

(No Model.)

G. W. N. YOST.

DRIVING MECHANISM FOR TYPE WRITING MACHINES.

No. 427,652.

Patented May 13, 1890.

Fig. 1.

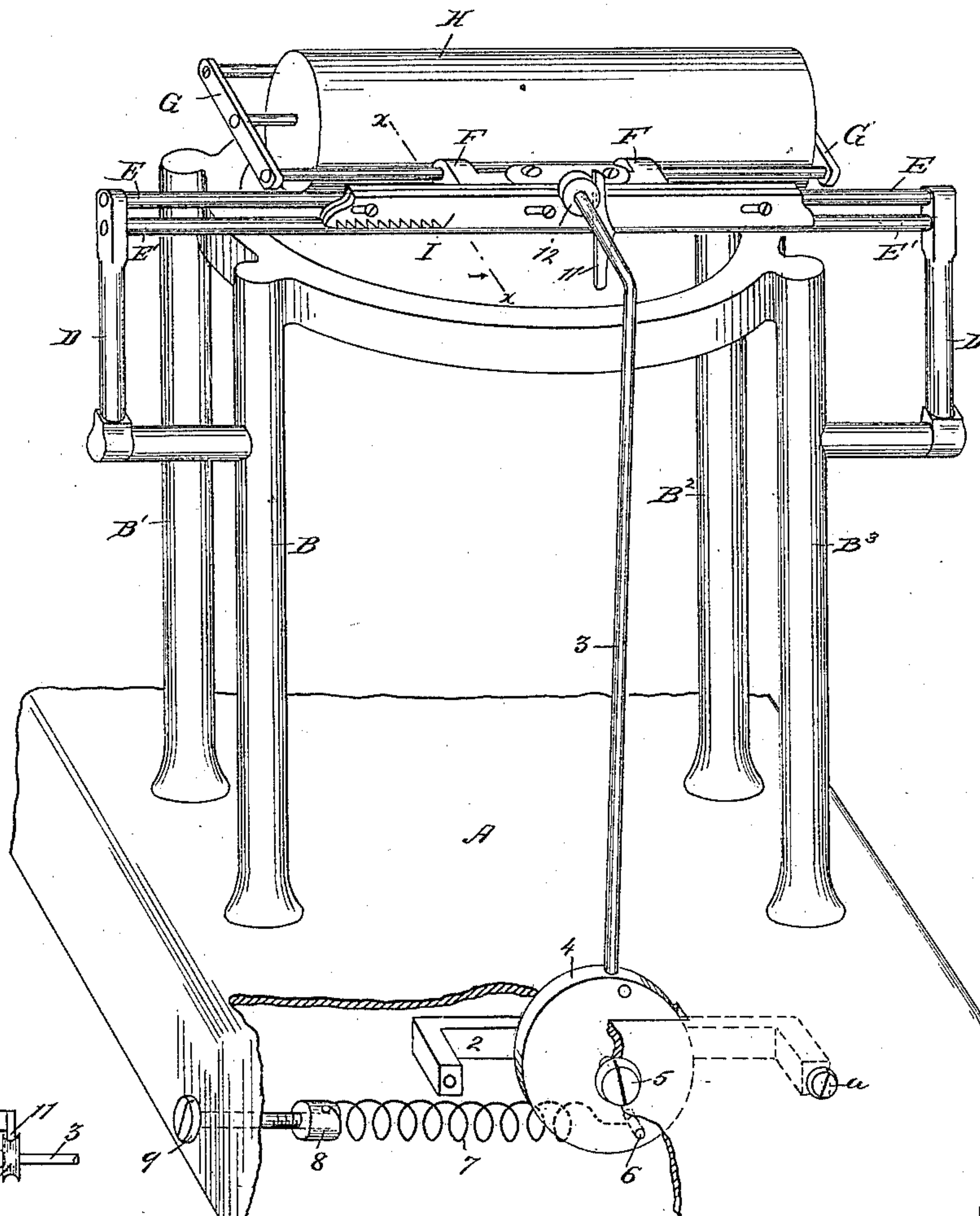


Fig. 4.

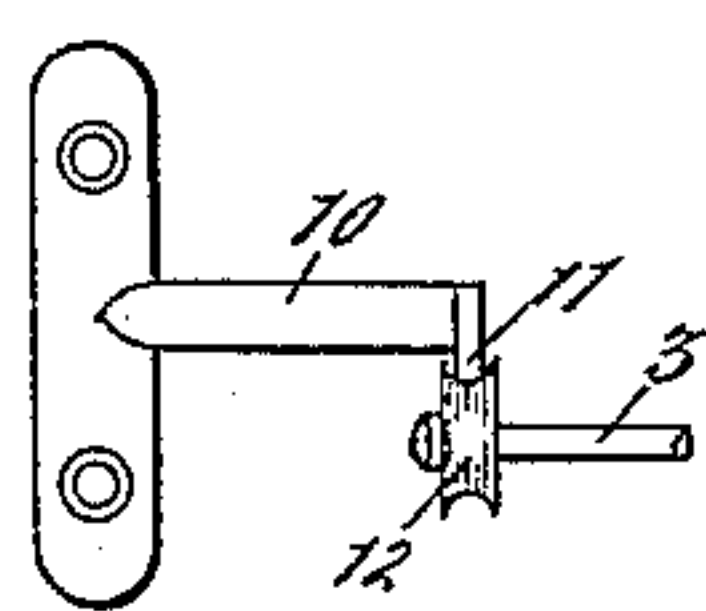


Fig. 3.

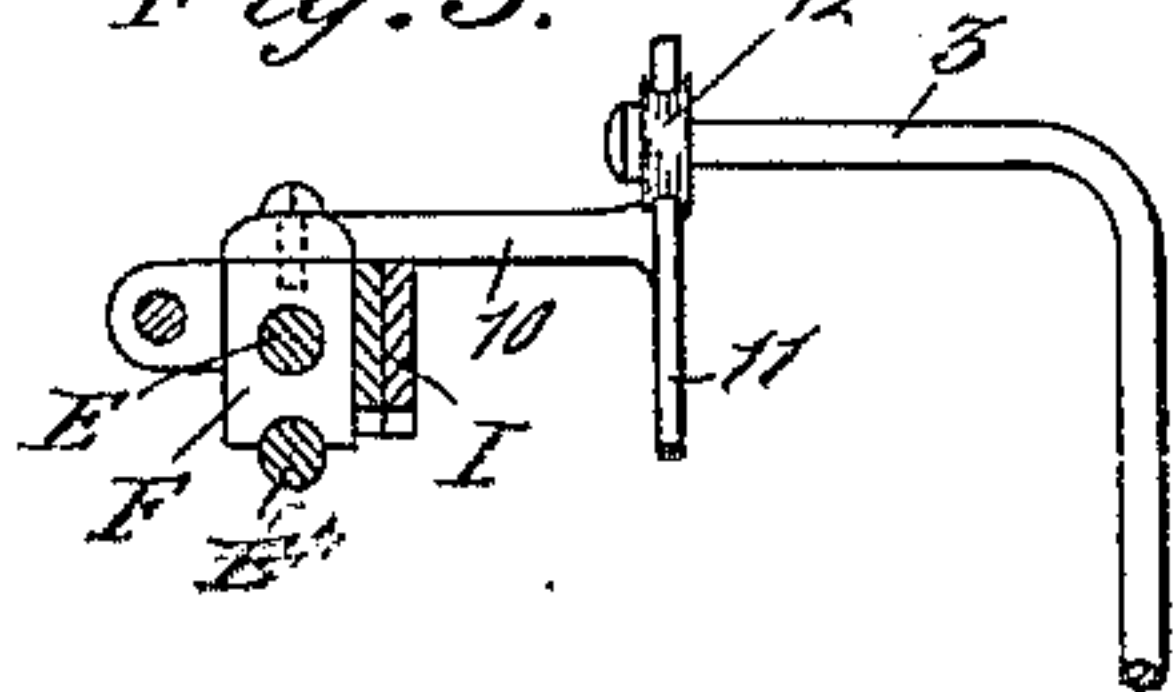
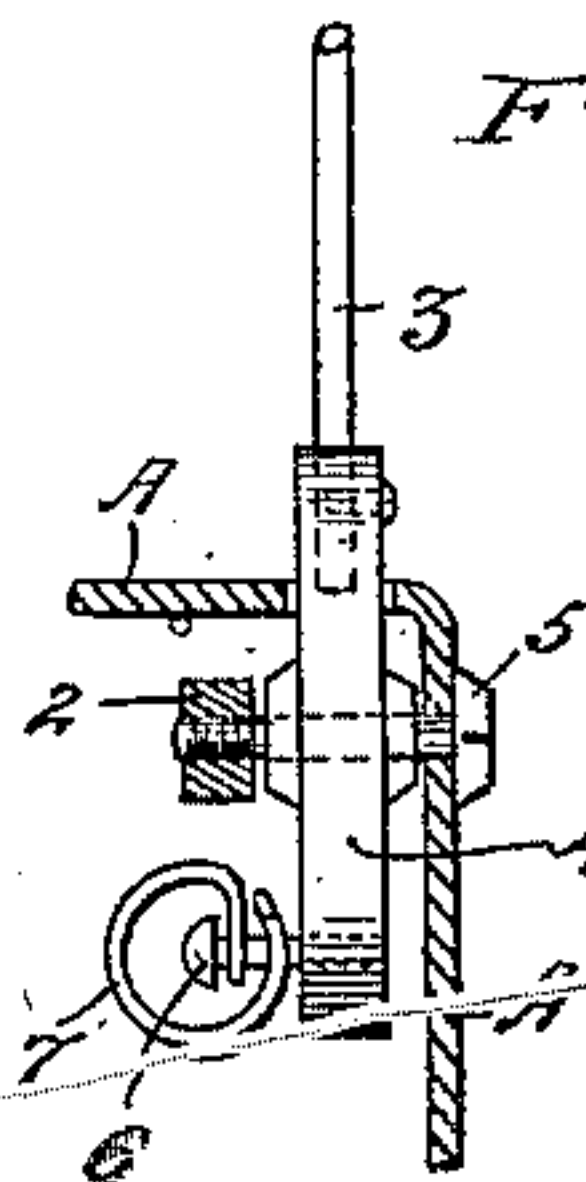


Fig 2



Attest:

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UNITED STATES PATENT OFFICE.

GEORGE W. N. YOST, OF NEW YORK, N. Y., ASSIGNOR TO THE YOST WRITING MACHINE COMPANY.

DRIVING MECHANISM FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 427,652, dated May 13, 1890.

Application filed May 16, 1887. Serial No. 238,351. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. N. YOST, 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 Driving Mechanisms for Type-Writing Machines, of which the following is a specification.

My invention has for its main objects to provide a simple and efficient driving mechanism for the paper-carriages of type-writing machines; and it consists in the various features of construction and in the combinations of parts hereinafter more fully described, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a rear perspective view of so much of a type-writing machine as is necessary to illustrate my invention, a portion of the bed-plate being broken away to show the construction and arrangement of the parts which are in practice placed beneath the same. Fig. 2 is a vertical section taken through the axis of the driving-arm. Fig. 3 is a vertical section taken at the line xx and looking in the direction of the arrow at Fig. 1; and Fig. 4 is a top view of the driving-arm, its roller, and the arm or bracket which extends from the carriage and co-operates with the driving-arm.

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

A is the bed-plate, frame, or base of the machine, and may be of any desired shape or construction. Upon the bed-plate are supported pillars B, B', B², and B³, to the upper ends of which is preferably cast the type-circle or top plate C, in or upon which the type-levers are mounted, as heretofore.

In order to simplify the drawings and enable my invention to be more readily understood, I have omitted the type-bars, the key-levers, the connecting-rods between these devices, the key-board, the ribbon movement, and other parts of the machine.

From the pillars B and B³ arms or brackets D D' extend and form supports for the ends of the guide-rails E E', upon which the customary yoke F, attached to the carriage-frame G, slides or travels. In the carriage-frame is mounted to turn, as usual, the paper-platen or impression-roller H. To the under side of the bed-plate is secured, preferably

by screws, as represented at a , an angular bar or bracket 2, to serve as one support for the axis of the driving-arm, which is represented by the numeral 3. The driving arm or lever is preferably formed or provided at its lower end with an annular disk or hub 4, which is perforated in line with a perforation in the bracket 2 and one in the depending flange of the bed-plate A for the introduction of a pin 5, that acts as the pivot or fulcrum for the driving arm or lever 3. Projecting from the disk or hub at right angles and below the axis thereof is a stud or pin 6, to which one end of a spiral spring 7 is attached. The opposite end of said spring is made fast to a threaded nut 8, with which engages a screw-pin 9, that passes through a perforation in the side of the bed-plate. The spring 7 is employed to move the driving-arm, and through it the carriage and the nut and screw-pin 9, for the purpose of increasing or decreasing the tension of the spring, and hence the power of the driving-arm.

To the carriage-frame, but preferably directly upon the yoke F, is secured a bracket or arm 10, that extends rearwardly in a horizontal plane, and this bracket or arm is provided or formed with a vertically-arranged track or way 11, upon which travels a grooved anti-friction roller 12, that is mounted upon the upper inwardly-bent or horizontal portion of the driving-arm 3.

From the foregoing description of the construction of a machine embodying my invention and the following explanation of the mode of operation thereof, taken in connection with the accompanying drawings, any one skilled in the art will be enabled to make and use type-writing machines involving my improvements.

The paper-carriage travels to the left of the machine, as heretofore, and in the position in which it is shown to occupy is represented to have been moved about one-half its full distance. If it be desired to commence writing now, paper is placed upon the platen and the carriage slid along to the extreme right of the machine, the upper end of the driving-arm vibrating in a similar direction and the lower end (which is represented by that portion of the disk below the pivot 5) in an opposite direction. The key-board may be manipulated in the usual way and the vi-

brating dog (not shown) moved in and out the teeth of the racks I to permit a movement of the carriage to the left only one letter-space at a time, as is well understood. At
 5 each vibration of the feed-dog and release therefrom of the carriage the latter, through the power of the driving-arm derived from the tension of the spring 7, is moved onward, or, as commonly expressed, "to the left of
 10 the machine." When the carriage shall have been drawn to the extreme right of the machine, the roller 12 will occupy a position at the lower end of the track or way 11, and as the carriage is driven to the left of the ma-
 15 chine and the upper end of the arm 3 rises the roller will travel upward upon said track. When the arm 3 shall have vibrated to a position at right angles to its axis, the carriage will then have moved about half-way across
 20 the machine and the roller 12 attained its highest point of travel. During the remainder of the feed of the carriage to the left the upper end of the driving-arm and the roller thereupon will move downwardly. As the
 25 upper end of the driving-arm is moved to the right the spring is expanded, and as it travels to the left is contracted; but by the construction and arrangement shown the tension of the spring may be made to act uniformly
 30 whatever the position of the arm. When the spring shall have been expanded to its utmost, it will be seen that the stud to which its inner end is attached will have moved upwardly and so changed the angle of its pull
 35 that the increase of tension which it acquired by reason of its expansion will be neutralized, as it were, by the increased force which it must exert to vibrate the driving-arm, and hence the feed of the carriage will be no
 40 quicker in this condition of the spring than when more contracted.

The stud 6 is so placed upon the driving-arm that when the upper end of the latter shall have traveled to the extreme left of the
 45 machine and the spring considerably contracted the leverage at the lower end of the driving-arm will be greater, and hence less tension will be required. Thus by reason of the change of leverage or the variation of the
 50 angle of pull of the spring the power of the driving-arm will be always the same and the carriage fed from right to left, step by step, at a uniform speed, as it should be.

It will be seen that by my invention is provided a simple, cheap, and efficient driving
 55 mechanism for the paper-carriages of type-writing machines, and one the power of which may be quickly varied by a very simple expedient, for it will be understood that in order to increase or decrease the power of the
 60 driving mechanism it is only necessary to turn the screw 9 either to the right or left and move the nut or screw-follower 8 outwardly or inwardly, thereby expanding or contracting the spring 7 and augmenting or diminishing its tension or force.

It is obvious that many changes in detail construction may be made without departing from the gist of my invention—such, for instance, as the omission of the disk 4 and the
 70 making of the driving arm or lever in one piece. Of course, in lieu of the stud 6, some other means may be employed, as an eye or a notch, into which the inner end of the spring may be hooked, and variations may
 75 be made in the mode of attaching the outer end of the spring and the manner of pivoting the driving arm or lever.

So far as the main feature of my invention is concerned, the roller 12 may be omitted
 80 and the upper end of the arm left to slide in contact with the way or track 11.

The arrangement of the track upon the carriage in a vertical position or at right angles to the path of travel of the carriage and
 85 the employment in connection therewith of a driving-lever which bears against said track enable me to effect the great desideratum of applying the driving-power in the direction of movement of the carriage, and thus wholly
 90 avoiding the friction and binding which occur when the power is applied at an angle or obliquely to the direction of travel of the carriage.

Having now fully described my invention,
 95 what I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination of a paper-carriage, provided with a track or way arranged vertically or in a plane
 100 at right angles to the path of travel of the carriage, and a driving arm or lever whose free end bears against said track, whereby the power is applied always in the direction of movement of the paper-carriage, as set
 105 forth.

2. In a type-writing machine, the combination of a paper-carriage, provided with a track or way arranged vertically or in a plane
 110 at right angles to the path of travel of the carriage, and a driving arm or lever provided at its free end with an anti-friction roller which presses always against said track at right angles to its face and in the direction of movement of the paper-carriage, as set
 115 forth.

3. In a type-writing machine, the combination of a paper-carriage, provided with a track or way arranged vertically or in a plane
 120 at right angles to the path of travel of the carriage, a driving-lever bearing against said track, for the purpose described, and a spring secured to said lever below its pivot or fulcrum, as set forth.

Signed at New York, in the county of New
 125 York and State of New York, this 18th day of April, A. D. 1887.

G. W. N. YOST.

Witnesses:

C. C. ALDEN,
 J. FELBEL.