

(No Model.)

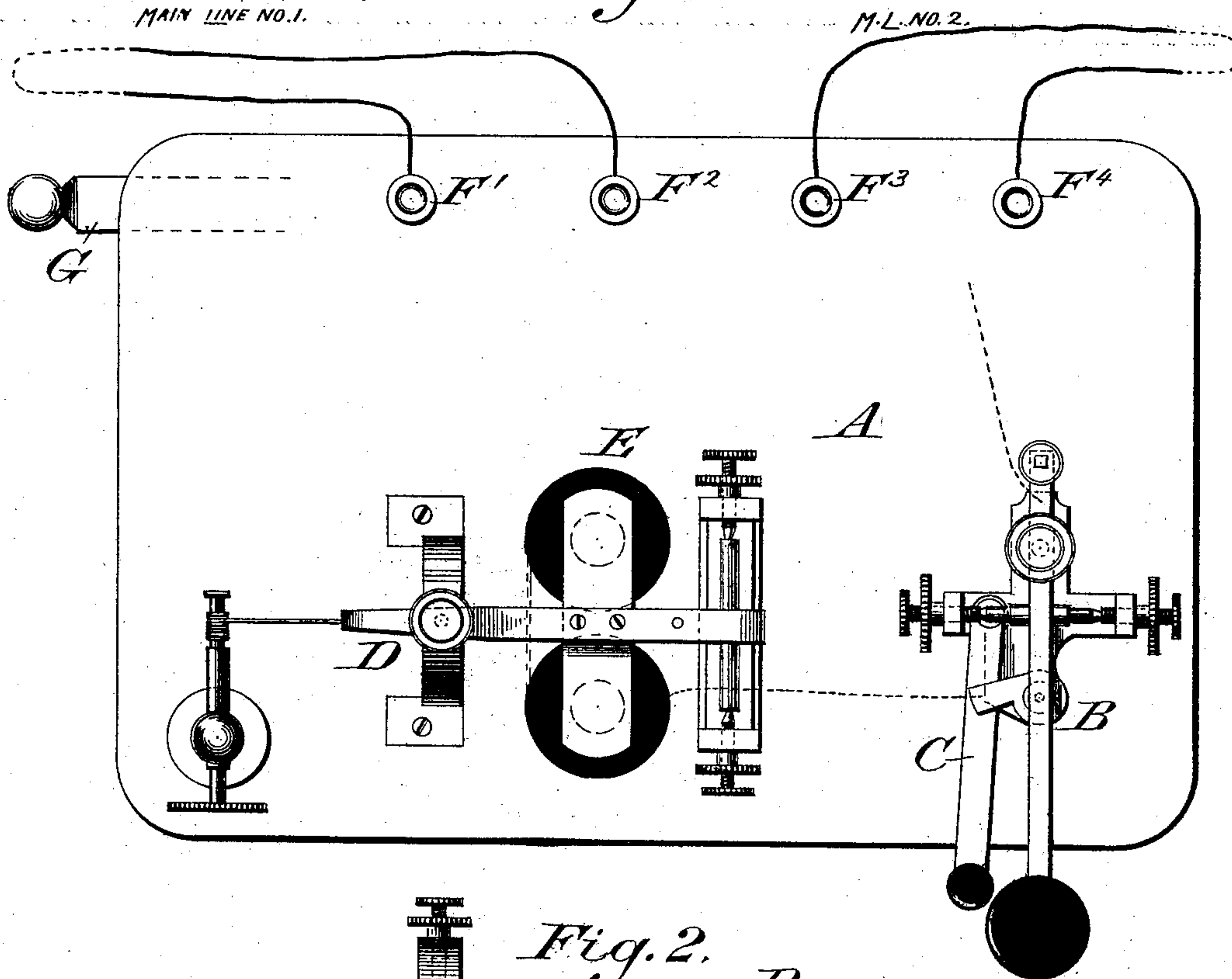
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W. A. MELBOURNE.  
TELEGRAPH INSTRUMENT.

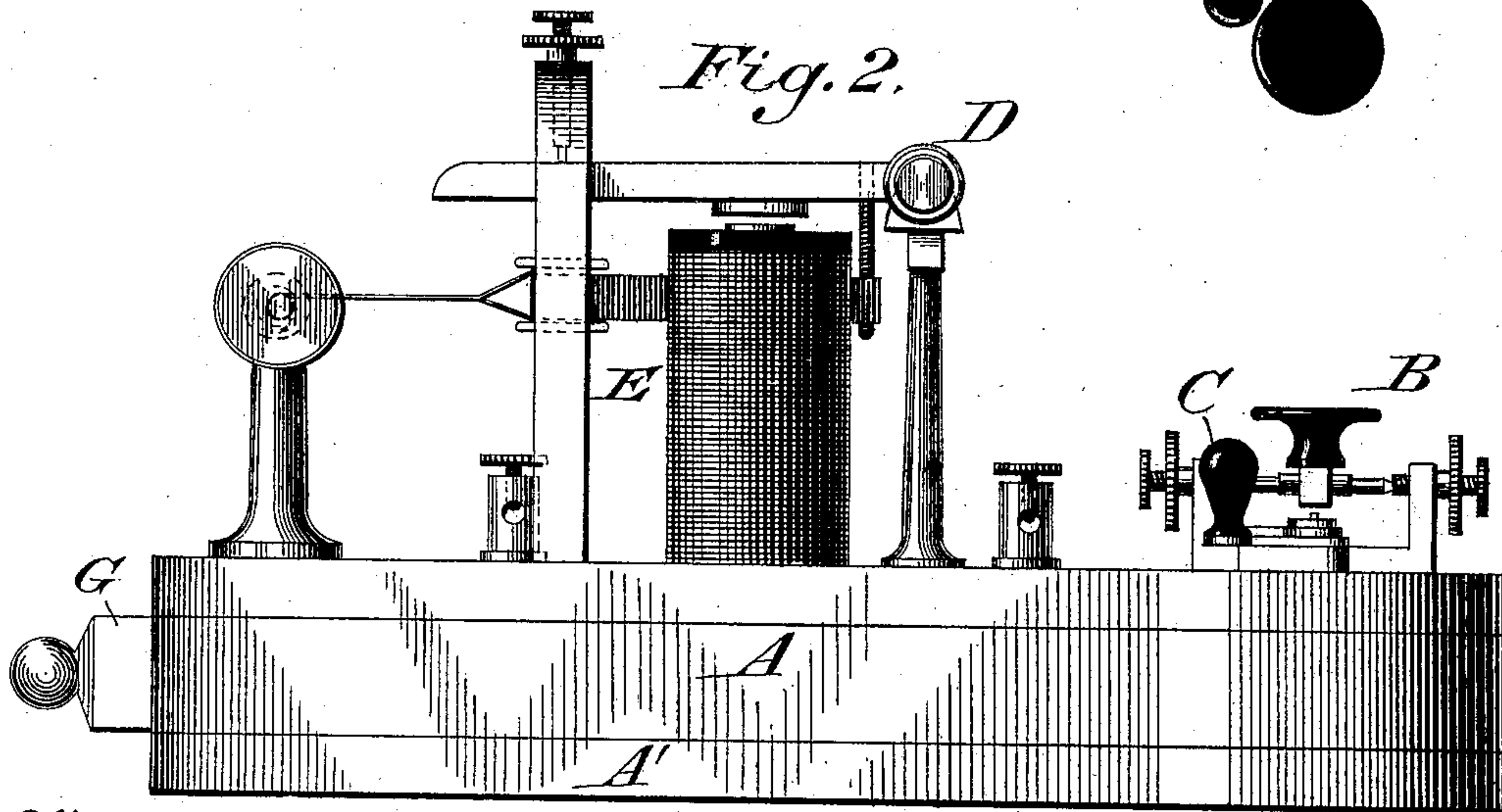
No. 366,970.

Patented July 19, 1887.

*Fig. 1.*



*Fig. 2.*



Witnesses

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(No Model.)

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Fig. 3.

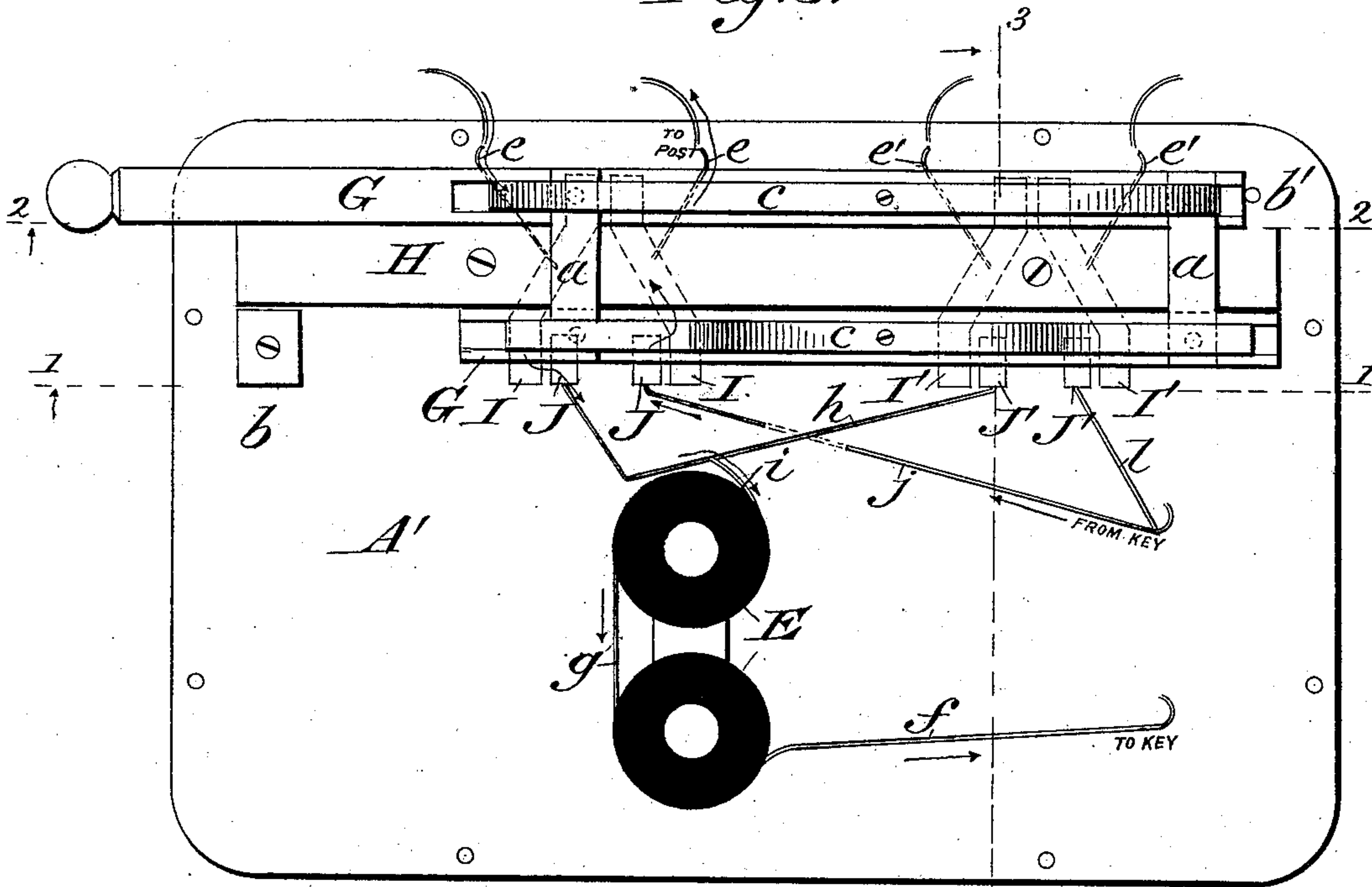


Fig. 4.

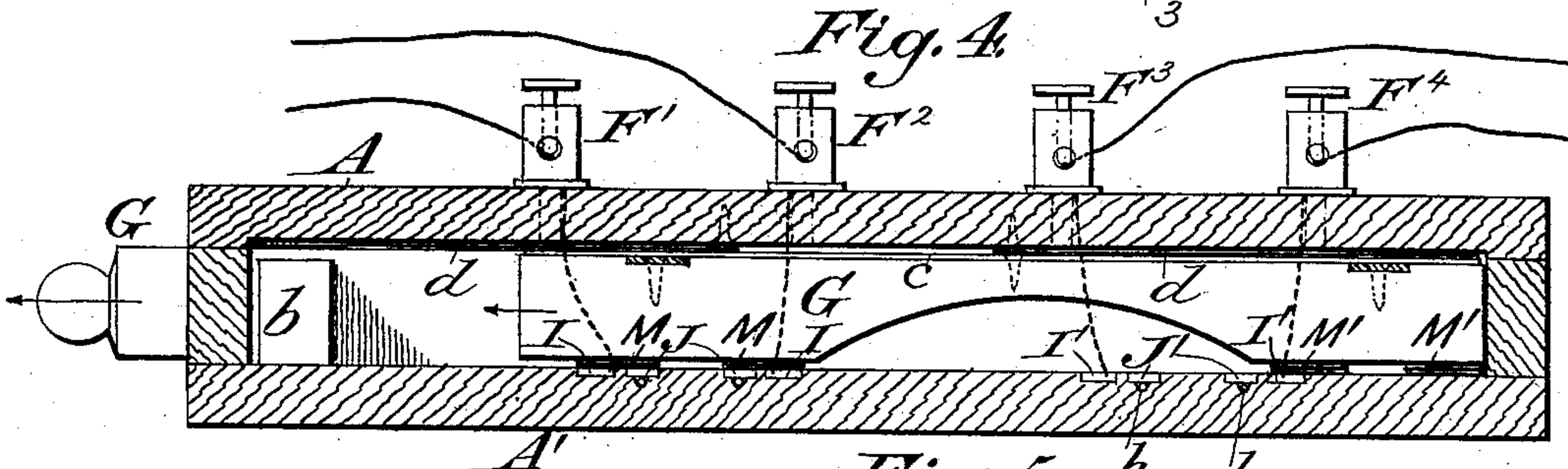
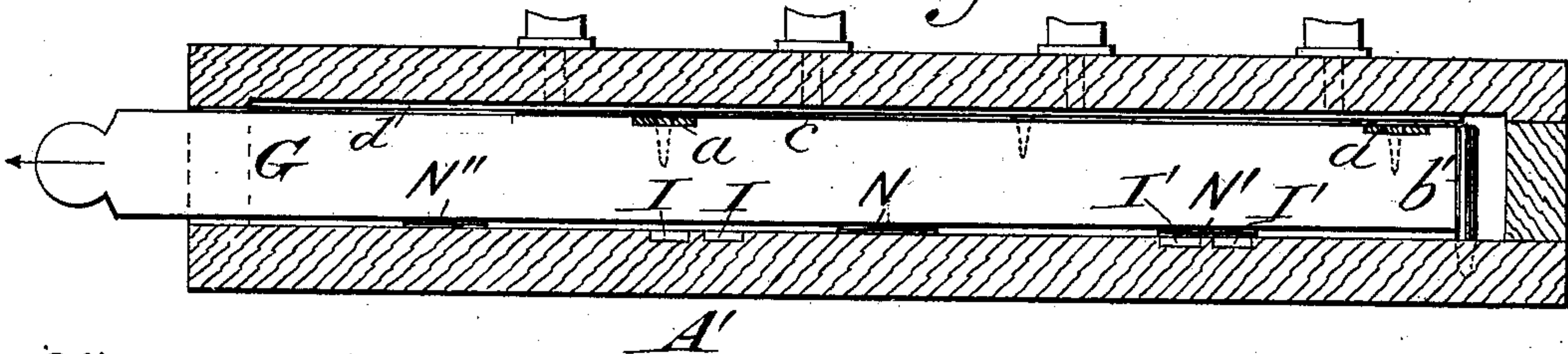


Fig. 5.



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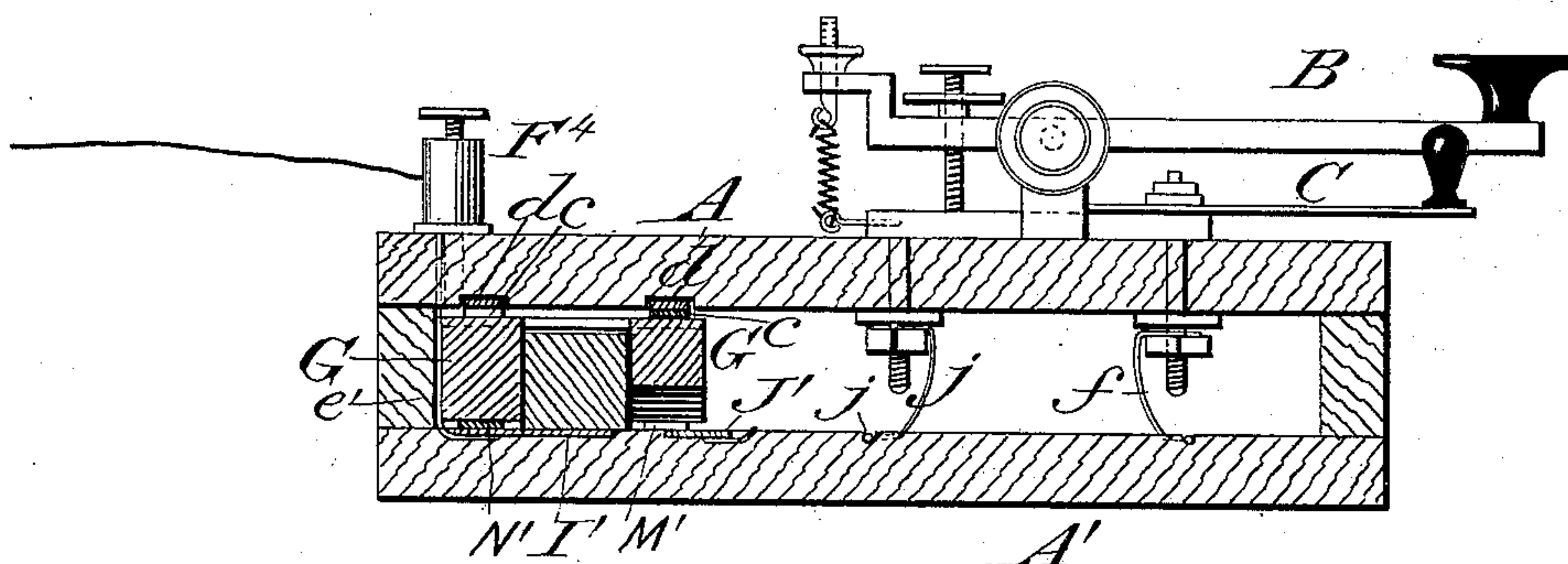
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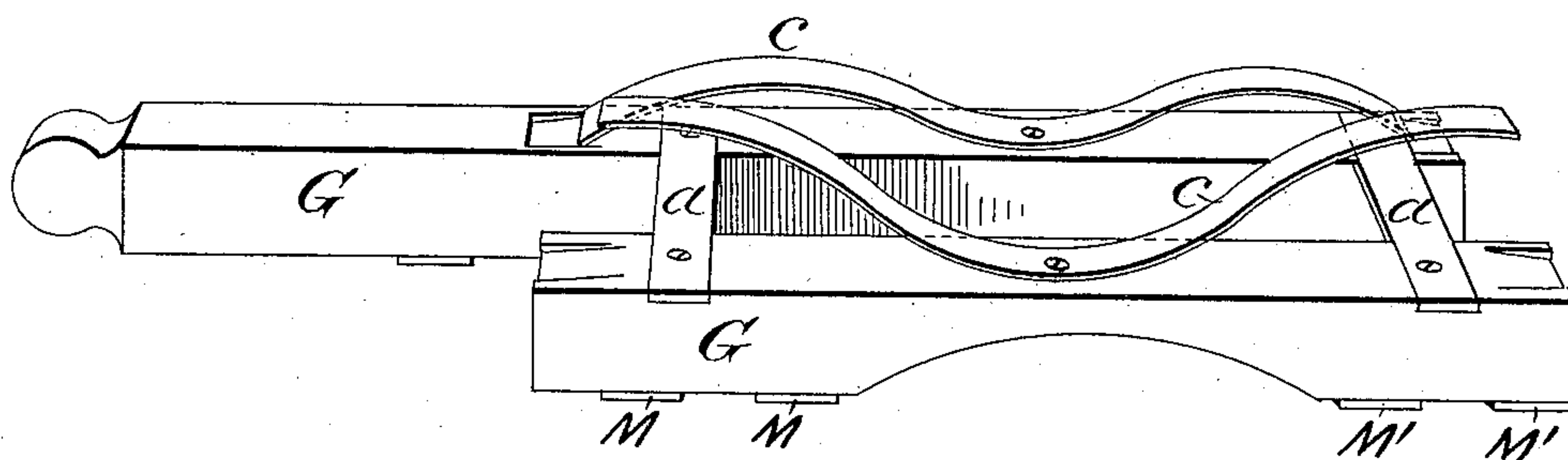
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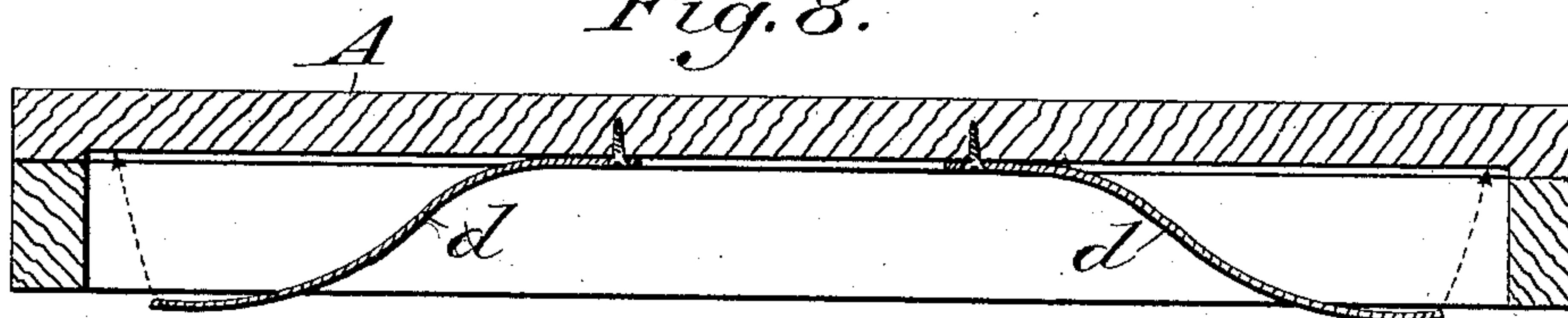
*Fig. 6.*



*Fig. 7.*



*Fig. 8.*



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# UNITED STATES PATENT OFFICE.

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## TELEGRAPH-INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 366,970, dated July 19, 1887.

Application filed March 1, 1887. Serial No. 229,312. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. MELBOURNE, a citizen of the United States, residing at Swanwick, in the county of Perry and State of Illinois, have invented certain new and useful Improvements in Telegraph-Instruments; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improvement in telegraph-instruments; and it consists, essentially, in a slide or switch whereby two independent main lines may be separately connected with the same sounder, key, and relay, and thus the expense of duplicating the instruments avoided; and it also comprises the construction, arrangement, and combination of the several parts, substantially as will be hereinafter described, and then more specifically pointed out in the claims.

In the annexed drawings, illustrating my invention, Figure 1 is a top plan view of my improved telegraph-instrument. Fig. 2 is a side elevation of the same. Fig. 3 is an interior plan view of the bottom of the casing, showing the arrangement of the parts within said casing. Fig. 4 is a longitudinal section on the line 1 1 of Fig. 3. Fig. 5 is a similar section on the line 2 2 of Fig. 3. Fig. 6 is a transverse section on the line 3 3 of Fig. 3. Fig. 7 is a perspective view of the switch or slide. Fig. 8 is a longitudinal section through the upper portion of the box or casing, showing the springs attached thereto which bear upon the slide.

Like letters of reference denote corresponding parts throughout the several views.

A represents a box or casing, upon the top of which is mounted the key B, constructed in the ordinary manner, and adjacent thereto the switch C, by means of which the key is thrown in or out of circuit. Upon the casing is also mounted the ordinary sounder mechanism, D, a particular description of which is unnecessary here, and arranged in connection with this is the magnet E, which is fastened upon the bottom A' of the casing and has its coils extended upward through holes in the

top of the casing. Upon the casing are also arranged a series of four binding-posts, F' F<sup>2</sup> F<sup>3</sup> F<sup>4</sup>, two of which receive the wires of one main line and the other two the wires of the second main line, and by means of which said wires are connected with the instrument.

Within the box or casing are arranged the wires which pass between the key, the sounder-magnet, and the binding-posts, as also the switch which serves to so connect the wires of one main line with the instrument that the current will flow along said line while the other main line remains inoperative, and may at the desired time cause the first line to become inoperative and the current to be conducted through the second line instead. The switch is located longitudinally within the casing near the side thereof. It consists, preferably, of two parallel wooden strips, G G, connected by transverse ties *a a*, one of said strips, which is longer than the other, extending through a hole in the corner of the casing and formed as a handle, whereby the strip may be conveniently manipulated from the outside. The switch is guided, generally, in its movements by a longitudinal bar, H, secured to the base A' and situated between the parallel strips G G, while the motion endwise is limited by suitable stops, as *b b'*, fastened to the base. The parallel strips G G carry suitable springs fastened upon their upper sides lengthwise thereof, and calculated to be depressed more or less against the top of the casing, so that the switch may be held surely at all times with the bottom face of the strips in close contact with the base A'. One or both of the springs may, if desired, be supplemented in their action by means of the springs *d d*, fastened to the top of the casing and resting upon the springs *c c*.

Beneath the switch, and transversely thereto, two pairs of metallic plates, I I and I' I', made preferably of brass, are secured to base A' and sunk in said base or otherwise suitably attached, so that the switch may slide smoothly over their upper surfaces. (See Figs. 3 and 4.) The members of each pair are so formed and related to each other that their extremities nearest the edge of the base may be in juxtaposition, although not in contact. The other



extremities are widely enough apart to permit pairs of smaller metallic plates, J J and J' J', to be inserted between them, although not in contact with them, and they are sunk similarly to plates I and I', so that all the plates are on a level.

The arrangement of wires within the casing is as follows: The binding-posts F<sup>1</sup> and F<sup>2</sup>, which receive the wires of main line No. 1, are connected with the plates I I by means of wires *e e*, and the binding-posts F<sup>3</sup> and F<sup>4</sup>, which receive the wires of main line No. 2, are connected with the plates I' I' by means of wires *e' e'*. The sounder-magnet E connects with the knob beneath the key by the wire *f*. The two coils of the magnet communicate through the connection *g*. The left-hand plate J (see Fig. 3) connects with the left-hand plate J' by a wire, *h*, from which a wire, *i*, branches to the magnet-coils, and from the right-hand plate J the wire *j* extends to the key, crossing the wire *h* in its path, but beneath and out of contact with the same. The right-hand plate J' connects with the wire *j* near the key by a wire, *l*. Obviously considerable variations may be made in the mode of arranging these wires, provided that they are so placed that the electrical current will flow in substantially the same way as that permitted by the present arrangement.

To the under face of that one of the strips G which slides above the plates I I and J J and I' I' and J' J' are secured two pairs of plates, M M and M' M'. (See Figs. 4 and 7.) These plates are so placed on the strip that when the slide is pushed in far enough to be in position against the stop *b'* the plates M M will rest upon the plates I and J and connect one plate I with its neighboring plate J and the other plate I with its neighboring plate J, while the plates M' M' will not be in position to connect plates I' and J'; but when the slide has been moved in a reverse direction outward, so as to be held in position against the stop *b*, the plates M' M' will rest upon and connect one plate I' with its neighboring plate J' and the other plate I' with its neighboring plate J', while the plates I and J will be disconnected. The other of the strips G, which slides above the adjacent ends of plates I I and plates I' I', is provided on its under face with plates N and N', and, if desired, with a plate, N". (See Fig. 5.) These plates are so fixed that when the slide is pushed in against stop *b'* the plate N' will rest upon and connect the adjacent ends of plates I' I' at the same time that the plates M M are connecting plates I and J, and when the slide is outward against stop *b* the plate N will connect the adjacent ends of plates I I at the same time that the plates M' M' are connecting the plates I' J'.

The operation of my improved telegraph-instrument, constructed as just described, is as follows: Suppose it is desired to use the instrument in connection with main line No. 1. The operator grasps the handle of the switch and pushes the latter inward until it strikes

the stop *b'*. The pairs of plates I and J will now be connected, the adjacent ends of plates I I will be disconnected, and the adjacent ends of plates I' I' will be connected, so that the two wires of main line No. 2 will be in communication with each other, but not in communication with the instrument, because the plates I' and J' will be disconnected, although the circuit of line No. 2 will not be broken. The current can now pass through the wires of main line No. 1, through wire *h* and branch *i* to the magnet-coil, thence by wire *f* to the key. From the key by wire *j* and the other connections it can flow to the other wire of the main line No. 1. The operator, by properly manipulating the switch C, can cause the instrument to serve as a sounder to receive a message or as a transmitter to send one. When it is desired to use main line No. 2, the operator pulls the slide-switch out until it strikes against the inner stop, *b*, when the plates on said slide will establish the proper connection between the internally-arranged wires, as will be evident from what has been already set forth, so as to allow the current to flow along main line No. 2 to the instrument.

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

1. The combination of the casing A, the key and sounder arranged therewith, as described, the slide-switch located within the casing, provided with an outwardly-projecting handle, and having suitable guides secured to the bottom A' of the casing, and the wires and plates, all combined and operated to serve substantially for the purposes herein set forth.

2. The combination of the casing A, having a base, A', the plates I I I' I' and plates J J J' J', secured to said base, relatively as specified, the slide-switch consisting of the transversely-connected parallel strips G G, having plates M M M' M' secured to one strip and plates N N' secured to the other, the two main lines, and the system of connecting-wires, substantially as described.

3. The slide-switch consisting of strips G G, one of which has the plates M M M' M' and the other the plates N N', and the base A', having plates I I I' I' and plates J J J' J' secured thereto, in combination with two main lines, and receiving and transmitting devices, substantially as set forth.

4. In a telegraph-instrument, the slide-switch consisting of the parallel strips G G, connected transversely and provided with plates on their undersurface and springs upon their upper faces, in combination with the wire and plate connections between two main lines, and the transmitting and receiving devices, all arranged substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM A. MELBOURNE.

Witnesses:

WILLIAM A. REISS,  
CHAS. L. WEBER.