

No. 657,438.

Patented Sept. 4, 1900.

C. P. MOSHER.

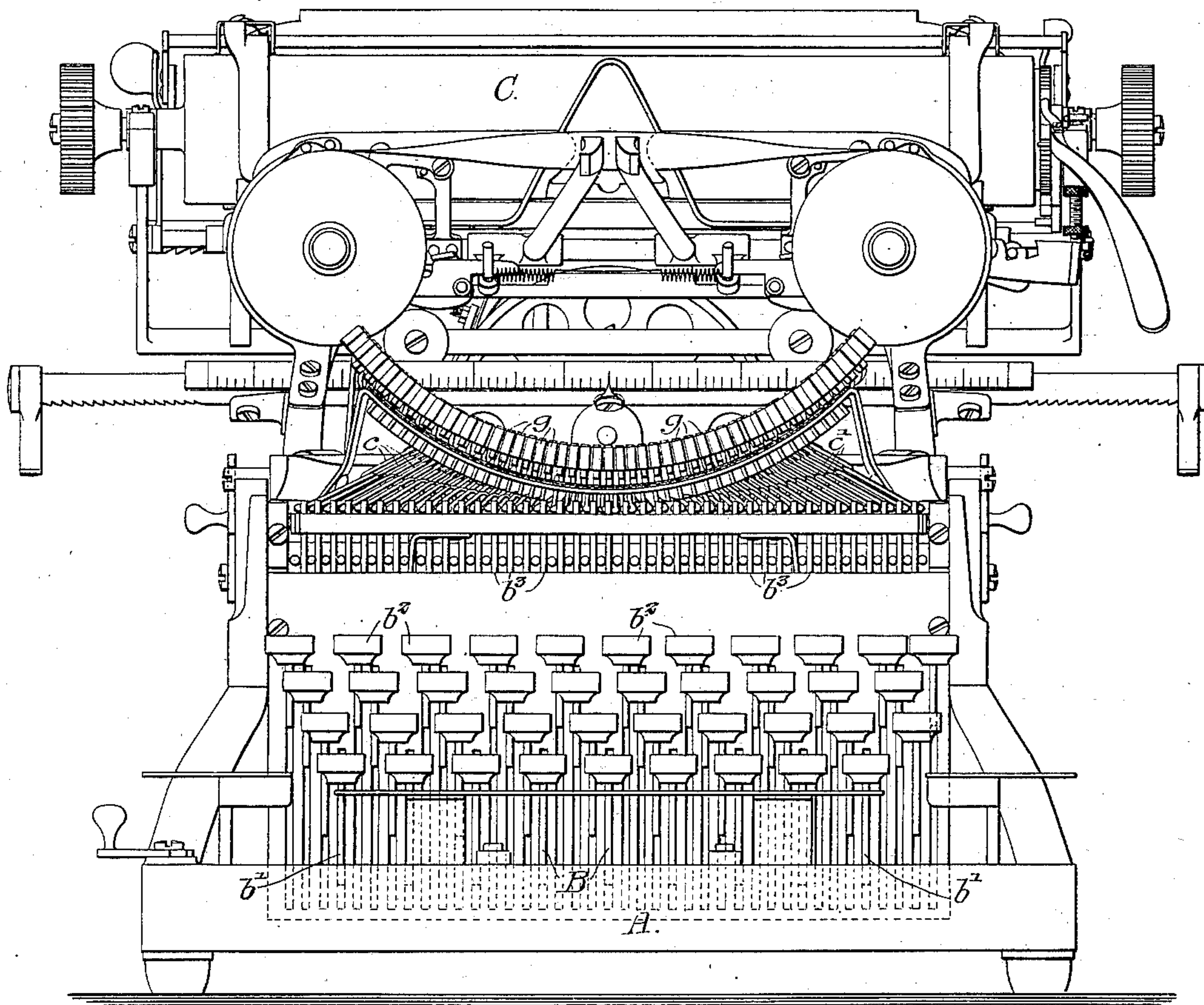
KEYBOARD MECHANISM FOR TYPE WRITERS.

(Application filed Jan. 31, 1900.)

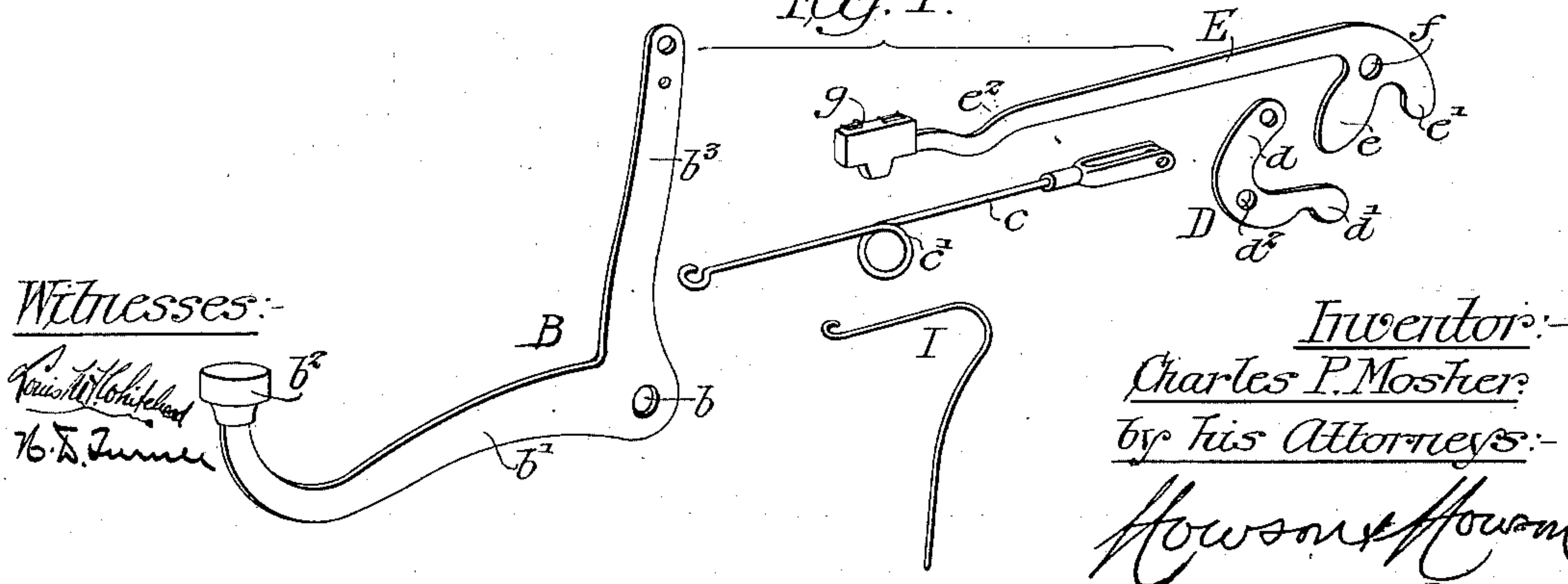
(No Model.)

3 Sheets—Sheet 1.

*Fig. 1.*



*Fig. 4.*



*Witnesses:-*

*Wm. H. H. H. H.*  
*Wm. H. H. H. H.*

*Inventor:-*

*Charles P. Mosher*  
*by His Attorneys:-*

*Howson & Howson*

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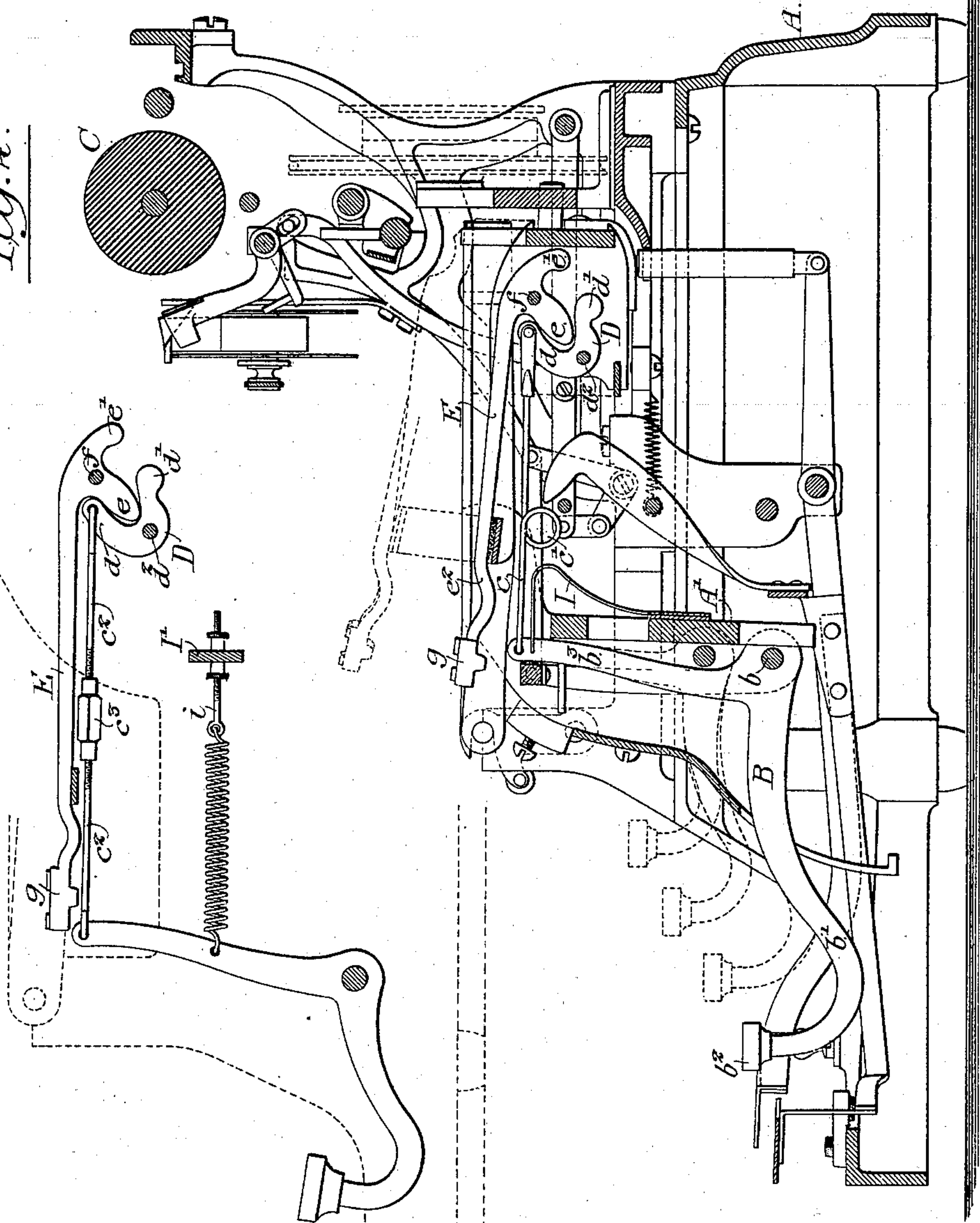
(Application filed Jan. 31, 1900.)

(No Model.)

3 Sheets—Sheet 2.

Fig. 2.

Fig. 3.



Witnesses:-

Abner H. Whitehead.

Hamilton D. Turner

Inventor:-  
Charles P. Mosher:  
by His Attorneys:-

Howson & Howson



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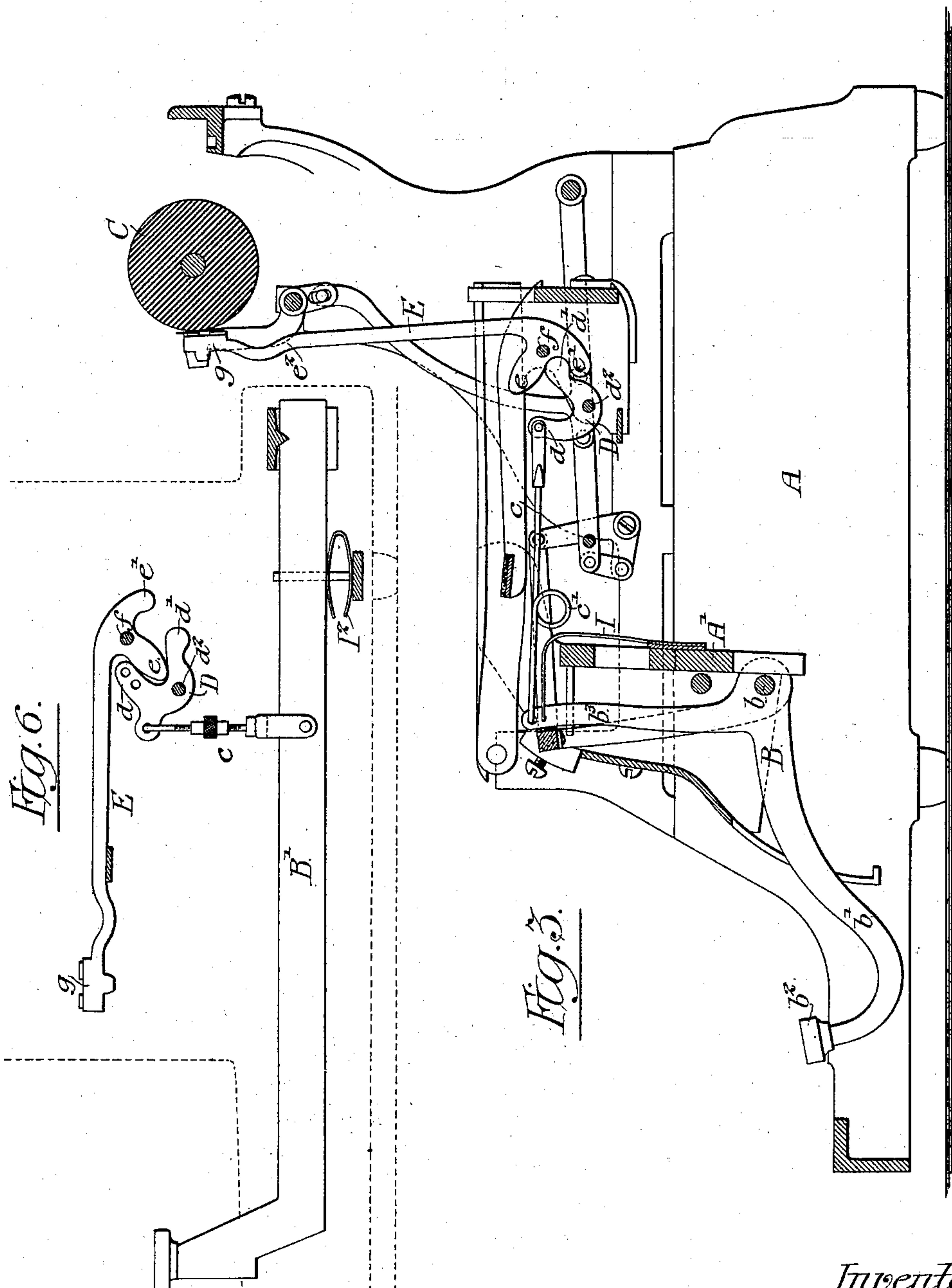
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# KEYBOARD MECHANISM FOR TYPE WRITERS.

(Application filed Jan. 31, 1900.)

(No Model.)

**3 Sheets—Sheet 3.**



Witnesses:-  
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Louis H. F. Whitehead.

Hamilton D. Turner

Inventor:-  
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Howson & Howson



# UNITED STATES PATENT OFFICE.

CHARLES P. MOSHER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF  
ONE-HALF TO T. HENRY ASBURY, OF SAME PLACE.

## KEYBOARD MECHANISM FOR TYPE-WRITERS.

SPECIFICATION forming part of Letters Patent No. 657,438, dated September 4, 1900.

Application filed January 31, 1900. Serial No. 3,429. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES P. MOSHER, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain  
5 Improvements in Keyboard Mechanism for Type-Writers, of which the following is a specification.

My invention relates to certain improvements in type-writing machines in which the  
10 type is visible.

The object of my invention is to improve the construction of the key-lever mechanism, so that while the type-bars move on radial lines the key-levers will move on vertical lines.  
15 This object I attain in the following manner, reference being had to the accompanying drawings, in which—

Figure 1 is a front view of a type-writing machine, illustrating my invention. Fig. 2  
20 is a sectional view of the machine shown in Fig. 1, the type-bars being at rest. Fig. 3 is a view similar to Fig. 2, showing a type-bar in action. Fig. 4 is a perspective view showing the parts detached, and Figs. 5 and 6 are  
25 views of modifications of my invention.

The type-writing machine used to illustrate my invention is one of the well-known forms of "visible" machines, and therefore I need  
30 not explain in detail the features of the machine.

A is the frame of the machine, which may be of any suitable form, and adapted to the frame is the carriage on which is mounted the platen C, which in the present instance  
35 is in the form of a roller. In front of the roller is the inking mechanism.

My present invention relates particularly to the type-bar-operating mechanism.

B is a key-lever pivoted at  $b$ , having an arm  
40  $b'$ , on which is secured the ordinary key-button  $b^2$ . The lever in the present instance is in the form of a bell-crank, the arm  $b^3$  of the lever being connected to an arm  $d$  of a two-armed lever D. This lever is pivoted at  $d^2$   
45 to the frame of the machine. The other arm  $d'$  of the lever D is shaped as clearly shown in Fig. 2, having a rounded end adapted to a cavity formed by the two arms  $e$  and  $e'$  of the type lever or bar E. This type-lever is  
50 pivoted at  $f$  to the machine and has a long arm  $e^2$ , carrying at its outer end the type  $g$ ,

which when the bar is raised to strike, as shown in Fig. 3, is in position directly opposite the platen C. The connection between the lever B and the lever D is simply a rod  $c$ ,  
55 connected to the arms of each lever, preferably as shown, so that a series of the levers B may be arranged side by side in a vertical position, while the intermediate lever D and the type-lever E may be arranged on other  
60 lines, for instance radiating from a common center, as in Fig. 1, which is the arrangement on the ordinary forms of machines in which the writing is visible. The connecting-rod  $c$  in the present instance is made of wire at-  
65 tached to levers in any suitable manner and bent in the form of a loop  $c'$ , so that the length of the rod can be regulated by simply increasing or diminishing the loop.

I is a spring for returning the key and type  
70 levers to their normal positions. I provide a spring for each key-lever. I prefer to use a spring of the shape shown in Figs. 2 and 4. The spring I is made of light spring-wire, bent as shown, and secured at its lower end to a  
75 cross-bar  $A'$  of the machine. The upper end passes through an opening in the arm  $b^3$  of the key-lever. In some instances when the arm  $b'$  of the key-lever B or the arm  $e^2$  of the type-bar E is of sufficient weight the spring  
80 I may be dispensed with, but for quick action I prefer to use the spring.

Fig. 1 is a view illustrating one form of machine to which my invention can be applied, and it will be readily seen that I may arrange  
85 all the key-levers in a straight line, so that the keys can be arranged according to the universal standard, known also as the "Remington," while the type-levers and the intermediate levers can be pivoted in curved lines,  
90 so that the type will strike at a central point. When the key-levers are depressed, they move on vertical lines, while the type-bars and intermediate levers move on radial lines, the connections between the key-levers and the  
95 intermediate levers being such as to allow for this movement. The position of the arms of the two levers D and E is such that when the key-levers are pressed down the movement of the type-lever will gradually increase in  
100 speed as the arm  $d'$  comes in contact with the end of the arm  $e$ , and as the type-lever is



raised the bearing-point changes until the end of the lever  $d'$  is directly at the root of the lever  $e$ . As soon as the key-lever is released the spring  $I$  will cause the arm  $d'$  of the lever  $D$  to come in contact with the arm  $e'$ , and thus return the type-lever to its normal position.

By gearing the intermediate lever with the type-lever in the manner described I am enabled to strike a quick and powerful blow with the type-lever, so that the machine can be used for manifolding and producing a great number of copies, and at the same time the machine will have an easy action, as the first movement to move the type-bar into position will be produced when the leverage is extended.

It being necessary to start the type-bar from a horizontal position it is desirable that this starting should be easy and unaccompanied by any jerks or variations in the pressure required on the keys. This I secure by the use of the special forms of engaging arms on the intermediate and the type levers, whereby there is a continuous rolling motion between them. The uniform downward motion of a key results in an accelerated motion of the type-levers due to the variation in the leverage between their respective pivots. The rebound of the rapidly-moving type-lever from the platen is of material assistance in returning the same to its normal position.

In Fig. 5 I have shown a modification of details of my invention. In place of using a looped rod  $c$ , as in Fig. 4, I may use two rods  $c^2$ , connected by a coupling  $c^3$ , and the spring may be a coiled spring connected to the screw-threaded stem  $i$ , which passes through a cross-bar  $I'$ , forming part of the frame of the machine, and on the stem may be two nuts by which the tension of the spring can be regulated.

In Fig. 6 I have shown a modification adapted to machines using a straight key-lever, such as commonly known as the "Remington"

type. The key-lever  $B'$  is pivoted at the rear and a spring  $I^2$  tends to keep the lever up into the normal position. This lever is connected to the arm of the lever  $D$  by a connecting-rod  $c$ , made adjustable and forked to pass over the thin key-lever  $B'$ . Thus by having this rod connection I am enabled to set the levers  $D$  and  $E$  out of line with the key-lever  $B'$ .

I claim as my invention—

1. The combination in a keyboard mechanism for type-writing machines, of a key-lever, a type-lever, an arm on the type-lever having its acting face resembling a gear-tooth in outline, an intermediate lever of the bell-crank type with one arm for connection to the key-lever, and the other arm engaging the acting face of the arm on the type-lever, and a link connecting the intermediate lever with the key-lever, the said intermediate lever and the arm of the type lever meshing together with a continuous rolling motion when the key-lever is depressed, substantially as described.

2. In a keyboard mechanism for typewriters, the combination of a pivoted key-lever, a link and a spring with a lever  $D$ , having one arm adapted to connect to said link and the other with its bearing-surface shaped like a figure 6, and a three-armed type-lever having two of its arms in the same plane as those of the said two-armed lever, one of said type-lever arms  $e^2$  carrying the type, a second arm  $e$  being approximately the shape of a gear-tooth and with the third type-lever arm  $e'$  constructed to engage the two-armed lever  $D$ , and from their form, securing a continuous rolling contact between their bearing-surfaces during operation, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES P. MOSHER.

Witnesses:

WILL. A. BARR,  
JOS. H. KLEIN.