

No. 686,194.

Patented Nov. 5, 1901.

H. P. BALL.  
ELECTRIC SWITCH.

(Application filed Nov. 13, 1900.)

(No Model.)

FIG. 1.

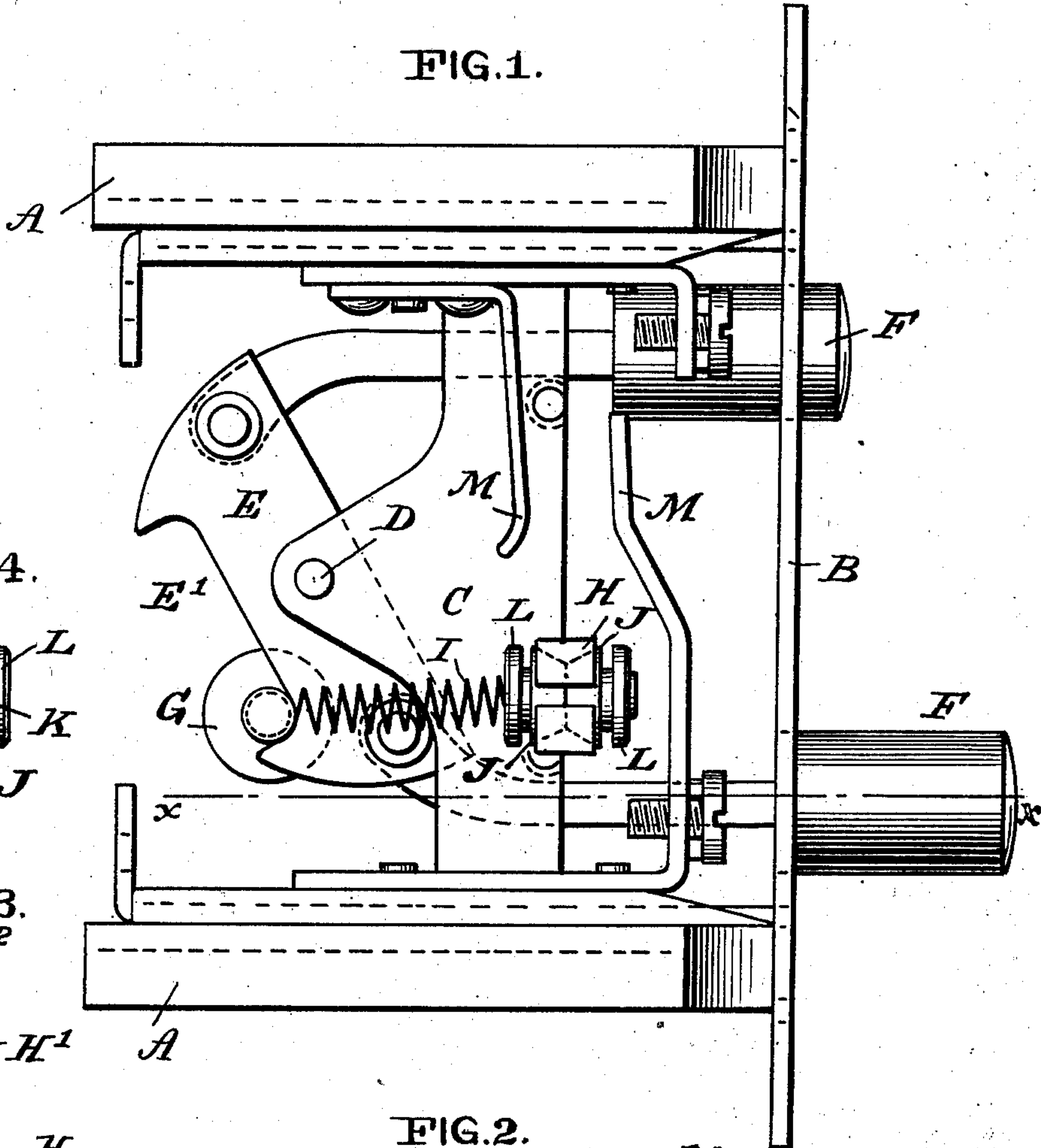


FIG. 4.

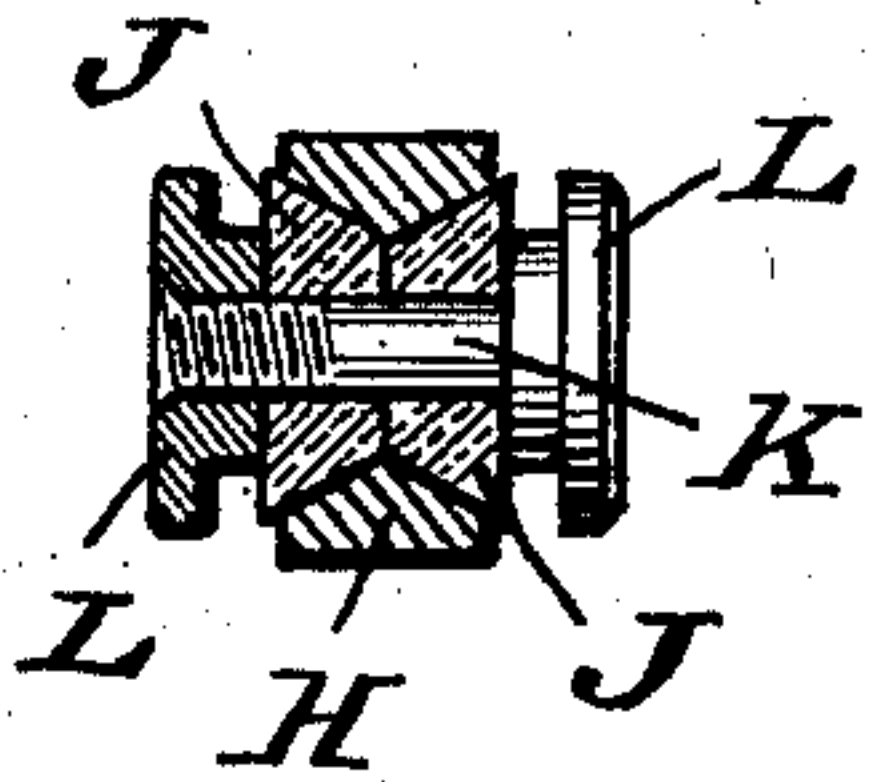


FIG. 3.

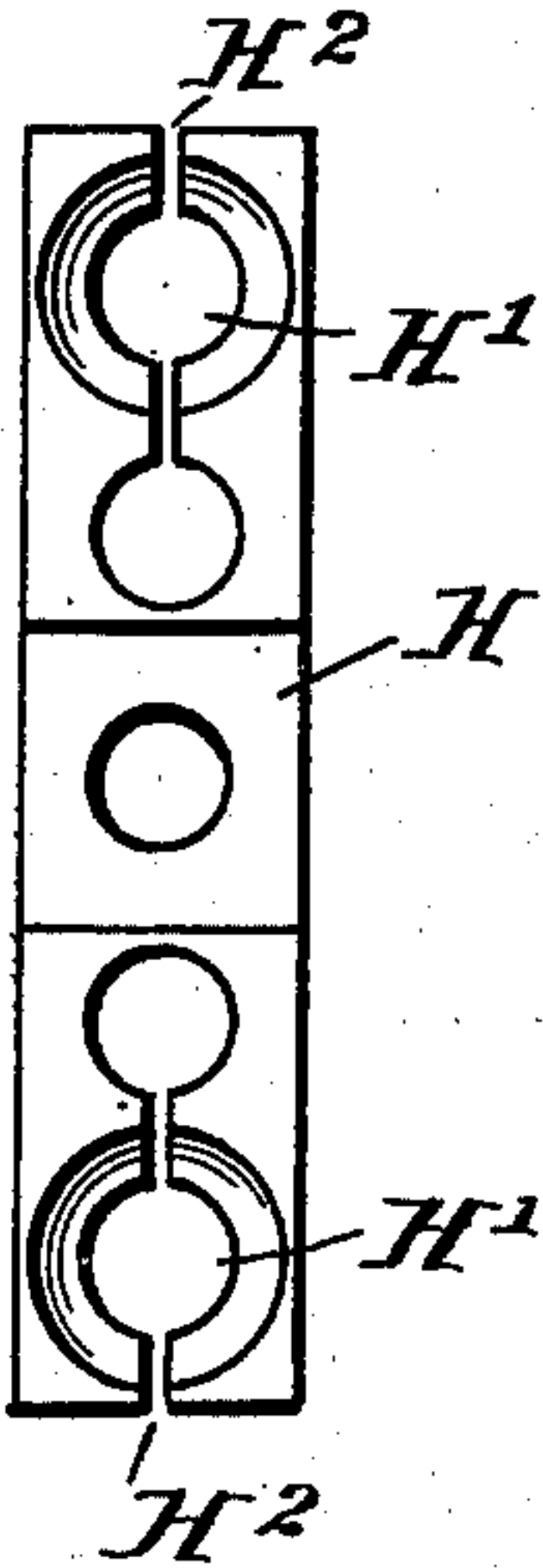
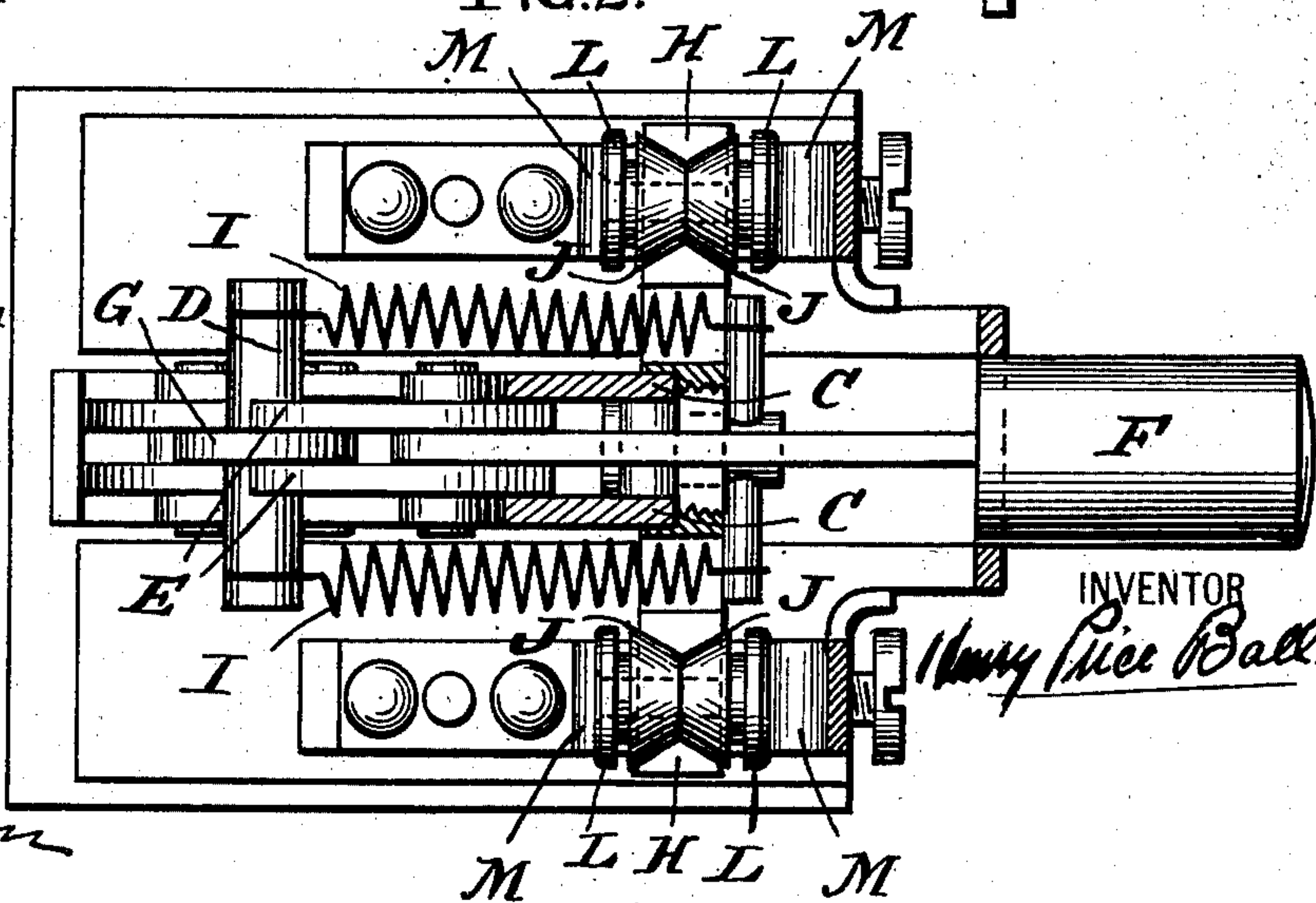


FIG. 2.



WITNESSES:

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INVENTOR

*Harry Rice Ball*



# UNITED STATES PATENT OFFICE.

HENRY PRICE BALL, OF NEW YORK, N. Y., ASSIGNOR TO GENERAL INCANDESCENT ARC LIGHT COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 686,194, dated November 5, 1901.

Application filed November 13, 1900. Serial No. 36,333. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY PRICE BALL, a citizen of the United States, residing at New York city, county and State of New York, have invented certain new and useful Improvements in Electric Switches, of which the following is a specification.

My invention relates to electric switches of the type known as "snap-switches;" and it consists, essentially, in the means employed for insulating the contact-pins, through which contact is made between pairs of spring-terminals connected to electrical conductors from the reciprocating bar which carries the contact-pins.

The object of my invention is to make a snap-switch in which the connecting-pins or bridge-pieces between the contact-terminals will be held firmly in position and not work loose by the operation of the switch.

The accompanying drawings will serve to illustrate my invention.

Figure 1 is a side elevation with the insulating-plugs for the contact-pins shown in dotted lines. Fig. 2 is a transverse section looking upward and taken on the line X X of Fig. 1 and showing the insulating-plugs in full lines, with the ends of the bar and securing device for contact-pins in dotted lines. Fig. 3 is a front view of the reciprocating bar which carries the contact-pins. Fig. 4 is a transverse section of the end of the reciprocating bar, insulating-plugs, and one end of contact-pins, the center of contact-pin and opposite end being shown in full lines.

In the drawings, A indicates top and bottom plates of the switch, usually formed of porcelain or other suitable insulating material; B, the front plate, through which the switch is secured in position upon a wall or other support.

C is a connecting-plate, to which is pivoted at D the oscillating plate E. Connected to the plate E at its opposite ends are the push-buttons F. The oscillating plate E is cut away on its outer side E' to form a bearing for the shaft of the roller G. The oscillating plate E may be a solid plate and have a groove in its outer surface to receive the

roller G, or it may consist of two plates, as shown in Fig. 2, in which case the roller G moves between the plates.

H represents a metallic bar adapted to reciprocate vertically along the inner side of the connecting-plate C as the push-buttons are thrown in and out. This bar is connected through the springs I with the shaft of the roller G.

The switch so far as described presents no features of novelty. The particular feature of novelty is found in the construction of the reciprocating bar H and the contact-pins mounted on it.

The bar H has openings H' formed in it at its outer ends, and the bar is also split or separated at its outer ends, as shown at H<sup>2</sup>. The openings H' in the bar are countersunk from each side of the bar, so as to form two concaved openings which meet at the center of the bar. Located in these openings are plugs J, of porcelain or other suitable insulating material. Carried through each plug is the shaft K of the contact pin or buttons L. The shaft K is fastened to one button and detachably secured to the opposite button by means of a screw and thread.

In constructing the reciprocating bar H, I prefer to make it of spring metal, as by so doing when the pin L is screwed into position the openings H' will be spread, and thereby tend to exert a constant spring-pressure upon the insulating-plugs, and through them open the contact-pins, whereby the contact-pins are held securely in position. The contact-pins I prefer to provide with heads larger than the shank which bears upon the insulating-plugs, as by so doing I increase the bearing-surface of the pins and effect better insulation.

M M are the spring circuit-terminals.

The operation of the switch will be sufficiently obvious without any extended description more than to state that when pressure is exerted upon one or other of the push-buttons, so as to push it in, the bar H will be reciprocated forward or backward and make or break contact between the pin L and the spring-contacts M M.

Having thus described my invention, I claim—

1. In an electric switch, a reciprocating bar carrying a contact pin or pins, insulated from  
5 said bar and held firmly and from rotation therein by the resilient pressure exerted by the material of the bar.

2. In an electric switch, the combination with a reciprocating bar split at the ends, of  
10 insulating-pieces carried in the split ends of said bar and held firmly and from rotation therein by the resilient pressure of the material of the bar, and contact-pins carried by said insulating-pieces.

3. In an electric switch, the combination  
15 with a resilient reciprocating bar split at the ends and having concave cavities formed therein, of insulating-pieces adapted to fit

said cavities, and pins carried by said insulating-pieces. 20

4. In an electric switch, the combination with a reciprocating bar, of mechanism for causing the reciprocation of the bar to make and break circuit, contact-pins with enlarged  
25 heads carried in the ends of said bar but insulated from said bar by portions of insulating material held firmly in position and from rotation by the resilient effect of the material of the bar.

In testimony whereof I affix my signature 30  
in the presence of two witnesses.

HENRY PRICE BALL.

Witnesses:

F. E. GAUTER,

A. PERRY.