

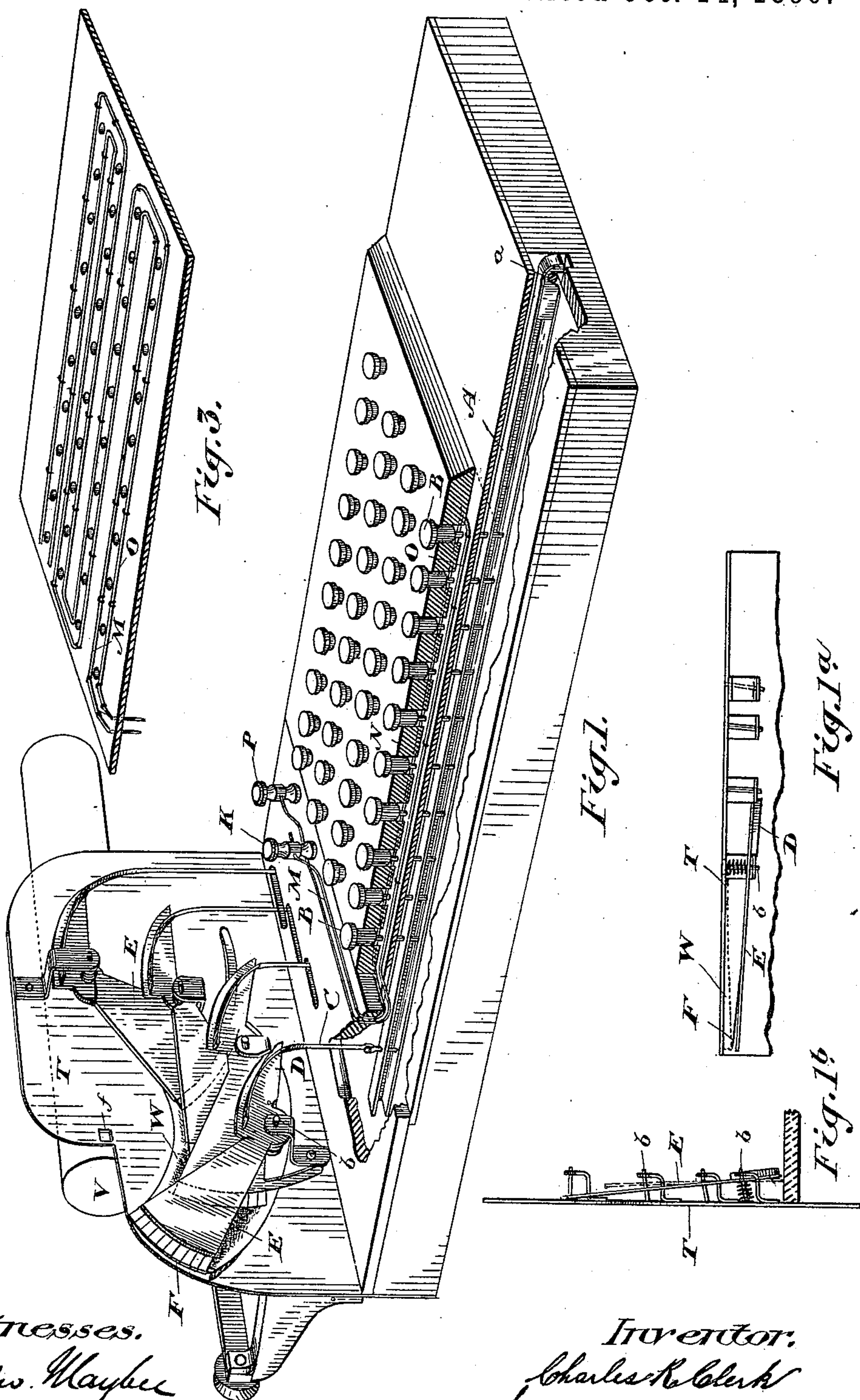
(No Model.)

2 Sheets—Sheet 1.

C. R. CLERK.  
TYPE WRITING MACHINE.

No. 438,430.

Patented Oct. 14, 1890.



Witnesses.  
J. Edw. Mayhew  
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Inventor:  
Charles R. Clerk  
by Donald C. Redoubt  
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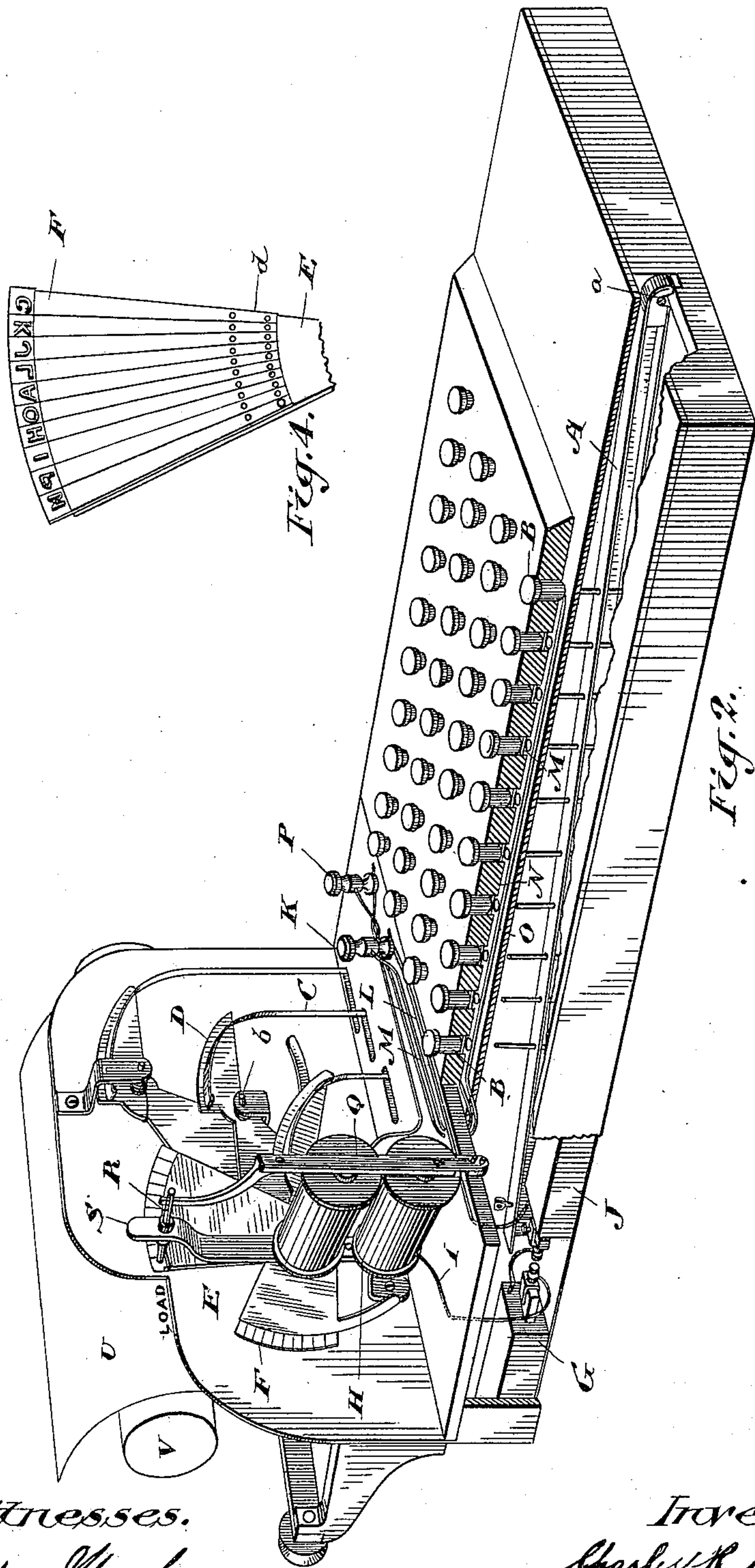
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# UNITED STATES PATENT OFFICE.

CHARLES R. CLERK, OF TORONTO, CANADA.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 438,430, dated October 14, 1890.

Application filed January 8, 1890. Serial No. 336,289. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES R. CLERK, a clerk in Holy Orders, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented a certain new and Improved Type-Writer, of which the following is a specification.

The object of the invention is to furnish a type-writer that will be cheaply made, rapidly operated, sure in its alignment, and not readily got out of order; and the invention consists in the peculiar construction, arrangement, and combination of parts hereinafter described and then definitely claimed.

Figure 1 is a perspective view of my improved type-writer, partially broken away to expose the levers, and having the striking-hammer and the magnet removed. Fig. 2 is a view similar to Fig. 1, except that the magnet and striking-hammer are in place. Fig. 3 is a detail showing the arrangement of the wires in connection with the keys. Fig. 4 is a detail of the type-plates. Fig. 1<sup>a</sup> is a plan showing the arrangement of the fan-shaped plate E and inking-pad. Fig. 1<sup>b</sup> is an elevation of the same parts.

As I do not purpose claiming anything original in the mechanism for operating the roller around which the paper is carried, it is not necessary to show it in the drawings. I therefore only illustrate the parts of the machine immediately connected with my invention.

A represents a lever pivoted at *a* immediately below a row of keys B.

In Figs. 1 and 2 I show four rows of keys, and I may say that a lever similar to the lever A is placed below each row. I may also remark that I do not confine myself to any particular number of keys, as the number of keys will be regulated according to the number of letters or symbols required in the machine. The end of the lever A is connected by a flexible strap C to a projection or tail D, connected to or formed upon the pivoted end of the fan-shaped plate E. The plate E is pivoted at *b*, and has a series of spring-plates F riveted to it at *d*, as shown in Fig. 4, in which figure it will also be seen that a letter is made on or fixed to the face of each plate F at or near its end. In the drawings I show

four fan-shaped plates E, one for each row of keys B. The number of spring type-plates F is also regulated to suit the number of keys in each row.

G is an electric battery connected to the magnet H by the wire I, and J is a similar battery connected to the binding-post K by the wire L, the two batteries being connected in the ordinary way.

M is a wire extending from the binding-post K around the bottom of the key-board N, as indicated in Fig. 3, immediately below the keys B.

O is a similar wire similarly placed upon the key-board N and connected to the binding-post P, which post is connected to the magnet H.

Q is a pivoted armature having a striking-hammer R fixed to its upper end, as indicated. This striking-hammer R extends through a guide-bar S, and is held immediately in front of the aperture *f*, made in the back plate T, behind which the paper U on its roller V is placed. So long as the wires M and O are disconnected the magnet H is not charged, and consequently does not attract its armature Q, which in this condition of the magnet is made to hold the striking-hammer R clear of the paper U. Immediately upon a connection being made between the wires M and O the armature Q will be instantly attracted toward its magnet, causing the hammer R to strike anything which may be in front of the aperture *f*. The wires M and O are arranged, as shown in Fig. 3, around each row of keys B in such a manner that the downward movement of any one key B shall bring it in contact with both wires M and O and constitute a connecting-link between the said two wires. It therefore follows that the downward movement of any one key will cause the magnet H to be instantly charged, and thereby attract its armature Q.

As before explained, a lever A is placed below each row of keys B, and as this lever is pivoted at one end it follows that the downward movement of the key B next to the pivot *a* of the lever A will cause the unpivoted end of the said lever to move farther down than it would travel were it similarly acted upon by the key B farthest from the



said pivot of the lever. As the lever A is connected, as hereinbefore described, to the fan-shaped plate E, it follows that the downward movement of the lever A will cause the  
 5 said plate E to rock on its pivot a distance proportionate to the downward movement of the said lever A. The lever A, the keys B, and the pivoted plate E are arranged in relation to each other in such a manner that  
 10 the downward movement of the key B farthest from the pivot *a* of the lever A shall rock the plate E on its pivot only sufficiently far to bring the type on the first spring-plate F immediately in front of the aperture *f*.  
 15 The key B next to the first key is located so that its downward movement shall cause the pivoted plate E to move on its pivot sufficiently far to bring the type on the second type-plate F opposite to the aperture *f*, and  
 20 so on, each key being arranged so that its downward movement shall bring a particular type in front of the said aperture *f*.

As I have before explained, each row of keys B is arranged above a pivoted lever A, and,  
 25 as shown by the drawings, each lever is connected to an independent pivoted plate E, which is located so that the downward movement of its particular lever shall cause it to rock on its pivot, so as to bring a type in  
 30 front of the aperture *f* in the same manner as already explained.

When a particular key B is pushed down, it not only operates the pivoted plate E, but it simultaneously forms an electrical connection between the wires M and O, and as a consequence the magnet H is charged so as to  
 35 attract its armature Q, which in springing toward the magnet causes the hammer R to strike the back of the particular spring type-plate F which may at the time be opposite  
 40 to the aperture *f*, thus forcing the type on the said spring-plate against the surface of the paper U.

In order to ink the type, I fix on the face of  
 45 the back plate T an inking-pad W in such a position that the types on all the spring-plates F will rub against the surface of the said inking-pad. I also set the pivot-pins *b* at such an angle that the type-plates E are  
 50 brought toward the face of the back plate T as they approach the aperture *f*. The inking-pad W projects beyond the face of the back

plate T and is beveled to correspond with the angle at which the type-plates F travel.

What I claim as my invention is—

1. A series of levers A, a corresponding series of independently-oscillating type-plates connected thereto and constructed and arranged to present all their types at a point common to all, and a row of keys for each  
 60 lever A, substantially as described.

2. A series of levers A, a corresponding series of type-plates connected thereto, oscillating on different centers, and constructed and arranged to carry all their types at will  
 65 to a point common to all, and a row of keys for each lever A, substantially as described.

3. A lever A, pivoted at *a* and connected to the pivoted plate E, on which the spring type-plates F are attached, in combination with a  
 70 row of keys B immediately above the pivoted lever A, an electro-magnet H, armature Q, striking-hammer R, and wires M and O, arranged on opposite sides of the keys, so that the downward movement of any one key B  
 75 will cause said key to touch both wires and close the circuit, so as to operate the hammer R, substantially as and for the purpose specified.

4. A lever A, pivoted at *a* and connected to  
 80 the pivoted plate E, on which the spring type-plates F are attached, and an inking-pad W, located as specified, in combination with a row of keys B immediately above the pivoted lever A, an electro-magnet H, armature Q, striking-  
 85 hammer R, and wires M and O, arranged on opposite sides of the keys, so that the downward movement of any one key B will cause said key to touch both wires and close the circuit, so as to operate the hammer R, sub-  
 90 stantially as and for the purpose specified.

5. A series of spring type-plates F, riveted at *d* to the fan-shaped plate E, pivoted at *b*, and operated, as described, by the downward  
 95 movement of the lever A, in combination with the striking-hammer R, supported in a suitable guide-bar S immediately in front of the aperture *f*, substantially as and for the purpose specified.

Toronto, December 17, 1889.

CHARLES R. CLERK.

In presence of—

CHARLES C. BALDWIN,  
 E. CUMMINGS.