(No Model.)

G. W. N. YOST & C. E. MERRITT.

TYPE WRITING MACHINE.

No. 442,409. Patented Dec. 9, 1890.

Fig. 1.

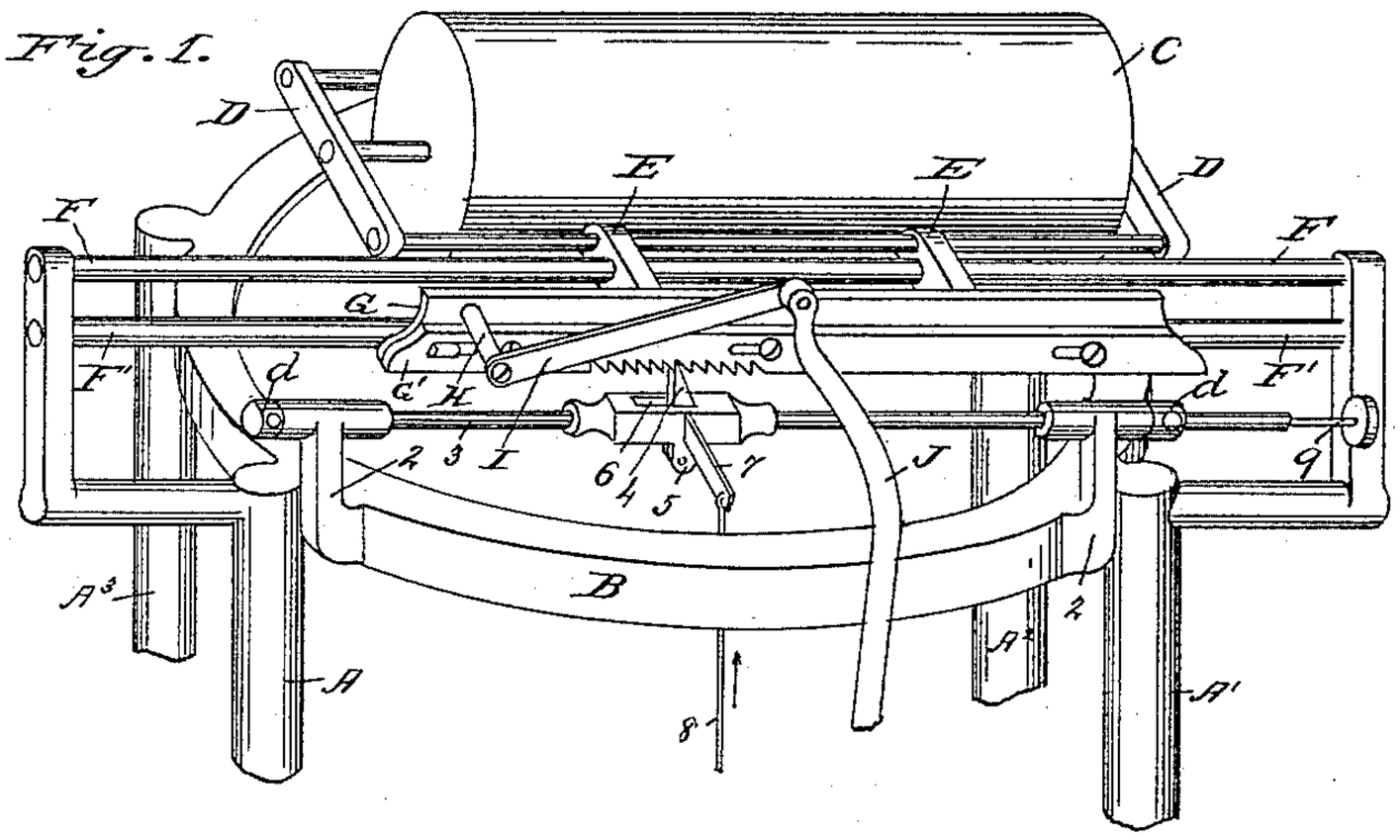


Fig. 2.

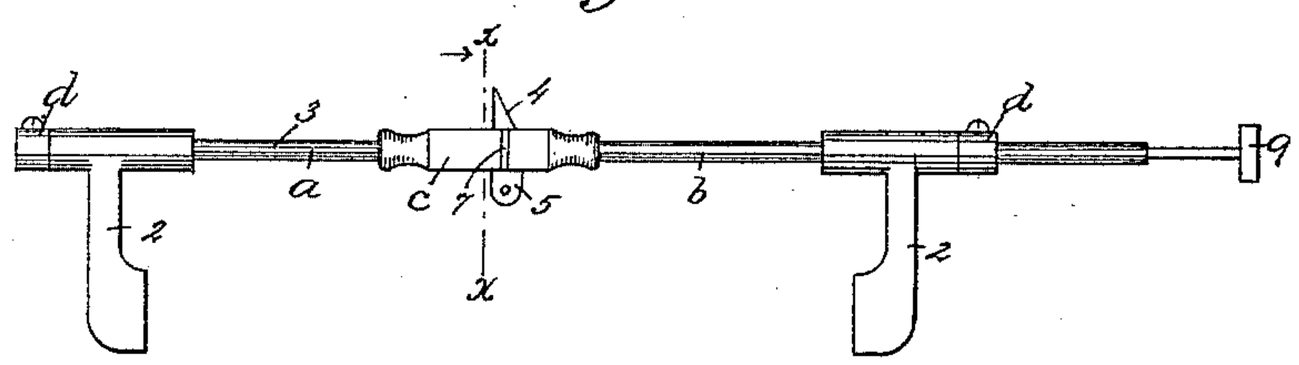


Fig. 3.

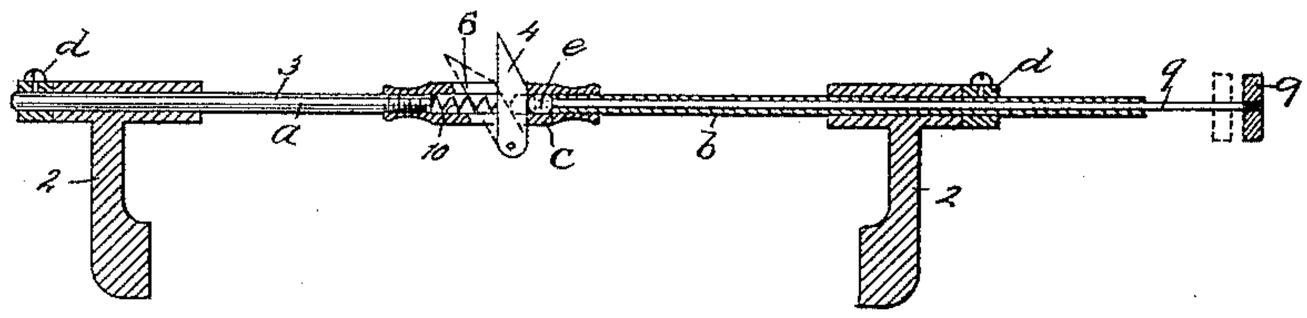
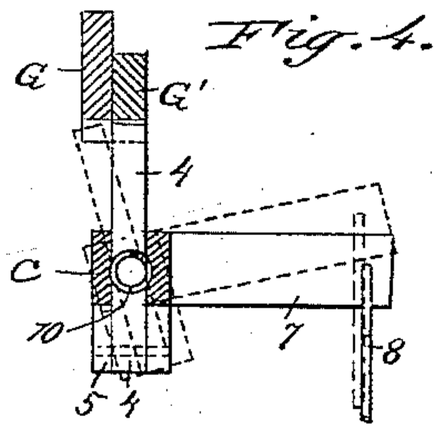


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE W. N. YOST, OF NEW YORK, N. Y., AND CHARLES E. MERRITT, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNORS TO THE YOST WRITING MACHINE COMPANY, OF NEW YORK, N. Y.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 442,409, dated December 9, 1890.

Application filed May 16, 1887. Serial No. 238,354. (No model.)

To all whom it may concern:

Be it known that we, GEORGE W. N. YOST, of New York city, in the county of New York and State of New York, and CHARLES E. MERRITT, of Springfield, in the county of Hampden and State of Massachusetts, citizens of the United States, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

Our invention in type-writing machines has special reference, first, to the rock-shaft with which the feed-dog is connected, and, secondly, to the release-key by which the feed-dog is disengaged from the carriage to permit a rapid movement of the latter toward the left of the machine; and our invention, having for its main objects to simplify and cheapen the machine, consists in the features of construction and combinations of parts hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view, looking from the rear, of the upper portion of a type-writing machine embodying our several improvements, various parts usually employed therein, but immaterial to our invention, being omitted in order not to complicate the drawings. Fig. 2 is a rear elevation of the rock-shaft, the supports therefor, the feed-dog, and the release-key. Fig. 3 is a vertical longitudinal section taken centrally through the parts illustrated at Fig. 2; and Fig. 4 is an enlarged vertical cross-section taken at the line $x\,x$, Fig. 2, with the feed-racks added.

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

A A′ A^2 A^3 are posts or pillars forming part of the frame-work of the machine and supporting the type-circle or top plate B, upon which are mounted the usual type bars or levers, purposely omitted.

C represents the paper-platen or impression-cylinder, which is journaled to rotate in the carriage-frame D. A yoke E, secured to the carriage-frame, extends rearwardly and slides upon the guide-rails F F′. To this yoke is attached the feed-racks G G′ now commonly in use. A stud H projects backwardly from the inner rack G and has pivoted to it one end of a connecting-link I, the other end of which is jointed to the upper portion of a spring-actuated driving-arm J, all in the usual manner.

2 2 represent standards or supports for the ends of a rock-shaft 3, which carries a feed pawl or dog 4, that engages with the teeth on the racks G and G′ and operates to permit a movement of the carriage to the left of the machine only one letter-space at a time. The rock-shaft is preferably composed of three portions a, b, and c, the part a being a solid rod, the part b a hollow rod or tube, and the part c a slotted frame or housing with threaded ends to receive the inner threaded ends of the portions a and b. From the lower side of the housing c depend brackets or lugs 5, in which the feed-dog 4 is pivoted to vibrate in the slot 6, and from the rear side of the housing extends an arm 7, to which is coupled the upper end of a rod or link 8, whose lower end is connected to the "universal bar," which is not shown. The latter may be of any desired construction and may be arranged as heretofore or as shown in a separate application filed by us. Collars d d, secured to the rocker-arm, prevent any endwise movements thereof.

The release-key is designated by the numeral 9, and consists of a rod or shank and a button-head screwed upon its outer end. The rod or shank is passed through and supported within the hollow part b of the rocker-arm and is provided with means at its inner end to act as a stop to outward movement. We preferably form the shank with an enlargement or head e; but a pin or cross-piece or other device would serve as well. At the opposite end of the slot is arranged a spiral spring 10, which bears against the face of the feed-dog. This spring is provided for the purpose of keeping the dog in a vertical position during the oscillations of the rocker-arm and for the purpose of returning the dog and the release-key to their normal positions after the actuation of the latter; but so far

as certain features of our invention are concerned the lower end of the pawl may be weighted for these purposes.

Having sufficiently described the construction of a machine embodying our improvements, we will now proceed to explain the mode of operation of the same.

At each depression of the key-levers of the machine by the operator the universal bar will push up the connecting-rod 8 in the direction of the arrow at Fig. 1, and through the device 7 rock the shaft 3 and vibrate the dog from the teeth of the outer rack G′ into engagement with the teeth of the inner rack G, at which time the outer rack, by means of a spring, is shot forward one tooth. At each release of the key-levers the rock-shaft tilts in the opposite direction and the dog is vibrated backwardly and re-engaged with the teeth of the outer rack. During this movement of the dog the driving-arm moves the carriage and its appendages a letter-space or one tooth to the left of the machine. The feed-racks and the driving mechanism herein shown, it will be seen, are similar to those now in common use, both in construction and mode of operation, and no extended description thereof appears to be necessary in this specification. When the carriage shall have arrived at the extreme left of the machine, the roller may be turned to obtain an unprinted portion of the paper and the whole moved rapidly back to the right-hand extremity of the machine to recommence the operation of printing. During this return of the carriage the teeth of the outer rack slide freely over the dog owing to their inclination and the capability of the dog to vibrate within the slot.

The release-key, it will be understood, is used for the purpose of disengaging the dog from the racks and permitting the carriage to travel quickly to the left. In order to effect this disengagement in the machine herein shown, it is simply necessary to push inwardly the release-key, which abuts against the back of the pawl above its fulcrum, and the latter is vibrated downwardly, as indicated at Fig. 3 by the dotted lines. Just previous to pushing in the release-key, however, the carriage should be moved slightly to the right to permit the point of the dog to clear the tooth with which it is in engagement. When the carriage shall have been thus driven to the desired position, the operator may remove the pressure upon the release-key, whereupon the spring 10 will act to right the dog and re-engage it with the racks and at the same time push the release-key out to its normal position.

By locating the rocker-arm above the type-circle instead of below, as heretofore in machines of this class, we are enabled to use the entire type-circle and get a greater number of type-bars thereupon, besides avoiding the bending of the two connecting-rods between which the rocker-arm passed in the prior construction of machine.

By arranging the release-key in the manner shown we are enabled to dispense with the special supports therefor as formerly and improve the appearance of the machine, and by the employment of the spring 10 to keep the pawl upright and return it and the release-key the pawl may be made much smaller and lighter than in the former machines.

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

1. In a type-writing-machine, the combination, with the carriage and the feed-racks, of a rock-shaft having a slotted housing, a dog pivoted to vibrate within the slot of said housing, and a spring for keeping said dog in a vertical position, as set forth.

2. In a type-writing machine, the combination, with the carriage and the feed-racks, of a rock-shaft composed of the threaded rods *a* and *b* and the intermediate slotted housing having threaded ends, the dog pivoted to vibrate within the slot of said housing, and the spring adapted to keep said dog in a vertical position, as set forth.

3. In a type-writing machine, the combination, with the carriage and the feed-racks, of the rock-shaft having a hollow or tubular portion, the feed-dog mounted upon said shaft, and the release-key supported and contained within said hollow or tubular portion of the rocker-arm, substantially as set forth.

4. In a type-writing machine, the combination, with the carriage and the feed-racks, of the rock-shaft having a hollow or tubular portion, the feed-dog, the release-key, and the spring, substantially as set forth.

5. In a type-writing machine, the combination, with the carriage and the feed-racks, of a housing capable of an oscillatory motion only and provided with a longitudinal slot, a dog pivoted to said housing and within the slot thereof, and a spring to keep said dog normally in a vertical position, as set forth.

6. In a type-writing machine, the combination, with a carriage having feed racks, of a longitudinally-slotted housing mounted above the type-ring and capable of an oscillatory motion only, a dog pivoted to said housing and within said slot, and a release-key engaging with said dog to vibrate the same in said slot, as set forth.

Signed at Springfield, in the county of Hampden and State of Massachusetts, this 14th day of April, A. D. 1887.

G. W. N. YOST.
C. E. MERRITT.

Witnesses:
EDWIN F. LYFORD,
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