(No Model.)

A. DENSMORE.

TYPE WRITING MACHINE.

No. 493,254. Patented Mar. 14, 1893.

Fig. 1.

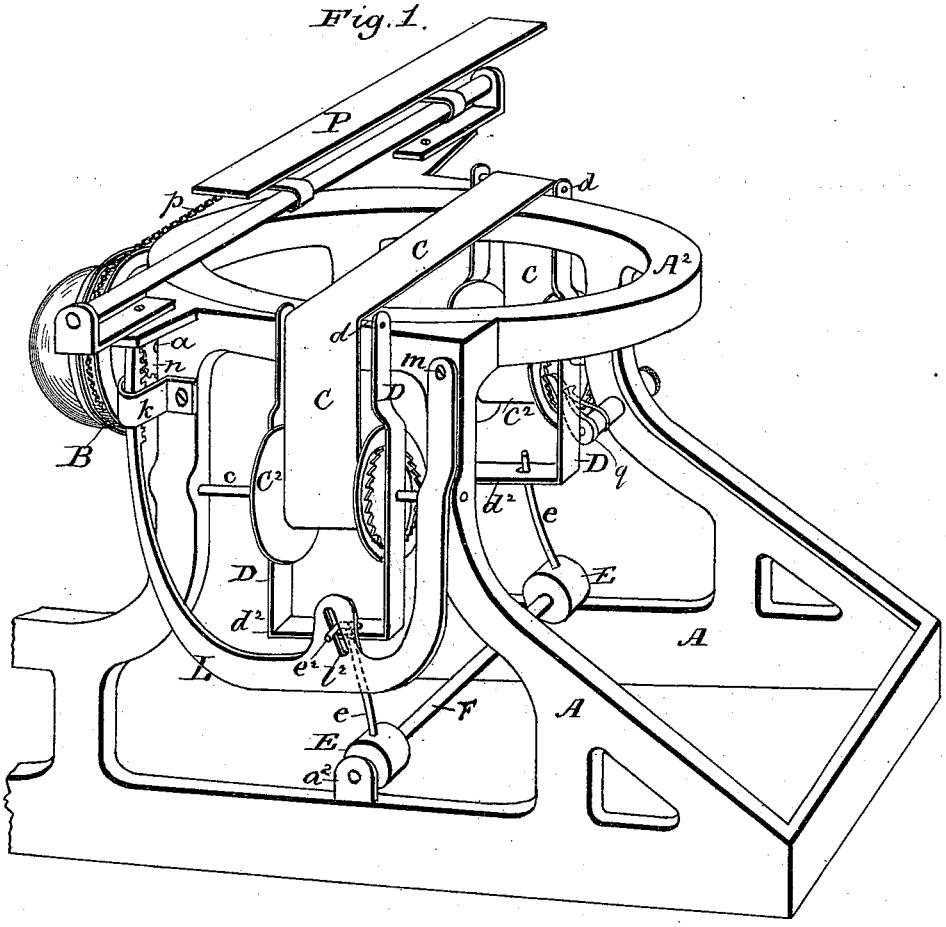


Fig. 2.

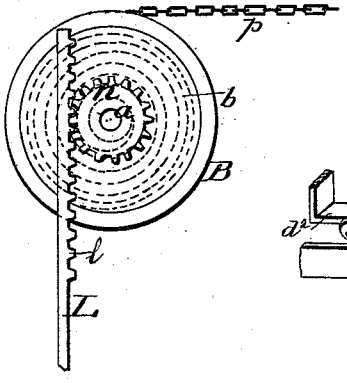
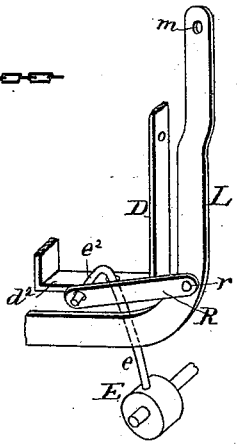


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

AMOS DENSMORE, OF NEW YORK, N. Y.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 493,254, dated March 14, 1893.

Application filed July 13, 1892. Serial No. 439,901. (No model.)

To all whom it may concern:

Be it known that I, AMOS DENSMORE, a citizen of the United States, residing at New York city, in the county of New York, State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to type-writing machines in which an inked ribbon is used to transfer the impressions of the type onto the paper; and the object of my improvement is to provide a simple and inexpensive mechanism to give the ribbon a fore-and-aft movement while it is also moved laterally, so that the series of impressions taken from the ribbon are on lines having a direction diagonal thereto. I attain these objects by means of a rack-carrying lever and a pinion connected with the spring-operated pulley of the paper carrying carriage, as shown in the accompanying drawings, in which:—

Figure 1 represents in perspective a portion of the frame of a type-writing machine provided with a ribbon operating mechanism constructed in accordance with my invention. Fig. 2 is a front view of the spring operated drum or pulley giving motion to the paper carriage, and pinion thereon and a portion of the rack-carrying lever forming a part of my invention. Fig. 3 represents a portion of the rack-carrying lever, and of the spool carrier showing a modified connection between them.

In said drawings, A represents the frame which may be of any suitable form, and A^2 the top ring thereof to which the type-bar hangers are generally secured. From the rear of the frame, projects a horizontal stud a upon which is mounted a hollow pulley B, which contains as usual a coiled spring b to propel a suitable paper carriage P in one direction by means of a chain p having one end attached to the periphery of said pulley B and the other end to said carriage. The inking ribbon C has its ends secured to and coiled upon spools C^2 that may be provided with the usual friction devices. Said spools are mounted upon light horizontal shafts c carried by the frame A; and said shafts may be provided with a small crank at one end as usual, but I prefer to have them retained stationary. Upon the shafts c are loosely mounted the sheet metal frames D that embrace the spools, and have their upper ends extended upward far enough to guide the ribbon over the type-bar hangers, the upper ends of each frame being connected together by a wire d over which the ribbon passes from one spool to the other. The horizontal lower portion d^2 of each frame D has a perforation to receive loosely therein the upper end of an arm e projecting upward from the hub E secured upon a horizontal rocking shaft F that is loosely mounted in bearings a^2 projecting from the frame of the machine.

To pull the frames D toward the front of the machine after each letter is printed and at each moment that the paper carriage is pulled toward the left hand side of the machine under the impulse of the coiled spring b to the chain p, a rack-carrying lever L is used. Said lever is preferably U shaped and has the upper end of one of its branches pivoted at m to one side of the frame A near the top thereof. The other branch of said lever is provided with a rack, or has rack-teeth l for engagement with the teeth of a pinion n secured to side of the pulley B.

A metal strap k is secured to the frame A adjacent to the pinions n and made to partly encircle the branch of the lever L carrying the rack to retain the latter in mesh with the pinion n. Within the lower bend of the U shaped lever L is a vertical extension of metal in which a slot l^2 is made. Said slot may be vertical but is preferably inclined to the horizon and receives the horizontally bent upper end e^2 of one of the arms e after it has been passed through the perforation in the lower portion d^2 of the frame D. By this construction the vertical oscillation of the lower bend of the lever L causes a fore-and-aft motion of the arm e and consequently of the spool-carrying frame D. The means employed to accomplish this result from the paper-carriage operating spring consist mainly of a pivoted rack-lever and pinion.

In the modification shown in Fig. 3, the rack-lever L is connected to the spool-carrying frame D by means of a pitman R having one end pivoted at r to the lever L and the other end in engagement with the horizontally bent upper end e^2 of one of the arms e after

it has been passed through the perforation in the lower portion of the frame D.

Any suitable and well known means may be used to advance the ribbon across the machine; for example by means of a pawl q pivoted in a bearing secured to the frame and having its end in engagement with a ratchet wheel secured to side of each spool, a spring secured to the frame causing the pawl to engage with the ratchet wheel, when the spools have nearly reached the end of their course toward the operator.

Having now fully described my invention, I claim—

1. The combination of a type-writer frame, the paper-carriage propelling spring and its inclosing pulley, a pinion connected with said spring, the inking ribbon and spool and its frame D, with a toothed lever having its rack-end meshing with the pinion, and its slotted portion connected to the frame D substantially as described.

2. The combination of a type-writer frame, the paper-carriage propelling spring, a pinion connected with said spring, the inking ribbon and spool and its frame D, a rock-shaft having arms connected with the frame D, an arm e^2 projecting laterally from the frame D and a lever L having one end pivoted to the frame of the machine, and the other end provided with rack-teeth in engagement with the pinion and its middle portion slotted for engagement with the arm e^2, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

AMOS DENSMORE.

Witnesses:
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