent such that it does not quite touch the under sides of the key-levers, yet rests in such close proximity thereto as would preclude the operation of said levers and the printing of the types to which they are connected. In the latter case there may be provided a stop-pin 60 to limit the movements of the parts, and this pin may be arranged beneath the arm 43 or at the bell-crank or at some other desired locality. Even where the locking-bar is rocked to touch the key-levers the pin 60 may be used to prevent any undue strain on the parts.

Owing to the limited amount of motion which the bell-crank has and the fact that it is acted upon by the carriage or some device connected thereto it will be understood that when the key-levers are blocked by the locking-bar the carriage is simultaneously stopped

against any further travel by the blocked bell-crank.

Of course it will be seen that numerous changes in detail construction and arrangement may be made without departing from the spirit of my invention and that the improvements may be embodied in wheel-machines as well as in all other types of machines employing key-levers.

10 What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination of the key-levers, a pivoted locking-bar provided with a pinion, an arm provided with a rack, a pitman, a bell-crank, and a paper-carriage.

2. In a type-writing machine, the combination of the key-levers, a pivoted locking-bar, a pinion thereon, an arm provided with a rack, 20 a pitman, a bell-crank, a paper-carriage, and an adjustable trip-piece.

3. In a type-writing machine, the combination of the key-levers, a pivoted locking-bar independent of the universal bar and arranged transversely of the machine and

adapted for contact by said key-levers, a paper-carriage, intermediate means for actuating said locking-bar in one direction, and a weight for actuating the said bar in the opposite direction.

4. In a type-writing machine, the combination of the key-levers, a paper-carriage, a locking-bar arranged transversely of the machine and adapted for contact with the key-levers, a device located at the end of the full or normal carriage travel and connected to actuate the locking-bar, and an adjustable trip-piece mounted to travel with the paper-carriage and actuate said device at various predetermined points before the end of the full or normal carriage travel as well as at the end thereof; substantially as set forth.

Signed at New York city, in the county of New York and State of New York, this 31st day of May, A. D. 1892.

JNO. M. FAIRFIELD.

Witnesses:

IDA MACDONALD,
JACOB FELBEL.