

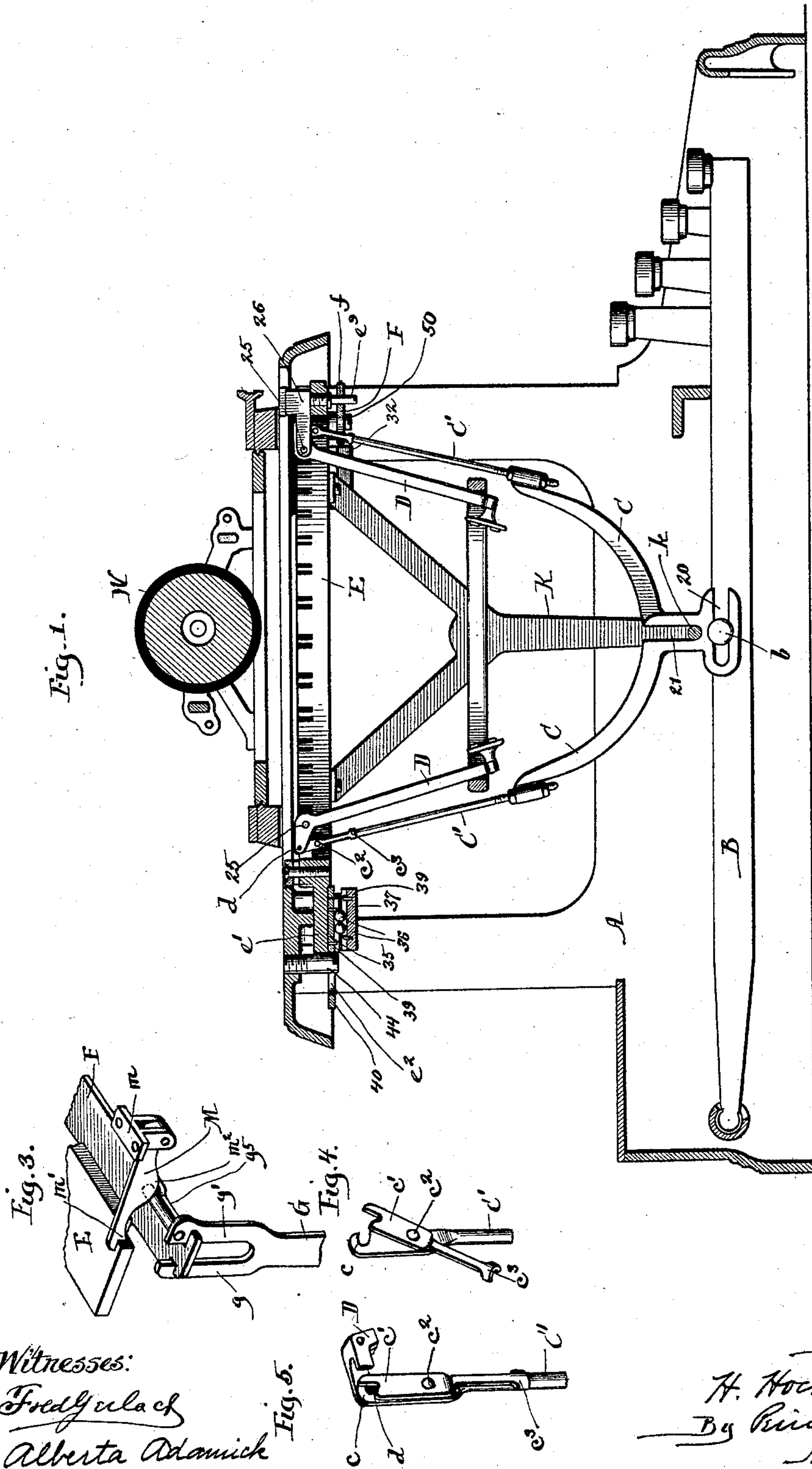
(No Model.)

3 Sheets—Sheet 1.

H. HOCHKLASSEN.  
TYPE WRITING MACHINE.

No. 578,698.

Patented Mar. 9, 1897.



Witnesses:

Fred Gulack

Alberta Adamich

Inventor:

H. Hochklassen

By R. W. Fisher

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(No Model.)

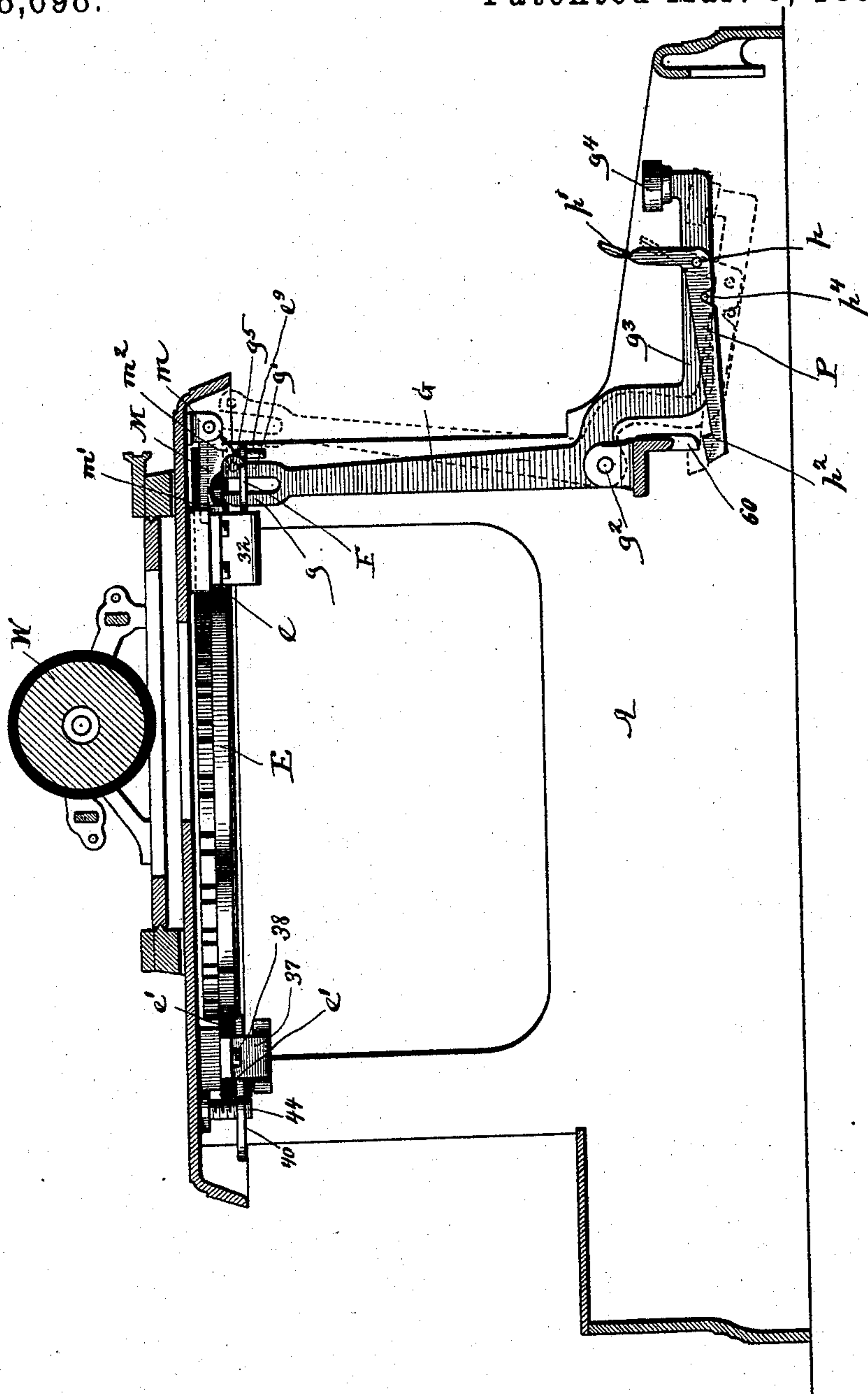
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Fig. 2.



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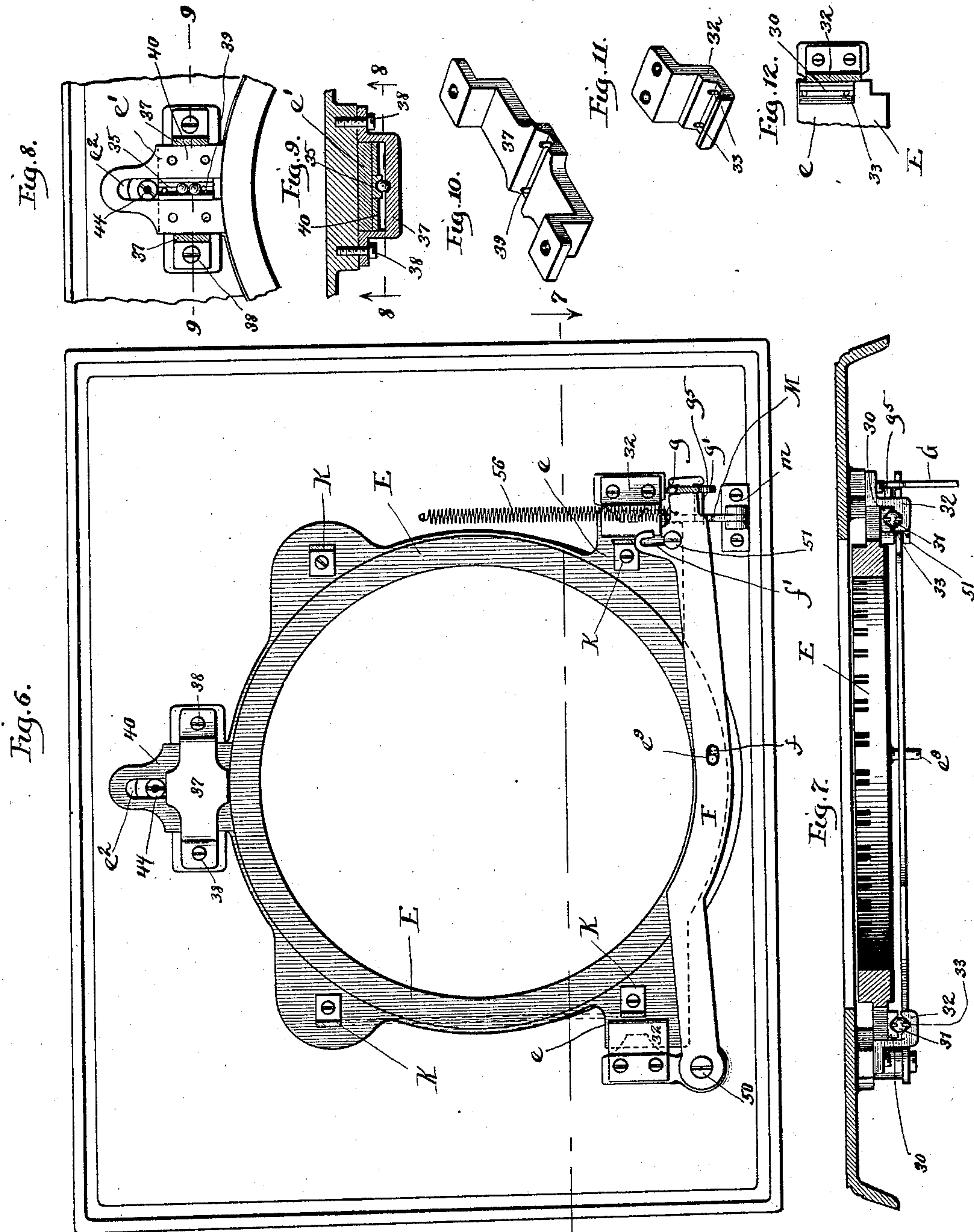
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3 Sheets—Sheet 3.

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# UNITED STATES PATENT OFFICE.

HENRY HOCHKLASSEN, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO CHARLES N. FAY, OF SAME PLACE.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 578,698, dated March 9, 1897.

Application filed March 28, 1895. Renewed January 9, 1897. Serial No. 618,671. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY HOCHKLASSEN, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Type-Writing Machines, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

The present invention has relation to that class of type-writing machines in which the printing is effected by types carried on the ends of type-bars and striking at a common center, and more particularly does the invention relate to that class of machines in which each of the type-bars carries a plurality of types, and in which provision is made for causing either of the types of a type-bar to strike at the common printing-point.

In the accompanying drawings I have shown my invention as applied to a type-writing machine in which the type-bars are sustained by a movable disk or plate, the shifting of this disk or plate serving to bring either of the types upon the ends of the type-bars into position for printing. It will be understood, however, that certain broad features of my invention are applicable to that class of machines in which the paper-carrying platen, instead of the type-bar carrier, is shifted in order to cause all the types to print at a common point.

The object of this invention is, first, to provide improved bearings for sustaining the shifting-bar carrier or disk; second, to provide improved means for connecting the type-bars to their hanger-rods, and, third, to provide improved mechanism for effecting the movement of that part that is to be shifted in order to secure the printing at a common point of the upper and lower case letters carried by the type-bars. The invention consists in the novel features hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the claims at the end of the specification.

Figure 1 is a view in vertical cross-section through a type-writing machine embodying my invention, parts being shown in elevation. Fig. 2 is a view similar to Fig. 1, but taken adjacent the left-hand end of the main frame. Fig. 3 is a detail perspective view of a portion

of the type-bar carrier or disk and parts of the lever mechanism whereby the disk is shifted. Fig. 4 is a perspective view of the upper end of one of the hanger-rods with its hook open. Fig. 5 is a view similar to Fig. 4, but showing the hook closed. Fig. 6 is an inverted plan view of the top plate of the machine and adjacent parts. Fig. 7 is a view in section on line 7 7 of Fig. 6. Fig. 8 is a view in section on line 8 8 of Fig. 9. Fig. 9 is a view in section on line 9 9 of Fig. 8. Fig. 10 is a perspective view of the ball-bearing bracket for sustaining the rear part of the type-arm carrier or disk. Fig. 11 is a perspective view of one of the ball-bearing brackets at the sides of the type-bar carrier or disk. Fig. 12 is an inverted plan view of one corner of the type-bar carrier or disk, showing the ball-bearing block attached thereto, the adjacent ball-bearing bracket being shown in section.

Within the base of the main frame A of the machine are mounted the key-levers B, that are connected by means of suitable hanger-bars C and rods C' with the type-bars D, that are mounted upon the movable type-bar carrier or disk E. I have shown each of the type-levers B as provided with a headed pin b, that passes through a slot 20, formed in the lower end of the corresponding hanger-bar C, although this construction forms no part of my invention. I have also shown each of the hanger-bars C as provided with a slot 21, through which passes a bar k, that extends between the lower ends of suitable shifting-bars K, depending from the under side of the type-bar carrier or disk E; but this mechanism for shifting the hanger-bars C in unison with the type-carrier or disk E forms no part of my invention. Each of the type-bars D is journaled at one end, as at 25, within suitable hanger-arms 26, that are fastened in any convenient manner to the type-bar carrier or disk E. The upper end of each of the type-bars D is preferably bifurcated, as seen in Fig. 5, and is provided with a pin d, with which engages a hook c at the upper end of the hanger-rod C'. In order to close the hook c after it has engaged the pin d, I provide this hook with a jaw c', that is pivoted, as at c<sup>2</sup>, and has its lower end formed with a curved catch c<sup>3</sup>, adapted to spring over and engage with the body of the hanger-rod C'. Thus it will be



seen that if the parts be in the position shown in Fig. 4 the hook  $c$  can be readily set over the pin  $d$  of the type-bar, after which the jaw  $c'$  can be turned to the closed position, (shown in Fig. 5,) the catch  $c^3$  springing over the rod  $C'$  and securely retaining the hook  $c$  in closed position.

The type-bar carrier or disk E is preferably formed with the lateral extensions  $e$  and the rearward extensions  $e'$ . (See Fig. 6.) To the under side of the lateral extensions  $e$  are attached the hard-metal bearing-blocks 30, that rest upon the ball-bearings 31, that are sustained by the hanger-blocks 32, wherein the balls 31 are mounted. In order to retain the balls 31 within the blocks 30 and 32, I provide pins 33, depending from the blocks 30 and 32. The blocks 32 are preferably shaped as shown in Fig. 11 and are attached to suitable lugs formed on the under side of the top plate of the main frame. (See Fig. 7.) The rearward extension  $e'$  of the disk E has attached to its under face a hard-metal block 35, that rests upon the ball-bearings 36, that are carried by the dependent bearing-bracket 37, that is bolted, as at 38, to the under side of the top plate of the main frame. (See Fig. 6.) The bearing-block 35 and the bracket 37 are provided with pins 39 to retain the balls 36 in position. The rearward extension  $e'$  is furnished also with guide-plates 40, (see Figs. 8 and 9,) that are arranged at each side of the bearing-block 35 and aid in securing the accurate movement of the parts. Preferably, also guide-plate 40 is formed with a slot  $e^2$ , through which passes a stop-pin 44, that depends from the top plate of the machine and limits the rearward movement of the type-bar carrier or disk E. By thus mounting the disk E upon ball-bearings at its sides and rear the disk can be shifted with the least possible friction in order to bring either of types at the end of each type-bar in proper position for effecting its impression.

In order to shift the type-bar carrier or disk E, so as to cause either of the types of any one of the type-bars E to strike at a common printing-point of the platen W that is mounted within a suitable carriage upon the top plate of the main frame, I employ the mechanism next to be described. From the under side of the disk E projects a pin  $e^3$ , that enters a slot  $f$ , formed in a shifting-lever F, that is pivotally connected at one end, as at 50, to the under side of the top plate of the main frame. The opposite end of this shifting-lever F is formed with a slot  $f'$ , through which passes a screw 51, that enters a threaded hole in the top plate, the head of this screw serving to sustain the shifting-lever F. By reference to Fig. 3 of the drawings it will be seen that the outer end of the shifting-lever F is formed with slots to receive the upper yoke-shaped ends  $g$  and  $g'$  of the upper-case key-lever G, that is pivoted, as at  $g^2$ , to suitable bearings on the main frame and has its lower end  $g^3$  extending forwardly and provided with a fin-

ger-piece  $g^4$ . The type-bar carrier or disk E is drawn rearwardly to the position shown by a spring 56, one end of which is attached to the shifting-lever F and the other end of which is connected to the under side of the top plate of the main frame, and the disk E is normally locked in such position by a latch-bar M, that is pivotally sustained by a hanger  $m$ , depending from the under side of the top plate of the main frame, the inner end of the latch-bar M being formed with a shoulder  $m'$ , to engage the forward edge of the disk E. The upper end of the upper-case key G is provided with a pin  $g^5$ , that will engage with a cam-shaped extension  $m^2$ , formed upon the under edge of the latch-bar M in order to effect the disengagement of the latch-bar from the disk E when the disk is to be shifted. The mechanism thus far described for effecting the shifting of the type-bar carrier or disk is an invention of another, and I do not wish, therefore, to be understood as making claim thereto. From the foregoing description it will be seen that when the upper-case key-lever G has its finger-piece  $g^4$  depressed the latch-bar M will be lifted, the shifting-bar F will be drawn forward, and the type-bar carrier or disk E will also be drawn forward, and this shifting of the type-bar carrier or disk E will be sufficient to bring into position for printing at the common printing-point those types which are out of action while the disk E is in its normal position. It is frequently desirable in certain classes of work to provide means whereby the upper-case letters of the alphabet may be continuously printed without the necessity of the operator manually retaining the upper-case finger-key depressed, and the purpose of the improvement next to be described is to enable the parts, when shifted to the proper position for effecting the printing of upper-case letters, to be locked in such position and to enable an easy release of the parts when it is desired to resume the printing with the lower-case types.

To the forwardly-extending part  $g^3$  of the upper-case key-lever G, I have pivotally connected, as at  $p$ , a supplemental key P, preferably of angular shape, and provided with a finger-piece  $p'$  at its forward end and with a hook or shoulder  $p^2$  at its rear end adapted to engage with an extension or stop 60, depending from the main frame of the machine. (See Fig. 2.) A pin  $p^4$ , projecting from the upper-case key-lever G, will limit the downward movement of the supplemental key P, the weight of which key tends to normally hold it in the downward position shown in Fig. 2. When the upper-case key-lever G is depressed, it will shift the type-bar hanger or disk E in manner hereinbefore defined, but the hooked end  $p^2$  of the supplemental key P will not remain in engagement with the stop or extension 60 because of the normal tendency of the rear part of the key P to drop downwardly and thus release its hook  $p^2$  before it becomes locked with the stop 60.



Hence when the upper-case key-lever is operated merely for the purpose of causing the printing of individual upper-case letters the supplemental key P remains out of action.

5 When, however, it is desired to print a succession of upper-case letters, and in doing so to lock the type-bar carrier or disk E in position for such purpose and thus relieve the operator from the necessity of manually retaining the upper-case key depressed, the  
10 operator will depress the finger-piece  $p'$  of the supplemental key P. This depression of the finger-piece  $p'$  will cause the upper-case key-lever G and the supplemental key P to  
15 assume the position shown by dotted lines in Fig. 2, and the shoulder  $p^2$  will engage with the stop or extension 60, and the friction of the parts will cause the shoulder to so firmly engage the stop as to retain the upper-case  
20 key-lever G in the position shown by dotted lines in Fig. 2, and thus hold the type-bar carrier or disk so that the operator may use both hands in printing upper-case letters. When the operator desires to restore the type-  
25 bar carrier or disk E to normal position, this can be done by depressing the finger-piece  $g^4$  of the upper-case key-lever G, thereby causing the front end of the upper-case key-lever to move downwardly a trifle farther and  
30 thus allow the weight of the rear end of the supplemental key P to cause its hook  $p^2$  to drop from engagement with the stop or extension 60.

35 I do not wish my invention to be understood as restricted to the precise details of construction or arrangement of the supplemental key, since these may obviously be varied by the skilled mechanic.

40 Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination with a main frame, of a type-bar carrier or disk E located beneath the top plate  
45 of said main frame and having lateral and rearward extensions  $e$  and  $e'$ , the ball-bearings 35 and bearing-blocks or hangers 32 attached to the under side of the top plate and wherebysaid lateral extensions are supported  
50 and the ball-bearings 36 and hangers 37 attached to the under side of the top plate and whereby said rearward extension  $e'$  is supported, substantially as described.

2. In a type-writing machine, the combination with a type-bar, of a hanger-rod provided with a hook and with a retaining-piece  
55 mounted on a fixed pivot adjacent the end of said rod and arranged to swing in the vertical plane of said rod and serving to close said  
60 hook, substantially as described.

3. In a type-writing machine, the combination with a type-bar, of a hanger-rod provided with a hook and with a retaining-piece  
65 for closing said hook, said retaining-piece being mounted upon a fixed pivot adjacent the end of the hanger-rod, said retaining-piece being provided at the end farthest from the

hook with a latch adapted to engage the hanger-rod and hold the retaining-piece in position to close the hook, substantially as 70 described.

4. In a type-writing machine, the combination with a body to be shifted to effect the printing of upper-case letters or the like, of a main upper-case key-lever for effecting the  
75 shift of said body, a supplemental key-lever pivotally connected to said upper-case key-lever and provided at one side of its pivotal point with a finger-piece whereby both it and the main key-lever may be depressed, a stop  
80 or projection for engagement with said supplemental key-lever at the opposite side of its pivotal point, said supplemental key-lever being arranged to escape engagement with said  
85 stop or projection when the main key-lever is operated, but serving when its own finger-piece is depressed to engage said stop or projection and lock the main key-lever in depressed position, substantially as described.

5. In a type-writing machine, the combination with a body to be shifted to effect the printing of upper-case letters or the like, of a main upper-case key-lever for effecting the  
90 shift of said body, a supplemental key-lever pivotally connected to said upper-case key-lever and provided at its outer end with a finger-piece whereby both it and the main key-lever may be depressed and provided at its inner  
95 end with a hook, said finger-piece and said hook being at opposite sides of the pivotal point of said supplemental lever, and a stop or projection for engagement with the  
100 hooked end of said supplemental key-lever, said supplemental key-lever being arranged to escape engagement with said stop or projection when the main key-lever is operated, but serving when its own finger-key is depressed to engage said stop or projection and lock the main key-lever in depressed position, substantially as described. 110

6. In a type-writing machine, the combination with the body to be shifted to effect the printing of upper-case letters or the like, of a main upper-case key-lever for effecting the shift of said body, a supplemental key-  
115 lever pivotally connected to said upper-case key-lever and provided at one end with a finger-piece whereby both it and the main key-lever may be depressed and provided also with an inwardly-projecting end held normally in such position that it will not engage  
120 with the stop or projection when the main key-lever is depressed but will engage with said stop or projection when the supplemental key-lever is depressed; said main and supplemental key-levers being arranged with respect to each other also in such manner that a slight depression of the main key-lever will release the supplemental key-lever from its locked position, substantially as described. 125

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