

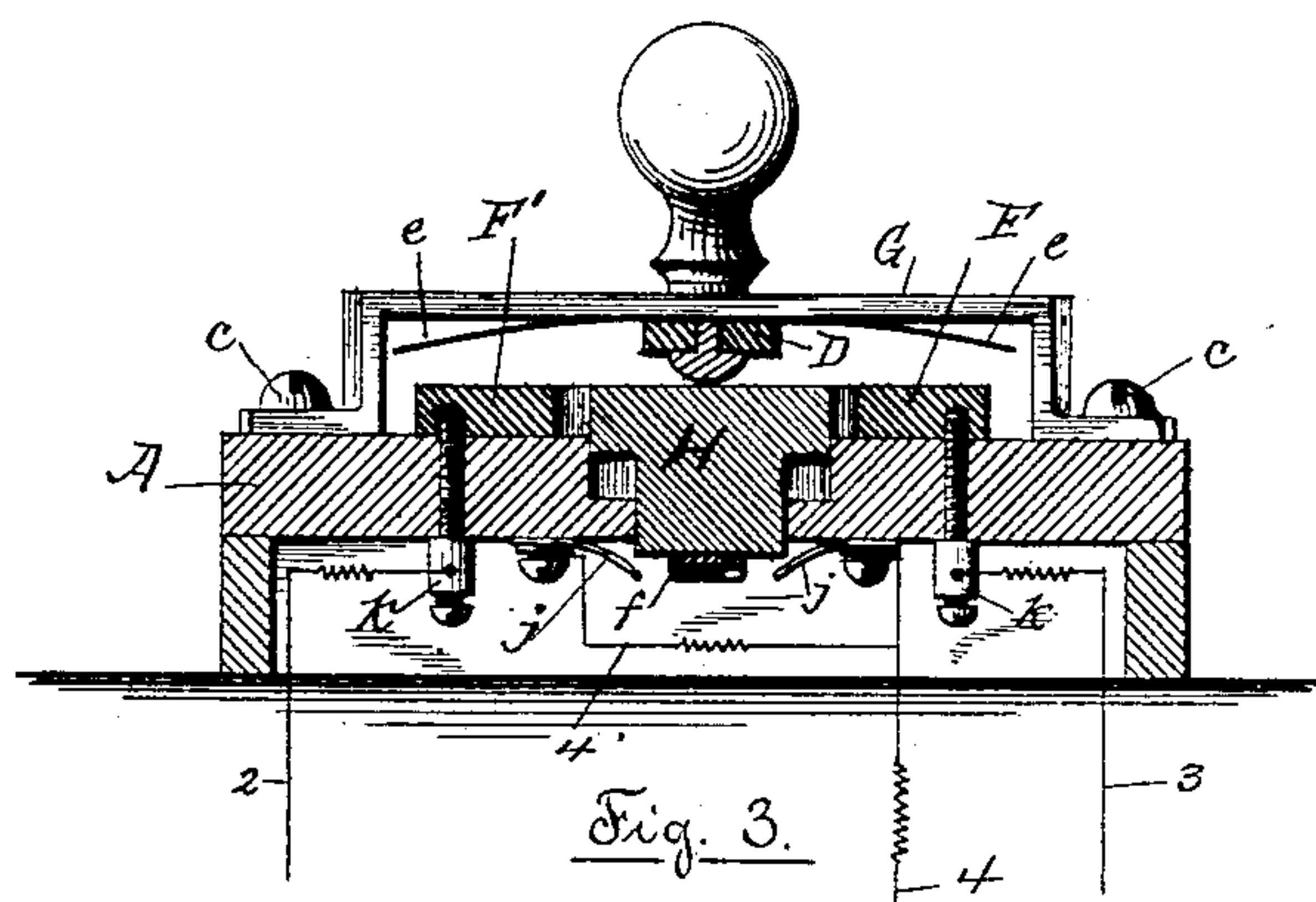
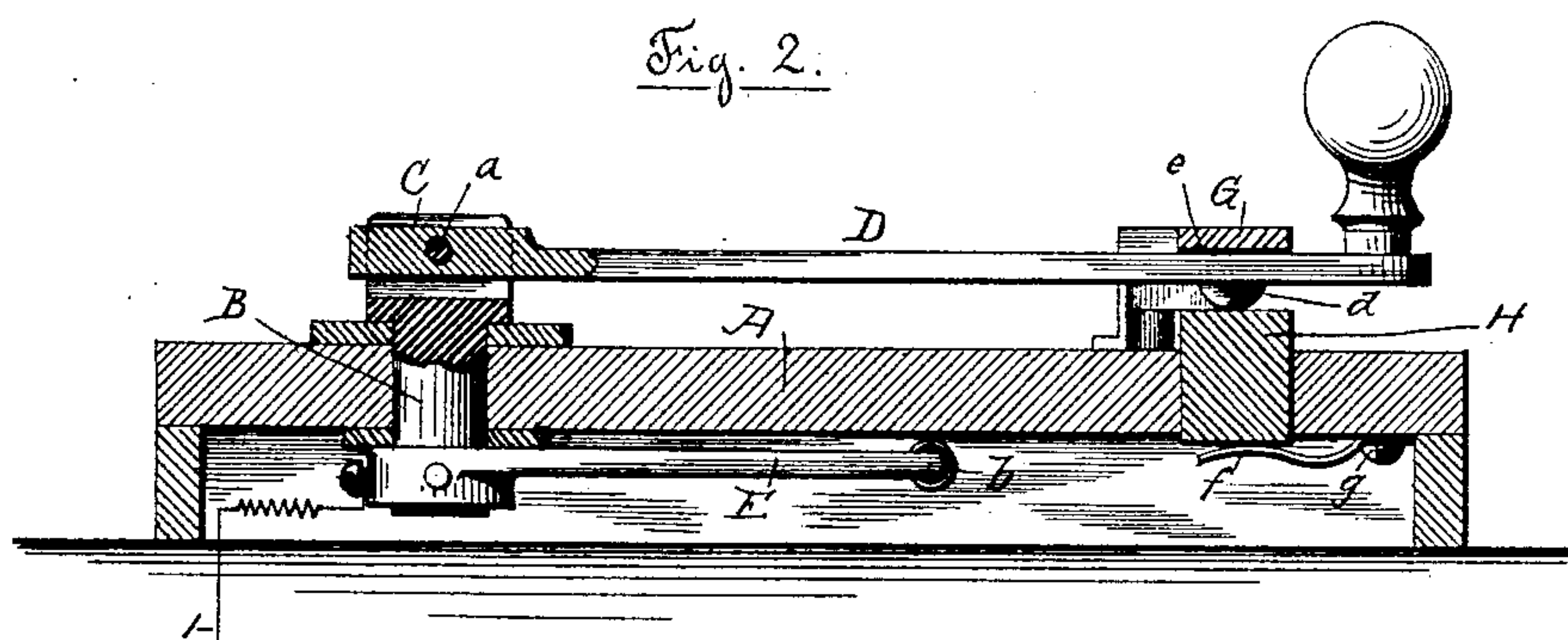
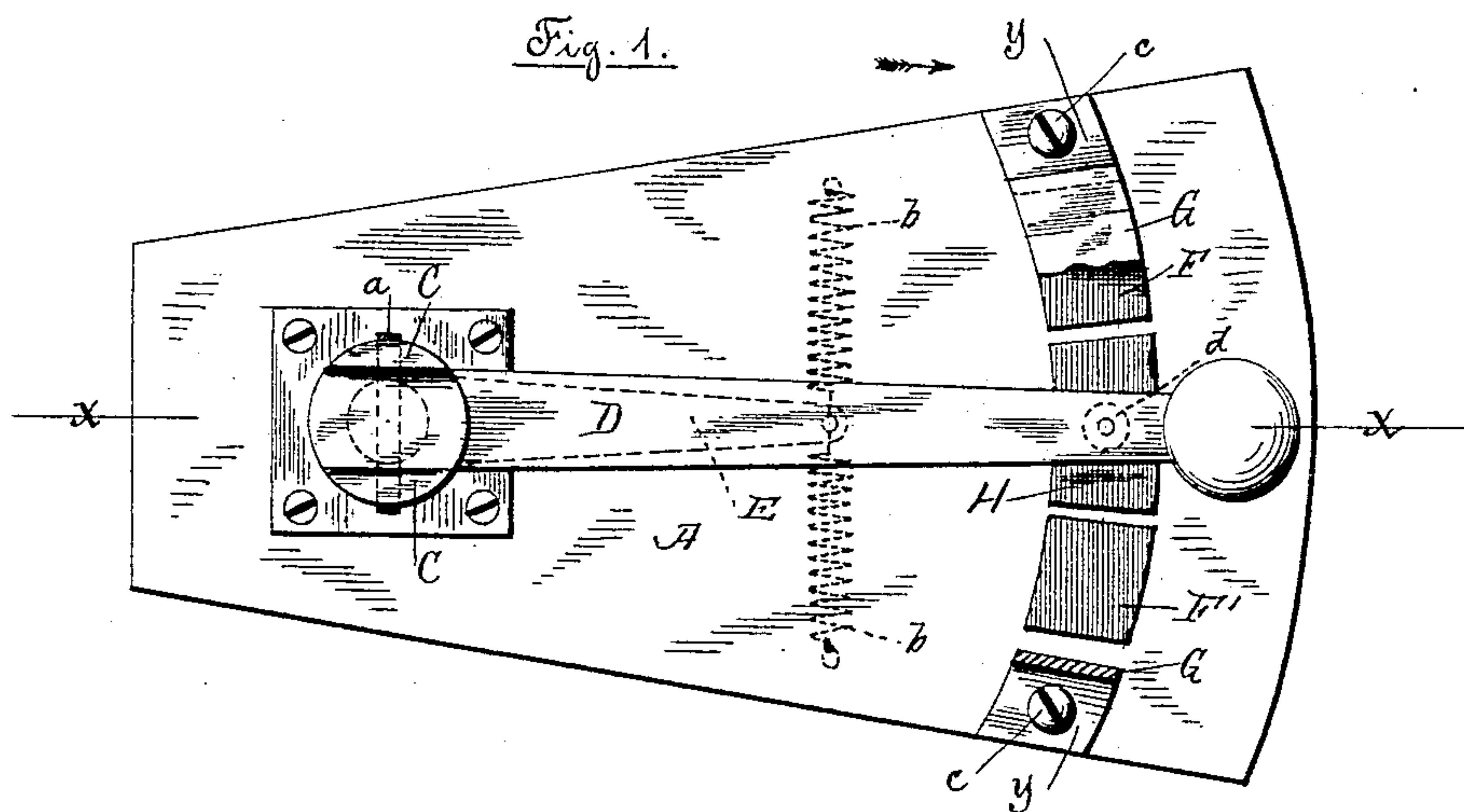
(No Model.)

C. E. ONGLEY.

### CIRCUIT CLOSING MECHANISM.

No. 391,855.

Patented Oct. 30, 1888.



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# UNITED STATES PATENT OFFICE.

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## CIRCUIT-CLOSING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 391,855, dated October 30, 1888.

Application filed November 21, 1887. Serial No. 255,718. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES E. ONGLEY, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Circuit-Closing Mechanism, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to an electric switch and circuit-closing mechanism which is adapted for use in connection with many forms of electrical apparatus, but is especially designed and adapted for use in connection with appliances for controlling electrically the operating mechanism of an elevator in the manner shown and described in my companion application for Letters Patent, filed November 22, 1887, Serial No. 255,857, it being the object of the invention to increase the number of possible electrical contacts and also to secure the automatic breaking of the circuit whenever the hand of the operator is removed.

In the accompanying drawings, Figure 1 is a view of one of my improved electric switches, shown partly in section to disclose the switch-lever. Fig. 2 is a sectional view on the line X of Fig. 1, and Fig. 3 is a sectional view on the line Y of Fig. 1.

Referring to said figures, A denotes the switch-plate, preferably made of an insulating material, in which the short spindle B is journaled. The upper end of the spindle B is bifurcated at C to receive the end of the switch-lever D, which is pivoted to the spindle B by a pin, *a*, upon which the switch-lever is capable of a motion at right angles with the switch-plate A. It will thus be seen that the lever D is arranged to vibrate in two planes, one parallel with the plate A and the other at right angles to the plate.

To the lower end of the spindle B is attached an arm, E, to which is connected an equalizing-spring, preferably made in two parts, as shown, with their opposite ends attached to the under side of the switch-plate. This equalizing-spring serves to normally hold the lever in the mid-position shown in Fig. 1.

Upon the switch-plate A are two metallic contact-plates, F F', placed at the opposite ends of a short arc concentric with the axis of

the spindle B, and a guide-plate, G, is attached by the screws *c* to the switch-plate A. Upon the side of the switch-lever D next the switch-plate is a projecting contact-point, *d*, and upon the under side of the guide-plate is an elastic blade, *e*, attached at its center to the guide-plate, with its free ends curved downward in order to press the switch-lever downward and secure a certain contact of the point *d* with the plates F F'.

In the center of the arc described by the point *d* as the lever D is moved about the axis of the spindle B, and in the normal position of the switch-lever D as held by the equalizing-spring, is a contact-block, H, capable of a slight sliding motion in ways in the plate A, and held in its normal position with its upper surface in the same plane with the plates F F' by means of a spring, *f*, attached by a screw, *g*, to the under side of the plate A.

Beneath the lower end of the block H are two springs, *j*, attached to the plate A and acting as electrical brushes in making an electrical contact with the block H when in its depressed position.

The wire or wires leading from the generator or generators is or are connected to the spindle B. A line-wire, 2, is connected by a screw, *k*, to the contact-plate F'. A second line-wire, 3, is similarly connected to the plate F, and a third line-wire, 4, is connected to one or both of the brushes *j*. In the normal position of the switch the lever D is held in the center of its arc of motion by means of the equalizing-spring *b*, and it is also held against the under side of the guide-plate G by means of the spring *f*, acting through the sliding block H, which block is thereby held from contact with the elastic brushes *j*.

The operation of the switch apparatus is as follows: When the lever D is moved by the operator until the contact-point *d* is in contact with the plate F, the wires 1 3 will be connected, thereby closing the circuit through these wires and (assuming the switch to be applied to an elevator mechanism) energizing the motor to cause the car to ascend, and this will continue as long as the switch-lever is held in position; but as soon as the lever D is released the equalizing-spring *b* will immediately return and maintain the lever in its central po-



sition, as shown in Fig. 1. By moving the lever D in the opposite direction, so as to carry the point *d* into contact with the plate F', the circuit through the wires 1 2 will be closed  
5 and the motor energized to cause the car to descend. By depressing the lever D when in its central position, so as to force the sliding block H into contact with the elastic brushes *j*, the circuit through the wires 1 4 will be com-  
10 pleted, so as to stop the car. I have herein described and shown in the accompanying drawings only one sliding block H, by which a third line-wire is added to the capacity of the switch; but it will readily be seen that a  
15 larger number of similar blocks could be interposed in the arc between the two contact-plates F F'. The use of three contacts, F, F', and H, as shown, allow either one of the line-wires to be brought into the circuit by a single  
20 movement of the switch-lever D, and each contact is immediately and automatically broken as soon as the hand is removed from the switch-lever D.

What I claim is—

1. The combination, with a switch-lever 25 forming part of an electric circuit and pivoted to vibrate in two directions, of the electrical contacts F, F', and *j*, and the sliding block H, placed between said contact *j* and said switch-lever and actuated by the latter, substantially 30 as described.

2. The combination, with the pivoted switch-lever D, forming part of an electric circuit, of the sliding block H, actuated by said pivoted switch-lever, and the brush or brushes *j*, form- 35 ing a part of said circuit and lying in the path of said sliding block, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing wit- 40 nesses.

CHARLES E. ONGLEY.

Witnesses:

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J. J. KENNEDY.