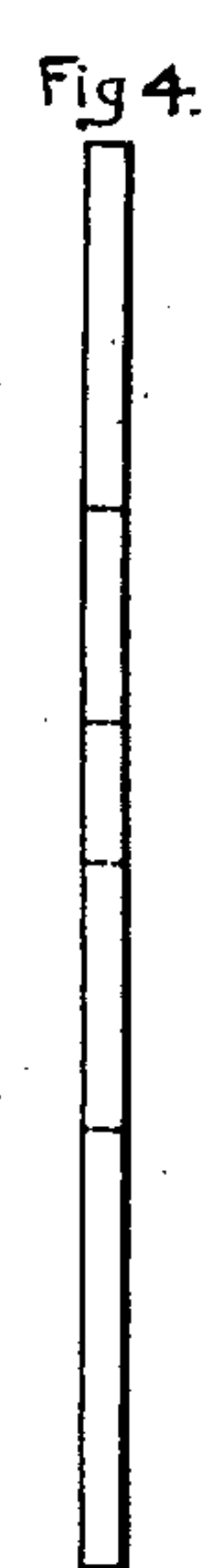
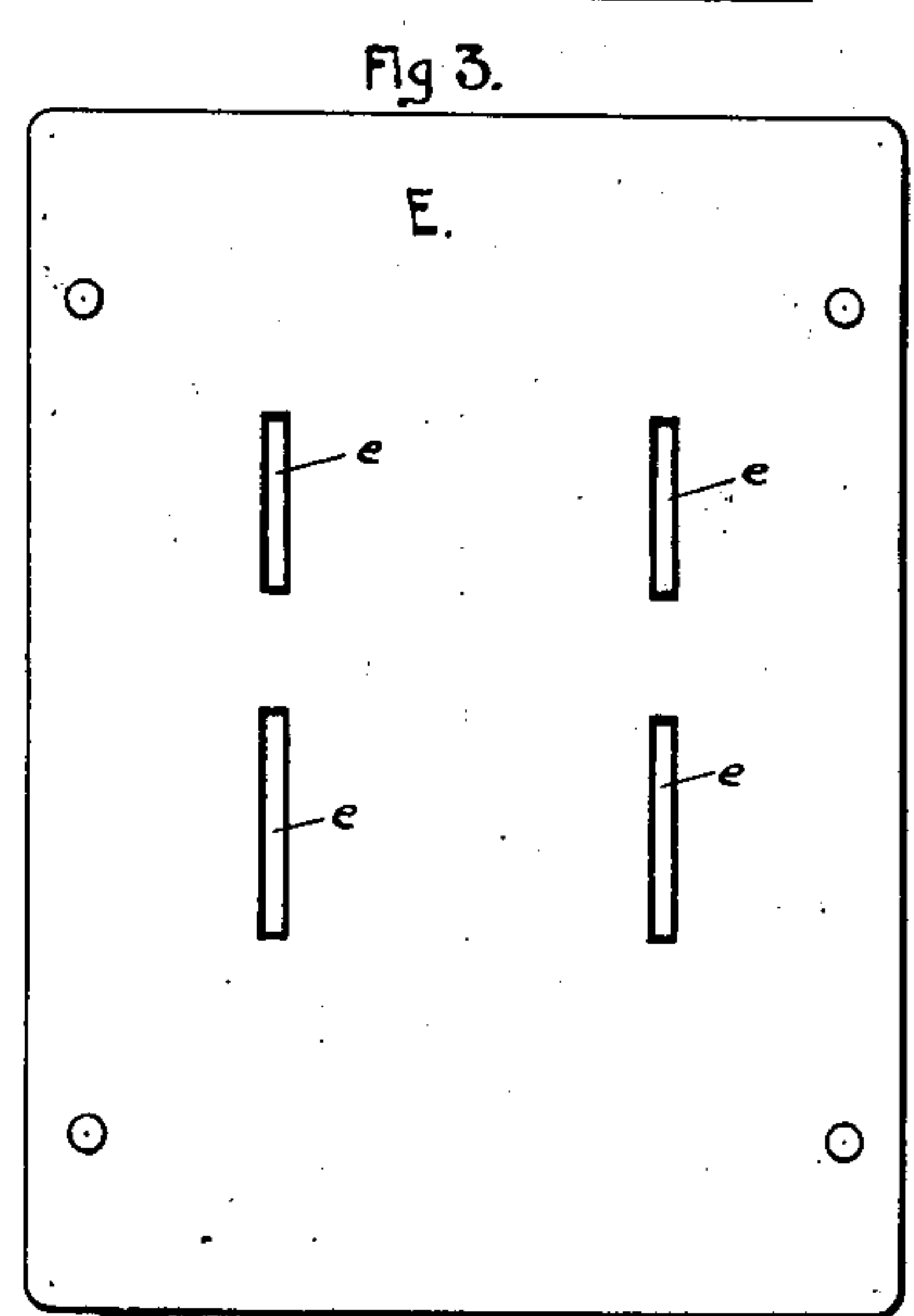
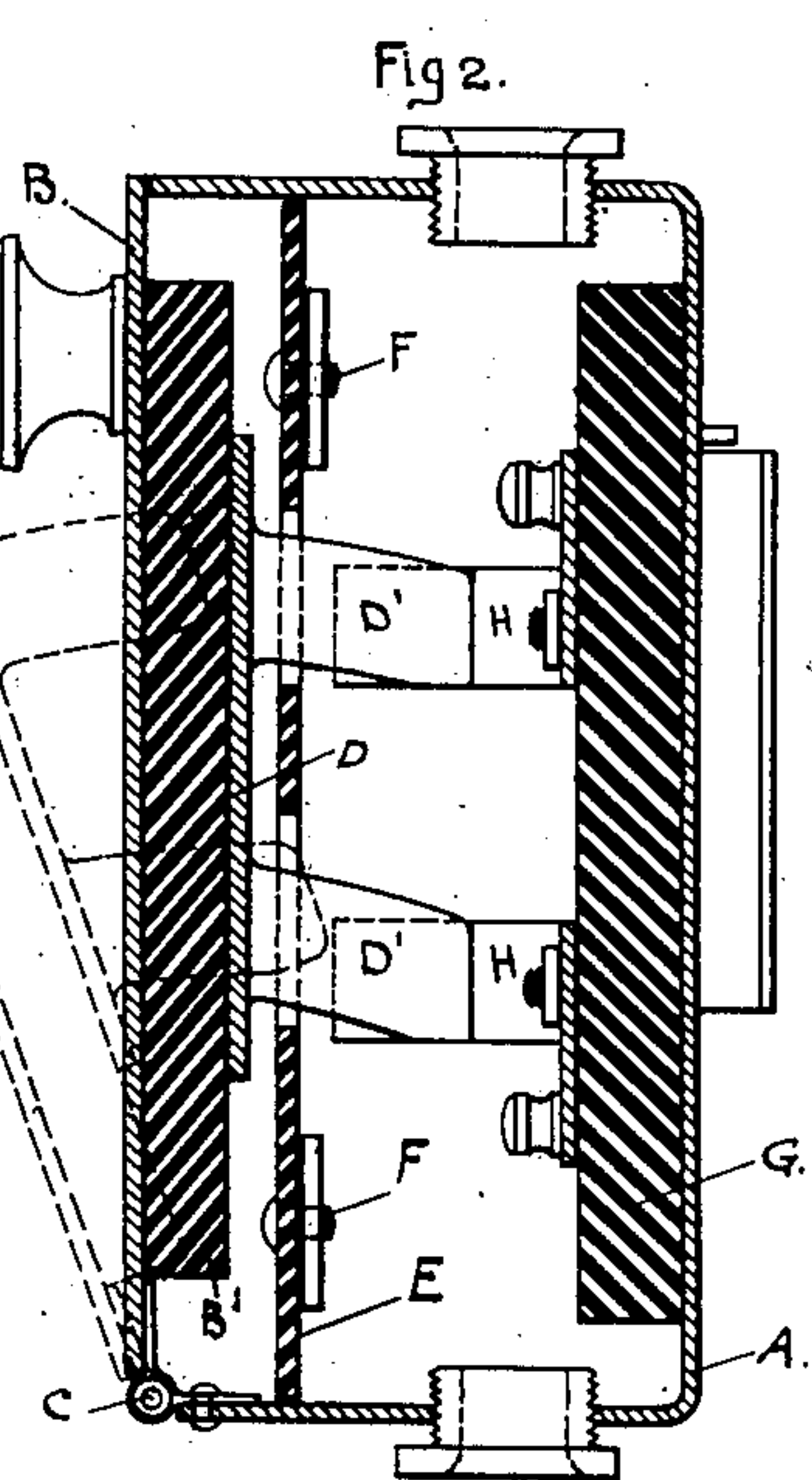
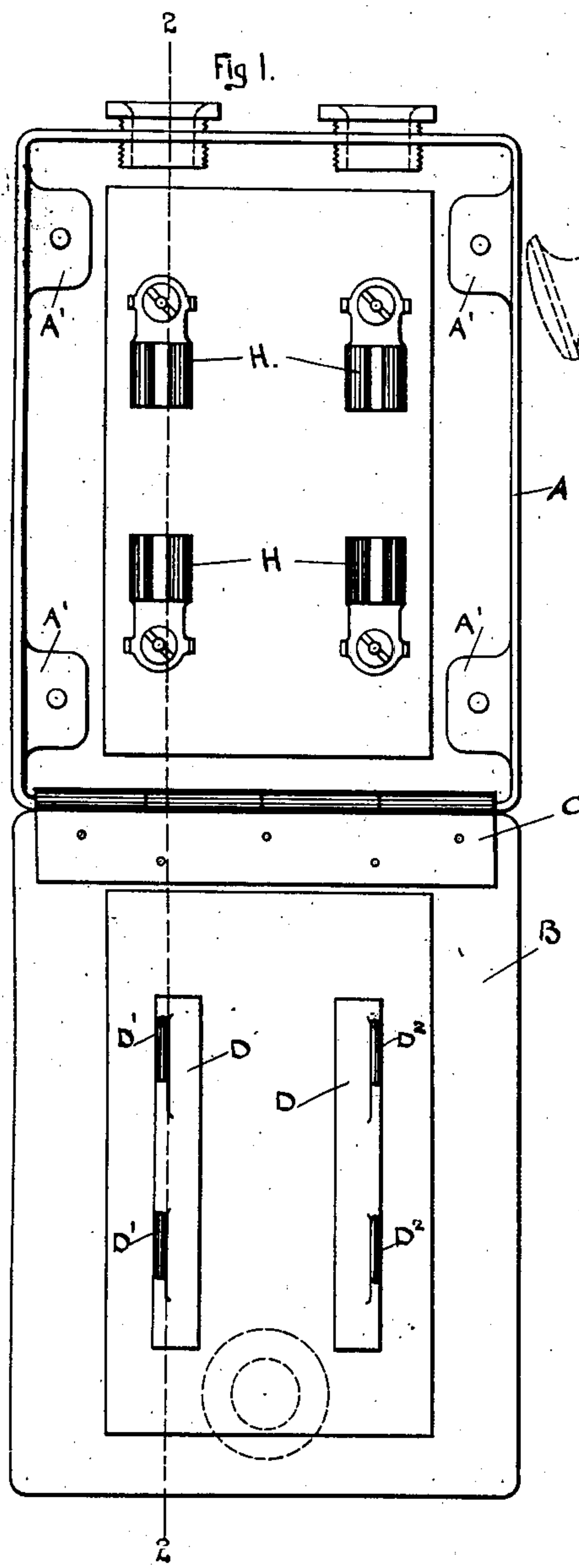


No. 810,527.

PATENTED JAN. 23, 1906.

J. F. GEORGE.  
ELECTRICAL SWITCH.  
APPLICATION FILED OCT. 7, 1904.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

JOSEPH F. GEORGE, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO EMPIRE ELECTRIC STAGE LIGHTING COMPANY, A CORPORATION OF NEW YORK.

## ELECTRICAL SWITCH.

No. 810,527.

Specification of Letters Patent.

Patented Jan. 23, 1906.

Application filed October 7, 1904. Serial No. 227,530.

*To all whom it may concern:*

Be it known that I, JOSEPH FRANK GEORGE, a citizen of the United States, residing in the city of New York, in the county and State of New York, have invented a certain new and useful Improvement in Electrical Switches, of which the following is a specification.

My improvement is intended more especially for use in connection with the lighting of the stage and other parts of a theater, and I will describe it as thus applied. It is a double switch of the kind sometimes designated "jack-knife" switch or simply "knife-switch." It is desirable to have the switch at a convenient level for easy manipulation by an attendant on the floor; but with the frequent changes of assistants in various capacities liable to come into close contact moving in the vicinity it is difficult to enforce rules so as to avoid the possibility of serious disaster from short-circuiting by contact of the elbow or portions of a person or their dresses with the live parts which are exposed by the opening of the ordinary switches.

My improved construction insures, first, the complete inclosure of the working parts when the switch is closed, and, second, it defends the live parts against any accidental contact of persons or clothing, even when the switch is open. The contacts can be touched only by specially-adapted blades carried on the inner face of a hinged door which constitutes the front.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification. They represent the switch in the upright position, in which it is usually employed.

Figure 1 is a front elevation with the switch open before the partition is applied. Fig. 2 is a section on the line 2 2 in Fig. 1 with the partition applied in position to serve, the strong lines showing the switch closed and the dotted lines showing it nearly closed. Fig. 3 is a face view, and Fig. 4 an edge view, of one of the parts detached.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

A is a casing of malleable cast-iron or other suitable material equipped on the back for

easy and strong engagement with the wall of the building.

A' A' are brackets on the inner face, adapted to receive the partition to be presently described and tapped to receive fastening-screws therefor.

B is a door adapted to open and close the entire front of the casing. It is hinged thereto at the lower edge C. The door carries a plate B', of vulcanized fiber or other suitable insulating material.

D D are contact-pieces of copper secured on this plate B', each having two blades D' D<sup>2</sup> lying in planes at right angles to the general plane of the door.

E is a plain piece of hard rubber, vulcanized fiber, compressed mica, or other suitable strong insulating material secured to the brackets A' by screws F. This partition E has slots e, four in number, corresponding in position to the blades D' and of a size only a little more than sufficient to allow the blades to enter and be withdrawn as the door is opened and closed. Lifting and closing the door thrusts the several blades each rearward through its proper slot e. Opening the door withdraws these blades again. When the door is open, the partition E protects the live parts, which are within, leaving only the narrow slots e open. The interior parts, as shown, are of the ordinary long-approved construction.

G is a plate of insulating material supporting ordinary electrical connections comprising the four ordinary elastic contacts H H H H. These stationary contacts must be arranged a proper distance apart and properly conditioned to make and break contact with the blades D' as the door is closed and opened.

The partition E is easily displaced by simply removing the screws F whenever it is desired to obtain access to the parts within the casing. When it is in place, it is a reliable defense against short-circuiting by any accidental contacts.

In the effort to attain other ends there have been approximations to my construction; but none, so far as I am aware, have proposed to defend the terminals by a casing with a removable shield for the knives to strike through held up by the casing, so that the whole bottom of the interior is available for wires and the like. My construction



leaves the whole interior unobstructed. The door B is gaged by striking the casing A, so that the knives or blades cannot be pressed too deeply into the contacts or terminals H, and my slotted shield-plate E by being supported on the brackets A' in the interior of the casing leaves the whole bottom or, more properly, the whole back of the interior of the casing to be utilized. The whole interior is easy of access when required.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention.

The casing may be made of other material. I have in my experiments used a casing of sheet metal, with the brackets A' made in separate pieces and secured by screws tapped in from the exterior.

I do not confine the invention to theatrical work. It may be used with advantage wherever it is desirable to inclose a switch.

I claim as my invention—

1. In an electric switch, a pair of separated contacts inclosed in a protecting-case, and a partition having narrow openings, in combination with a hinged cover carrying movable contacts arranged to be thrust through such

openings adapted for joint operation substantially as herein specified.

2. The double knife-switch described having two pairs of separated contacts inclosed in a protecting-case, and a partition having narrow openings, in combination with a cover carrying movable contacts arranged to be thrust through such openings adapted for joint operation, substantially as herein specified.

3. In an electric switch, a pair of separated contacts inclosed in a protecting-case, and a partition having narrow openings, in combination with a cover carrying movable contacts arranged to be thrust through such openings and with removable fastenings F allowing the easy removal of such partition at will, all adapted for joint operation substantially as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

JOSEPH F. GEORGE.

Witnesses:

M. R. RAYNOR,

THOMAS DREW STETSON.