

2 Sheets—Sheet 1.

No. 465,905.

Patented Dec. 29, 1891.

Fig: 1

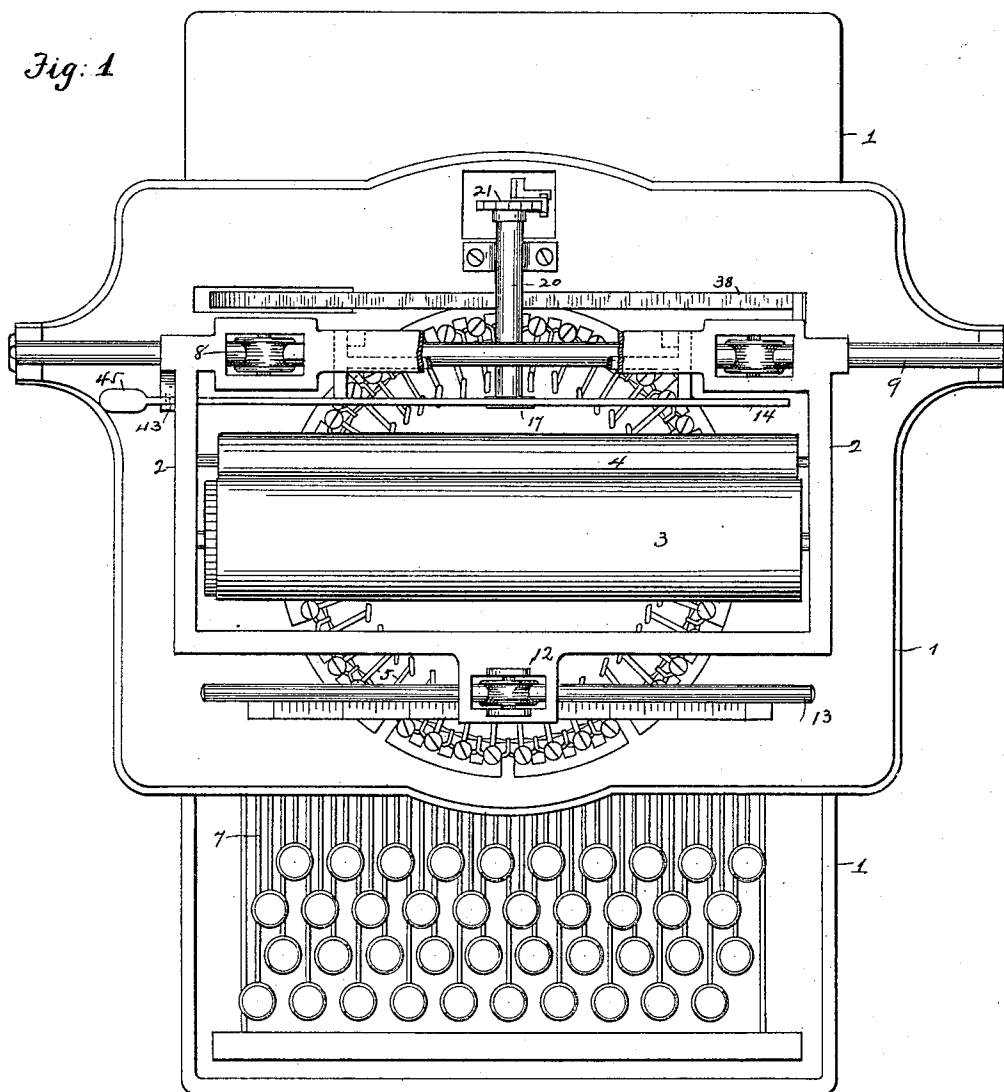
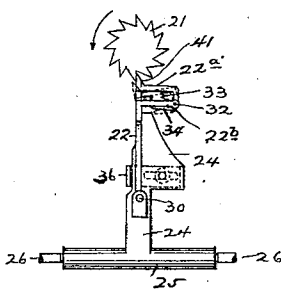


Fig: 4.



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(No Model.)

2 Sheets—Sheet 2.

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TYPE WRITING MACHINE.

No. 465,905.

Patented Dec. 29, 1891.

Fig. 2.

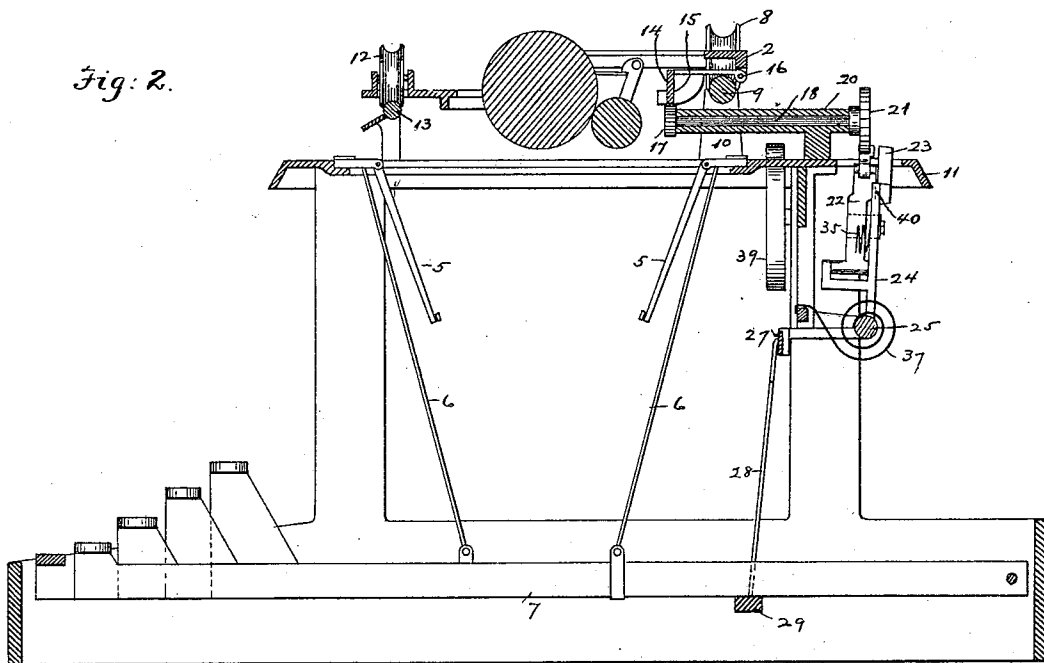
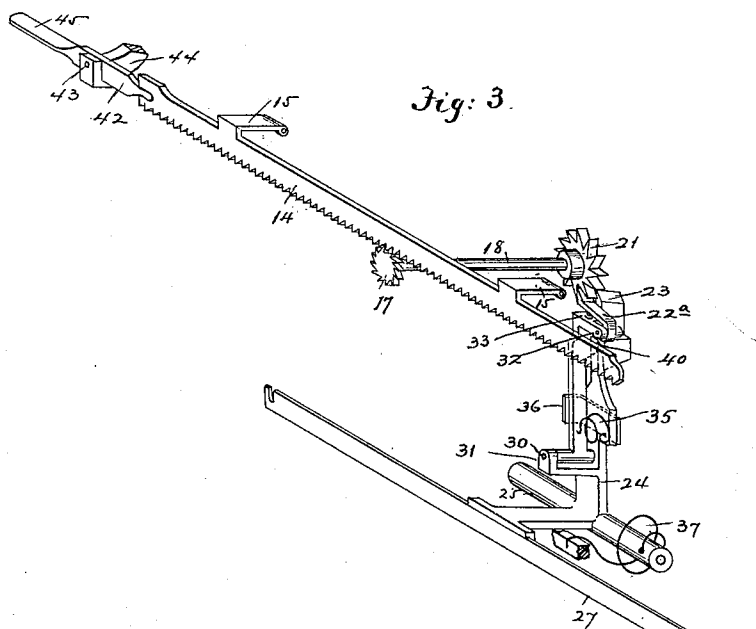


Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE B. WEBB, OF NEW YORK, N. Y., ASSIGNOR TO THE REMINGTON STANDARD TYPEWRITER MANUFACTURING COMPANY, OF SAME PLACE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 465,905, dated December 29, 1891.

Application filed October 13, 1890. Serial No. 367,965. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. WEBB, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My present invention has for its object to improve the carriage-feeding mechanisms of type-writing machines; and it consists in the combinations of devices hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a top plan view of a type-writing machine embodying my improvements. Fig. 2 is a central vertical section of the same. Fig. 3 is a detail perspective view of the escapement devices. Fig. 4 is a detail in front elevation of the feeding-dogs and ratchet-wheel.

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

The frame-work of the machine is designated by the numeral 1, the paper-carriage by 2, the platen by 3, the pressure-roller by 4, the type-bars by 5, the connecting-rods by 6, and the key-levers by 7.

The paper-carriage is provided at its rear side with grooved rollers 8 8, which bear and travel upon a hinge and guide rail 9, supported by standards 10, rising from the top plate 11 of the machine-frame. The front side of the paper-carriage is provided with a roller 12, which bears and rides upon a rail or way 13, parallel with the rail 9, but located at the front of the machine.

14 designates a vertically-arranged rack-bar, which is provided near each end with a rearwardly-extending arm 15, which is pivoted or hinged at 16 to the carriage 2, the rack being arranged in front of the guide-rail and near the center of gravity or inertia of the carriage. The teeth of the rack-bar are adapted to engage with a toothed wheel or pinion 17, fast on the inner end of shaft 18, arranged at right angles to the rack-bar and mounted in a tubular bearing 20, secured upon the top plate 11. Firmly affixed to the outer rear end of the shaft 18 is a ratchet-wheel 21,

larger in diameter than the pinion 17, adapted to be engaged alternately by the dogs 22 and 23 of the escapement, which are carried by the dog-holder 24. The latter is provided with a horizontally-arranged rock-shaft or trunnion 25, which is supported by pivots 26, secured in the frame-work. To the dog-holder is attached a cross-bar 27, which extends across the machine, and is connected by a wire 28 at each end to the ends of the universal bar 29, which, as usual, is arranged transversely under the key-levers.

The dog 22 is pivoted horizontally at 30 in a bracket 31, formed on the dog-holder. The said dog is preferably made in two parts—that is to say, hinged or pivoted again at 32, near its upper end for a purpose which will presently appear.

A spring 33 is provided to keep the free end 22^a of the dog 22 elevated and to return the same to its initial position after having been depressed by the teeth of the ratchet-wheel when the carriage is being returned to the right-hand side of the machine. The upward movement of the dog portion 22^a by the spring 33 is limited by a stop 34, which engages with the under side of an offset 22^b, to which the part 22^a is pivoted.

35 designates an additional spring for the purpose of moving the dog 22, as a whole, toward the left of the machine when it has been withdrawn from engagement with the ratchet-wheel. This movement bodily of the dog 22 is limited by an adjustable stop 36, screwed to the dog-holder. To the upper end of the dog-holder is secured rigidly the dog 23. A volute spring 37, attached to the rock-shaft at one end and to the frame-work at the other operates to move the dog-holder and dogs rearwardly and to return the universal bar and intermediate connections to their first positions after having been actuated. Normally the flexible dog 22 engages with the ratchet-wheel, as shown at Figs. 2 and 3.

At the right-hand side of the carriage is attached one end of band, belt, or other flexible connection 38, whose other end is attached to a spring-actuated driving drum or disk 39, mounted to rotate in the frame-work. The tension of the driving-spring is arranged, as usual, to draw the carriage to the left, and is

overcome normally, and the carriage arrested by the upper portion of the flexible or loose dog 22, which stands in the path of rotation of the teeth of the ratchet-wheel 21. If now a finger-key or space-key be operated and the cross-bar 27 be pulled down, the dog-holder will be rocked forward to an extent to carry the free engaging end of the dog 22 out of the plane of the ratchet-wheel and to an extent sufficient to carry the free end of the dog 23 into the plane of said wheel and in front of the same tooth thereof, which the dog 22 stood before previous to its forward movement toward the operator. Immediately the dog 22 is withdrawn from the ratchet-wheel it is vibrated toward the left, about its horizontal pivot 30, by reason of the pressure or tension of the spring 35, and moved a distance such that its free end stands in a vertical plane in rear of the tooth of the ratchet-wheel which it arrested when in its normal position, and which tooth is now being held in front by the dog 23. As soon as the rock-shaft is released, its spring 37 acts to return or vibrate the dog-holder and its appendages rearwardly. The moment the dog 23 in returning leaves the plane of the ratchet-wheel or is freed from its lowermost tooth, the carriage-driving spring, which is constantly acting, being relieved of the resistance offered by the dogs, operates to draw the carriage toward the left, which in thus moving operates in turn through the rack 14 and pinion 17 to rotate the shaft 18 and the ratchet-wheel 21. When the dog 23 in returning leaves the ratchet-wheel, the dog 22 is carried back in front of the next succeeding tooth thereof and is moved thereby as the ratchet-wheel turns until said dog is stopped by coming in contact with an abutment or shoulder 40 on the dog-holder. This stoppage of the dog 22 causes a stoppage also of the ratchet-wheel, its shaft, the pinion, the rack, and hence of the paper-carriage. When the parts have come to rest, the two dogs lie in the same vertical plane and coincident with the vertical axis of the ratchet-wheel shaft.

From the above description of the operation it will be seen that for one complete back-and-forth movement of the dog-holder and its dogs the ratchet-wheel will be permitted to turn the distance of only one notch, and thus the travel or movement of the paper-carriage will be restricted to a similar extent, which may be designated as a "letter-space distance." When the carriage has traveled thus step by step to the end of the line, (or before,) it may be returned to the right quickly by a pull thereupon in that direction. In returning, the ratchet-wheel of course is rotated in the opposite direction, during which its teeth ride freely over the end of the dog 22, its spring-acting jointed portion 22^a yielding as the inclined backs of the teeth of the ratchet-wheel pass over the inclined or beveled end 41 of the portion 22^a. During the step-by-step feed of the carriage

and during the return of the carriage to the right the pinion and rack always remain in gear.

When it may be desired to release the carriage from its connection with the spacing-dogs, in order to enable it to be moved quickly toward the left or back and forth, the rack may be swung up or tilted on its hinges or pivots 16, so as to free it from engagement with its pinion. In order to conveniently effect this releasement of the carriage, I have provided a lever 42, which is pivoted at 43 in an arm 44 of the carriage, and which at one end is mortised or dovetailed into the rack-bar, its opposite outer end extending outside of the carriage and terminating in a finger-piece 45, by a depression of which the rack may be raised sufficiently to disengage it from the pinion which it drives during the regular operation of the machine in writing.

By carrying the rack-bar in front of the guide-rail and near the center of gravity or inertia of the carriage, the latter is arrested in less time and with less rebound or vibration than if the rack were placed at the rear of the carriage, as heretofore. Moreover, by this arrangement of the rack and the consequent stopping of the carriage near the center of inertia, the tendency of the carriage to twist when stopped by the dogs is overcome, and thus the grinding action and wear upon the guide-rail of the carriage by the rollers is effectually avoided.

By making the ratchet-wheel larger in diameter than the pinion which engages the rack and turns the shaft a leverage is gained, and thus the pressure of the ratchet-teeth upon the dogs is reduced proportionately, thereby lessening the friction between the teeth and the dogs and reducing the amount of resistance to be overcome by the finger-keys, it being understood of course that the less friction between the escapement devices the lighter may be the tension of the spring 37, which has got to be overcome by the operator every time a key is actuated.

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

1. In a type-writing machine, the combination of a spring-actuated driving-drum, a paper-carriage connected to said drum and having a rack, a vibratory dog-holder, means for actuating said dog-holder through the key-levers, the spring-actuated horizontally-pivoted dog 22, the upper portion 22^a of which is independently pivoted and spring-actuated, a rigid dog 23, a ratchet-wheel, with which both said dogs co-operate, secured at one end of a shaft, and a pinion secured at the other end of said shaft and meshing with said rack on the paper-carriage, substantially as set forth.

2. In a type-writing machine, the combination, with a paper-carriage and with suitable feed-dogs, of a rack hinged to the paper-carriage, a pinion on one end of a shaft to engage with said rack, a ratchet-wheel on the

other end of said shaft to co-operate with said dogs, and an arm or lever connected to the paper-carriage and to said rack for the purpose of disengaging the latter from its driving-pinion, substantially as set forth.

3. In a type-writing machine, the combination, with a paper-carriage and with a rigid dog and a flexible dog, the latter having a spring-pressed jointed portion 22^a at its upper end, of a rack connected to the paper-carriage, a shaft mounted in a fixed bearing, a pinion attached to the inner end of said shaft to engage with the rack, and a ratchet-wheel attached to the outer end of said shaft to co-operate with said dogs, substantially as set forth.

4. In a type-writing machine, the combination, with a paper-carriage and with suitable

feed-dogs, of a rack hinged to the paper-carriage and extending forward toward the center of the carriage, a pinion on one end of a shaft to engage with said rack, a ratchet-wheel on the other end of said shaft to co-operate with the dogs, and a lever attached to the carriage-frame in line with the rack and extending laterally inward to connect with said rack for the purpose of releasing it from its pinion, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 8th day of October, A. D. 1890.

GEORGE B. WEBB.

Witnesses:

H. D. DONNELLY,
L. F. BROWNING.