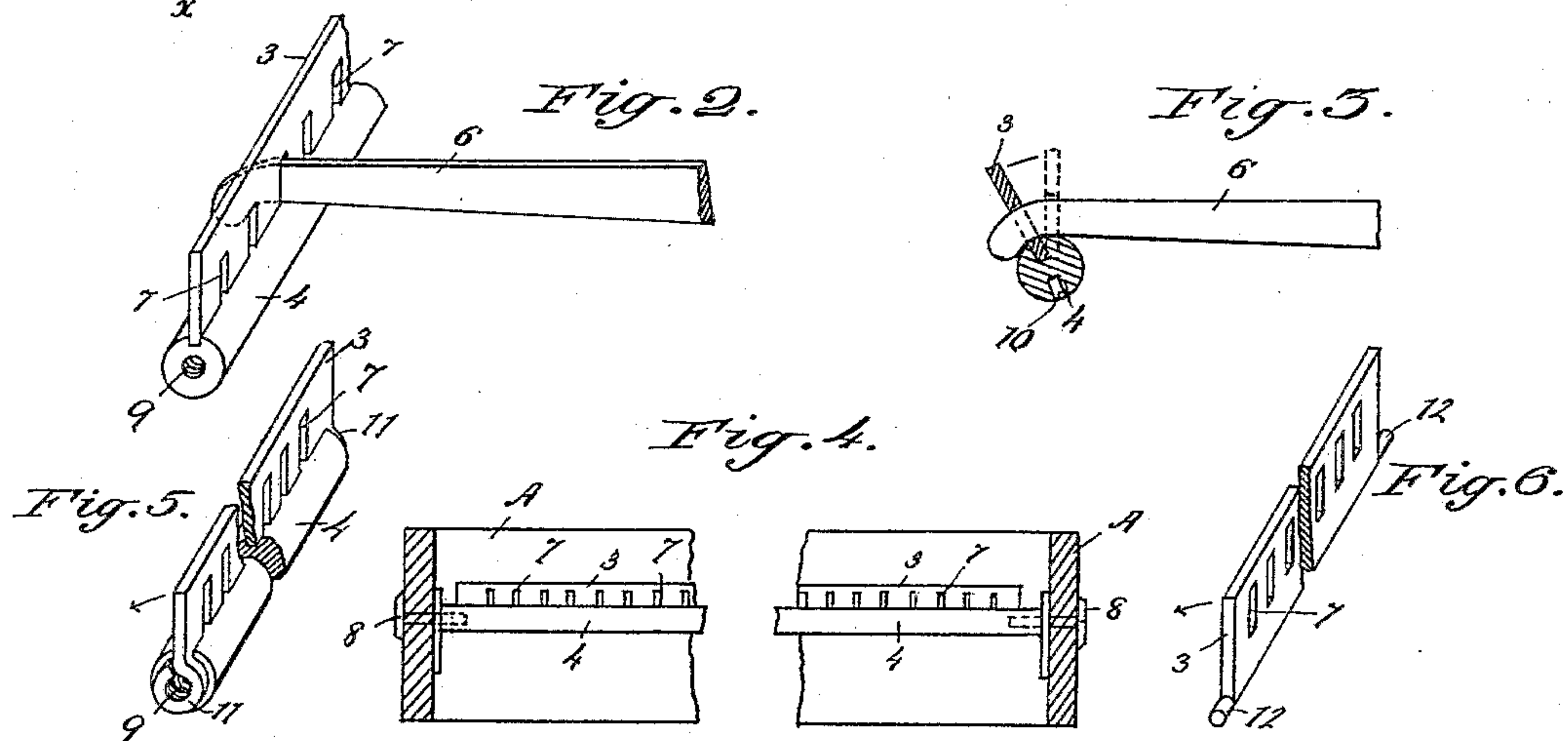
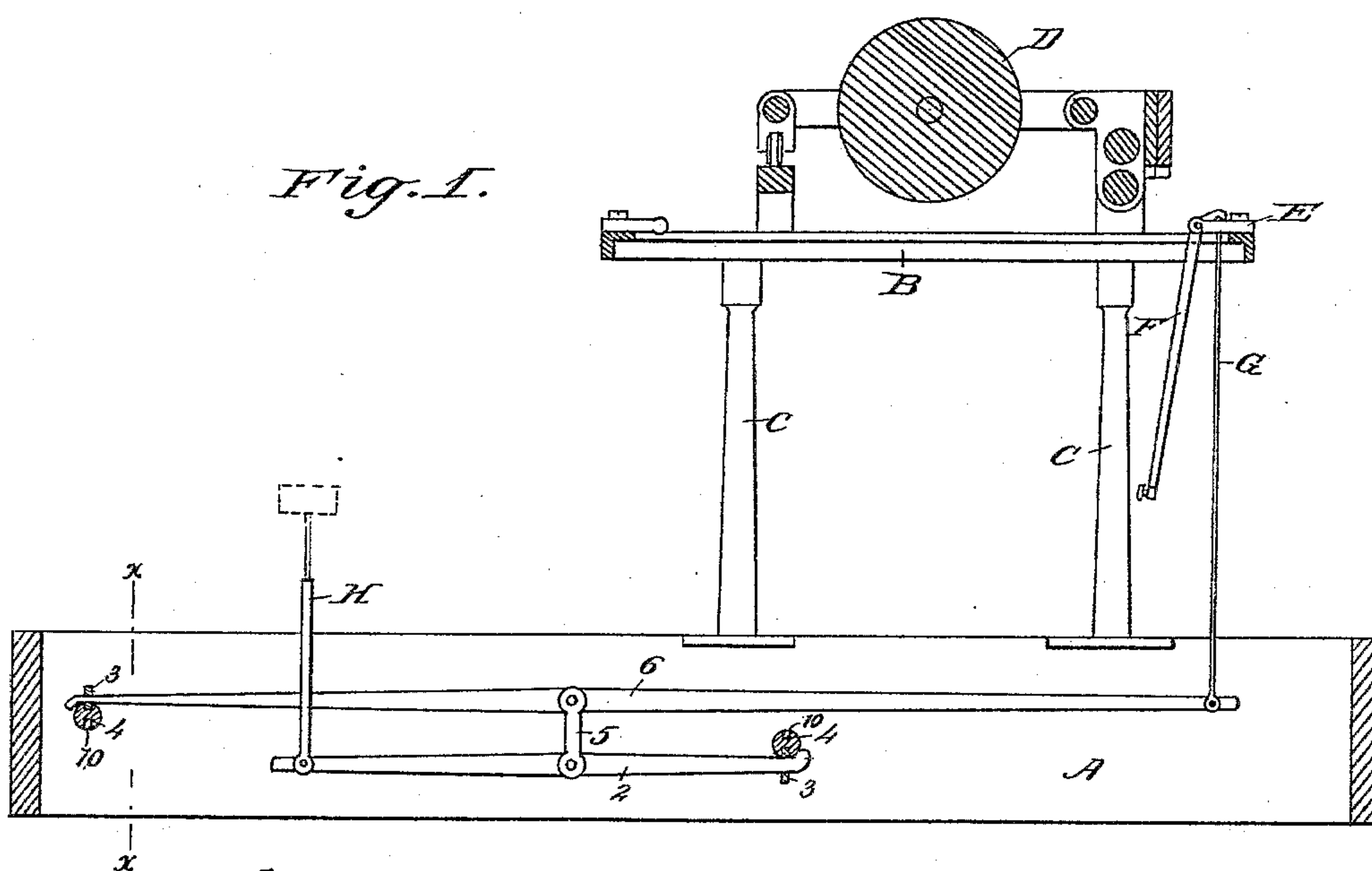


(No Model.)

H. E. CURTIS.
TYPE WRITING MACHINE.

No. 411,583.

Patented Sept. 24, 1889.



Attest:

Andrew B. Steiger

George B. Wilton.

Inventor:

Henry C. Curtis

By Jacob Felbel

Atty:

UNITED STATES PATENT OFFICE.

HENRY E. CURTIS, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO THE
YOST WRITING MACHINE COMPANY.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 411,583, dated September 24, 1889.

Application filed June 4, 1888. Serial No. 275,974. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. CURTIS, a citizen of the United States, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates more particularly to a mode of assembling the key-levers of type-writing machines, and has for its main objects to provide a construction whereby the key-levers may be all rapidly and securely placed in position; and to these main ends my invention consists in combining with the key-levers a bar, rod, or plate adapted to be turned to effect the securement of the key-levers in position against casual detachment, all as hereinafter more fully described, and particularly set forth in the appended claims.

In the accompanying drawings, Figure 1 is a vertical section of a type-writing machine involving my invention. Fig. 2 is a detail perspective view, enlarged, of the parts embodying my improvement. Fig. 3 is a vertical section of the same to illustrate the mode of assembling. Fig. 4 is a vertical transverse section taken on a plane represented by the line $x x$ of Fig. 1, with the key-lever removed. Fig. 5 is a perspective view of a modification of my improvement, and Fig. 6 is a similar view of a further modification.

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

A is the bed-plate or base of the machine; B, the type-ring supported on posts or pillars C; D, the usual hinged paper-carriage; E, a type-bar hanger; F, a type-bar pivoted therein; G, a connecting-rod, and H a finger-key.

2 designates a key-lever of the second order, to the forward end of which is attached the finger-key. The rear end of said lever is supported in a comb or slotted plate or bar 3, depending from a round rod 4, running transversely of the machine and journaled in the side frames of the bed-plate or base A. Between the finger-key and the lever-support is pivoted the lower end of a link 5, whose upper end is attached to a key-lever 6 of the

third order. The forward end of the last-mentioned lever is fulcrumed upon a similar rod 4, and its rearward end is attached to the lower end of the connecting-rod G.

In all of the figures of drawings, excepting those marked 5 and 6, the slotted plate or comb 3 is secured to or made integral with the transverse fulcrum-rod 4, and in all of said figures said rod is journaled to the machine-frame, so as to be capable of a turning movement.

In assembling the key-levers of the machine the plate or comb 3 and the rod 4 are turned to the position shown in full lines at Fig. 3, and the fulcrum ends of the levers inserted in the slots or openings 7 in said plate or comb. When all the levers shall have been thus put in position, the plate is turned in the direction of the arrow at Fig. 3 and brought into the vertical position shown by the dotted lines, thereby effectually locking or securing the lever ends against any endwise movement sufficient to withdraw them from their places. By this simple device the assembling of the key-levers may be speedily accomplished and without liability of any of the levers getting out of position during transportation or use of the machine. Preferably the journals of the bar 4 consist of screws 8, whose points pass through the framing, as at Fig. 4, and into threaded holes 9 in the ends of the bar, which may be turned by a pin introduced into a capstan-hole 10 therein. By inserting the key-lever ends into the slots or openings 7 the levers are kept laterally in place and at the proper distances apart. Should it be desired at any time to remove any lever, the same may be effected by simply turning the comb back to first position and withdrawing endwise such lever.

In the modification shown at Fig. 5 the locking comb or plate 3 and the fulcrum-rod 4 are made separate, the comb only being designed to turn, for which purpose it is provided with journal-bearings, as seen at 11.

In the modification shown at Fig. 6 the locking-plate and the supporting-bar 4 are made of a single flat piece of stock, which is provided at its ends with journals 12.

In the various forms in which my invention

is exhibited it will be seen that the perforated, slotted, or comb-like locking-plate is adapted to be turned into two positions—one to permit the insertion and removal of the fulcrum ends of the key-levers and the other to effect the retention in position of said levers against accidental detachment longitudinally. I prefer to bend the fulcrum ends of the levers to conform to the curvature of the fulcrum-rod 4 when made cylindrical, as shown in Figs. 14. The construction illustrated in these figures of the drawings is the one I am now using successfully in practice and is the one to which I give my preference.

Of course numerous changes in detail construction may be made without departing from the principle of my invention, and inasmuch as other kinds of key-levers than those shown may be equally well employed in connection with the locking-plate, I do not wish my invention considered as limited to the use of any particular class or construction of lever.

The arrangement of levers of the second and third orders herein shown and described form the subject-matter of another application, Serial No. 275,973, filed simultaneously by me, and hence no claim thereto is made in this case.

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

1. In a type-writing machine, the combination, with the key-levers, of a plate adapted to be turned to two positions, one to permit the assembling or disassembling of the key-levers and the other to lock or confine said levers in position against accidental displacement during transportation or use of the machine, substantially as set forth.

2. In a type-writing machine, the combination, with the key-levers, of a plate provided with openings for the reception of the ends of the key-levers and adapted to be turned into a position to effect the locking or securement of said levers against endwise displacement.

3. In a type-writing machine, the combination, with the key-levers, of a transverse fulcrum rod or support and a slotted or perforated vibratory locking-plate, substantially as set forth.

4. In a type-writing machine, the combination, with the key-levers, of a transverse fulcrum rod or support adapted to turn and a slotted or perforated vibratory locking-plate, substantially as set forth.

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

HENRY E. CURTIS.

Witnesses:

WM. K. BAKER,
C. M. SHEDD.