

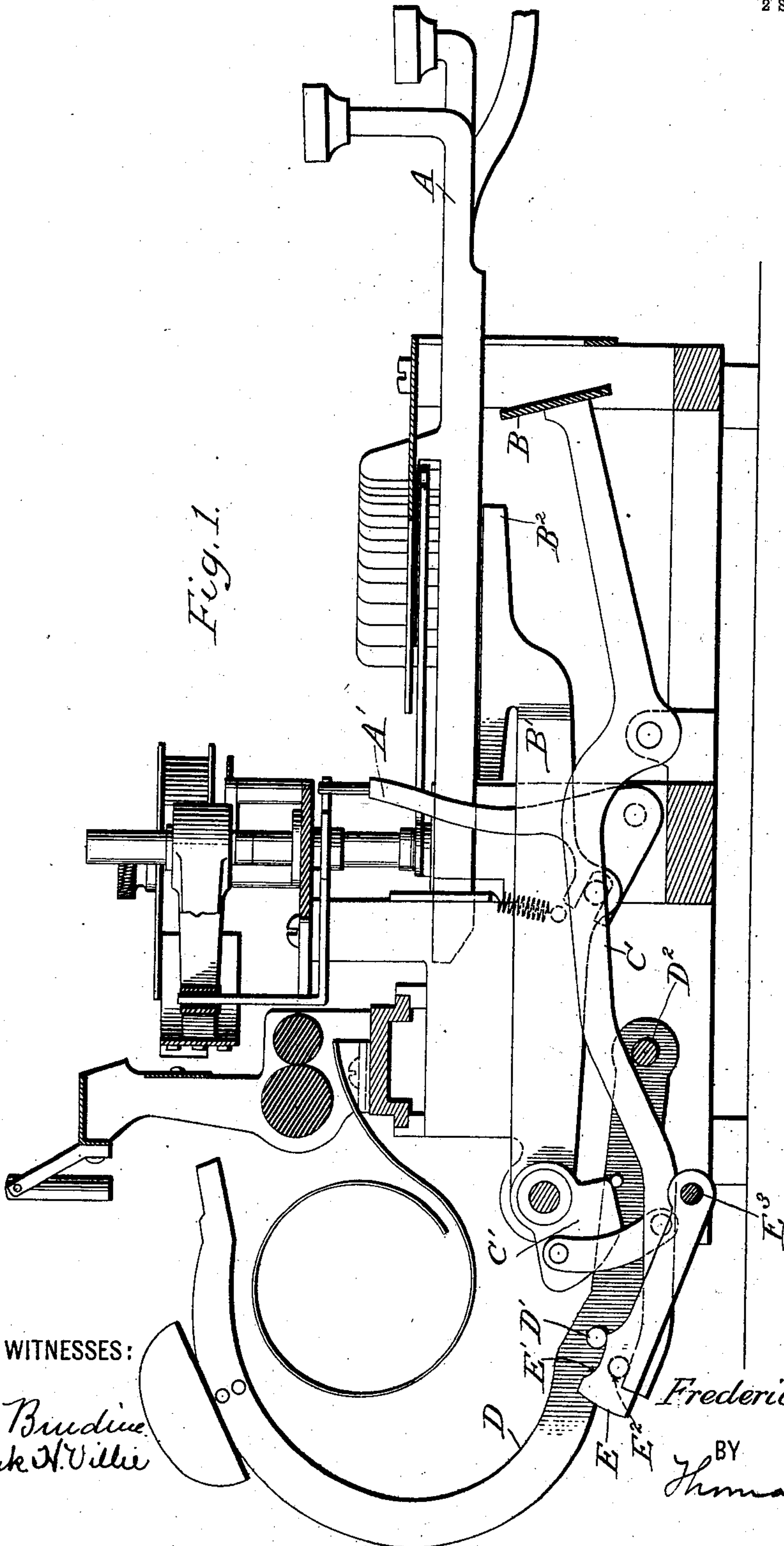
No. 747,915.

PATENTED DEC. 22, 1903.

F. W. HILLARD.
TYPE WRITING MACHINE.
APPLICATION FILED AUG. 18, 1900.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

W. C. Brudine
Frank H. Villie

INVENTOR.

Frederic W. Hillard.

BY

Thomas Ewing, Jr.
ATTORNEYS

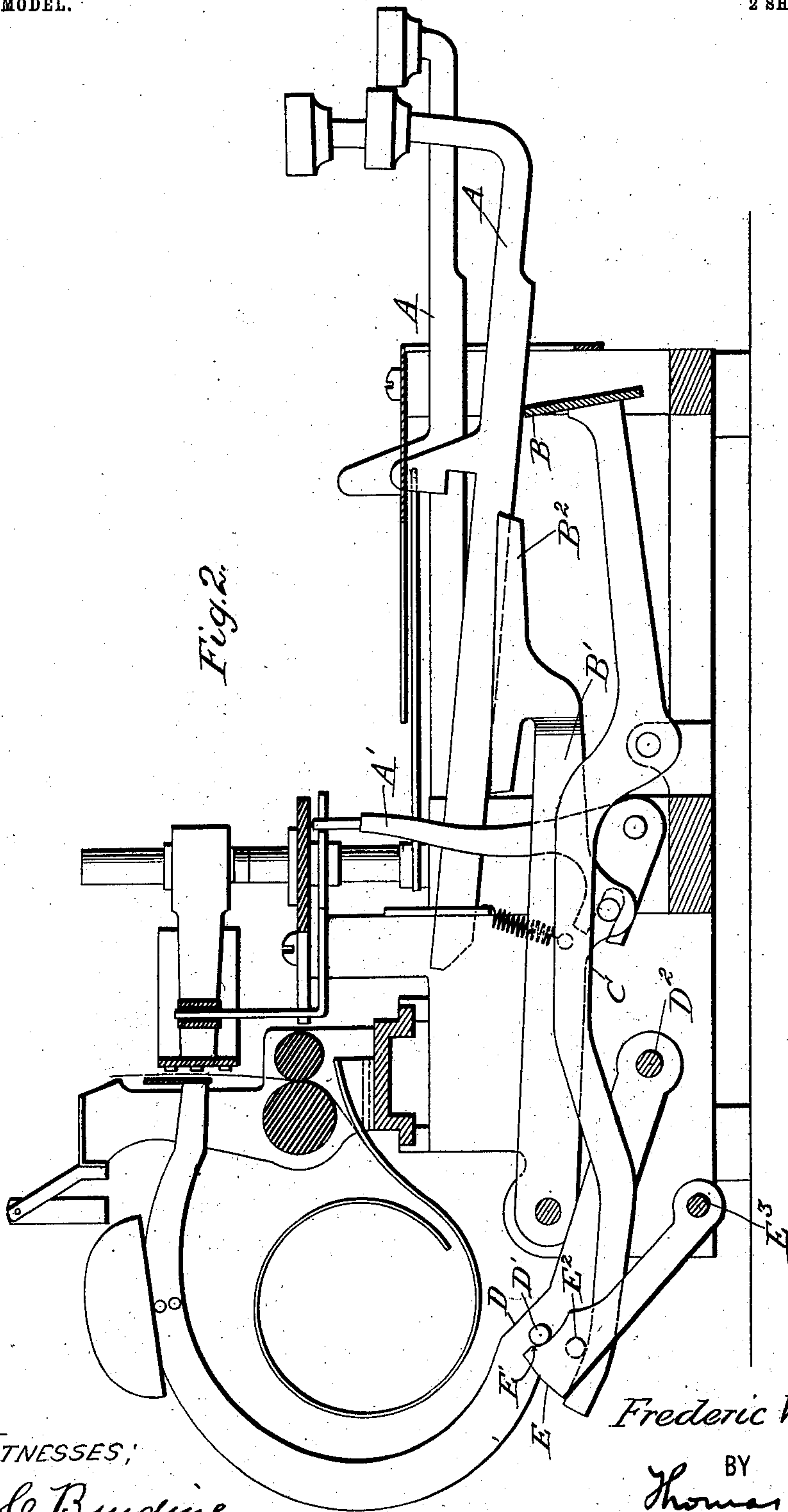
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UNITED STATES PATENT OFFICE.

FREDERIC W. HILLARD, OF TOTTENVILLE, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO ELLIOTT-FISHER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 747,915, dated December 22, 1903.

Application filed August 18, 1900. Serial No. 27,319. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC W. HILLARD, a resident of Tottenville, in the county of Richmond and city and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention consists particularly in that style of type-writer illustrated and described in United States Letters Patent, as follows: No. 607,193, dated July 12, 1898; No. 607,274, dated July 12, 1898; No. 611,146, dated September 20, 1898; No. 624,864, dated May 9, 1899; No. 624,865, dated May 9, 1899; No. 640,699, dated January 2, 1900; No. 652,691, dated June 26, 1900. It is more especially directed to an actuator for the printing-hammer, which will be hereinafter described in detail and claimed.

In the accompanying two sheets of drawings, which form part of this specification, Figure 1 is a side view of the machine cut through its middle on a longitudinal plane, some of the parts being shown in cross-section, the parts being in normal position, and some of the parts being broken away. Fig. 2 is a similar view of the same machine, showing the position of the parts when the machine is actuated and when the hammer is at the printing-point.

The machine consists of a bed-frame, type-keys, guide-plate, type-wheel, type-wheel carrier, type-wheel shaft, printing-hammer, and paper-carriage, all of the general construction.

The details of the machine need not be described, because the general construction and operation are familiar and will be understood from the drawings and by reference to the above-mentioned Letters Patent.

The mechanism provided to effect the printing is as follows: The key-levers A engage with a bail or universal bar B, which is mounted on the end of a pivoted lever C. This lever is pivoted between its ends, and the other end from that on which the universal bar is mounted actuates the printing-hammer D to effect the printing. This lever also actuates a lock C' of the usual style to

prevent rebound of the hammer. Instead of having the hammer-actuating lever operate the hammer D directly it does so through a camming-arm E or other suitable wedge member. This arm is pivoted back of and lower down than the pivotal point of the actuating-lever C. The free end of the camming-arm carries a wedge-face E', which contacts with a pin D' on the printing-hammer. It is also provided with a pin E², with which the end of the hammer-actuating lever C engages when a type-key is depressed. The key-levers also actuate the type-wheel actuators A' of the usual style through the intermediary of one or the other of two pivoted levers B', provided with bars B², which extend under the key-levers on one side or the other of the machine.

Upon starting a key-lever A downward it first begins to operate a type-wheel actuator A' and then comes in engagement with the universal bar B for operating the printing-hammer D. As the rear end of the lever C moves upward it pushes the printing-hammer up, the pressure being transmitted through camming-arm E, and at the same time causes the camming-arm itself to rotate on its pivot, and therefore causes the wedge-face E to travel along the pin D' on the type-hammer. The wedge-face E' is so shaped that during the first part of the movement the hammer advances slowly; but during the latter end of the movement the hammer is thrown rapidly toward the printing position. This position is shown in Fig. 2. The effect of this is to prevent the hammer from striking the paper before the type-wheel has been properly set and then to strike forcibly. As shown, this result is attained by making the length of the camming-arm between its contacting face E' and its pivotal point E³ less than the distance between the contacting-point D' of the hammer and the pivotal point D² of the hammer. It is obvious that if the camming-arm E were pivoted far enough below the pivotal point of the hammer it would not be necessary that it should be shorter than the portion of the hammer referred to; but of course the distance at which the camming-arm can be con-

veniently pivoted below the hammer is limited by the requirement of compactness in the machine. It will therefore be seen that the acceleration of the printing-hammer from the moment that it begins to move toward the printing position until the moment of printing is increased, particularly toward the end of the stroke on the key-lever, and that this is accomplished by a camming member provided with a wedge-face of proper configuration and having a suitable path of travel. It is obvious that this wedge-face and its path of travel may be determined in respect to and be in engagement with the actuating-lever instead of with the printing-hammer, or the camming member might have two wedge-faces, one engaging with the printing-hammer and one with the actuating-lever.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In a type-writing machine, the combination of a key-lever, a key-driven printing-hammer, an actuating-lever for operating the printing-hammer, and a camming member interposed between the actuating-lever and the printing-hammer and constructed to accelerate the drive of the hammer up to the printing-point, substantially as described.

2. In a type-writing machine, the combination of a key-lever, a printing-hammer, an actuating-lever through which the key-lever acts to operate the printing-hammer, and a speed-accelerating member interposed between the actuating-lever and the printing-hammer, said speed-accelerating member being constructed to receive the thrust of the accelerating-lever and to transmit it to the printing-hammer, substantially as described.

3. In a type-writing machine, the combination of a key-lever, a printing-hammer, an actuating-lever through which the key-lever acts to operate the printing-hammer, and a camming member interposed between the actuating-lever and the printing-hammer, the camming member being shorter than the distance between the point of the printing-hammer contacting therewith and the pivotal point of the printing-hammer, substantially as described.

Signed by me in New York city this 16th day of August, 1900.

FREDERIC W. HILLARD.

Witnesses:

THOMAS EWING, Jr.,
SAMUEL W. BALCH.