

(No Model.)

M. J. WIGHTMAN.

ELECTRIC SWITCH OR CIRCUIT CONTROLLER.

No. 330,949.

Patented Nov. 24, 1885.

Fig. 1.

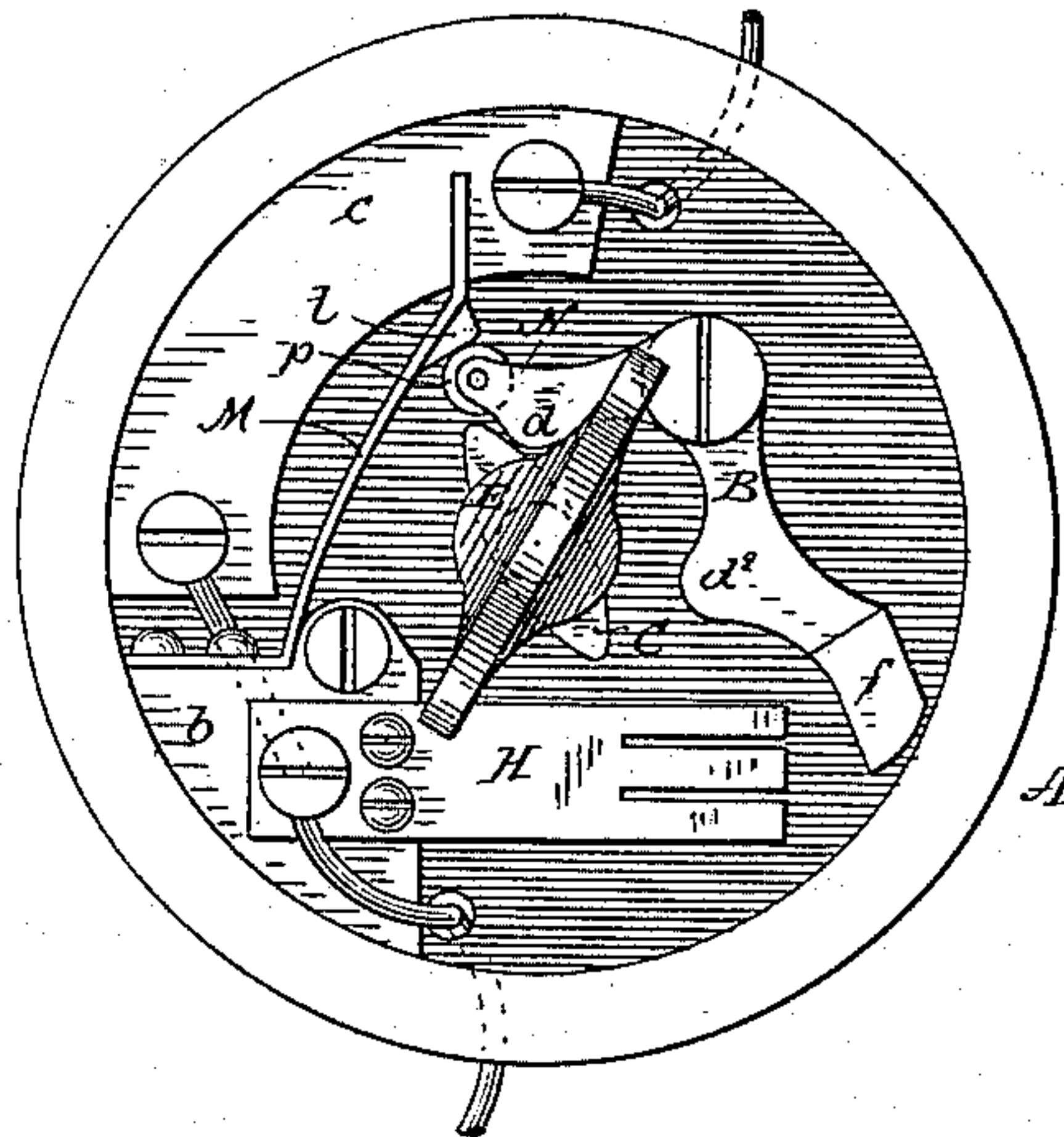


Fig. 2.

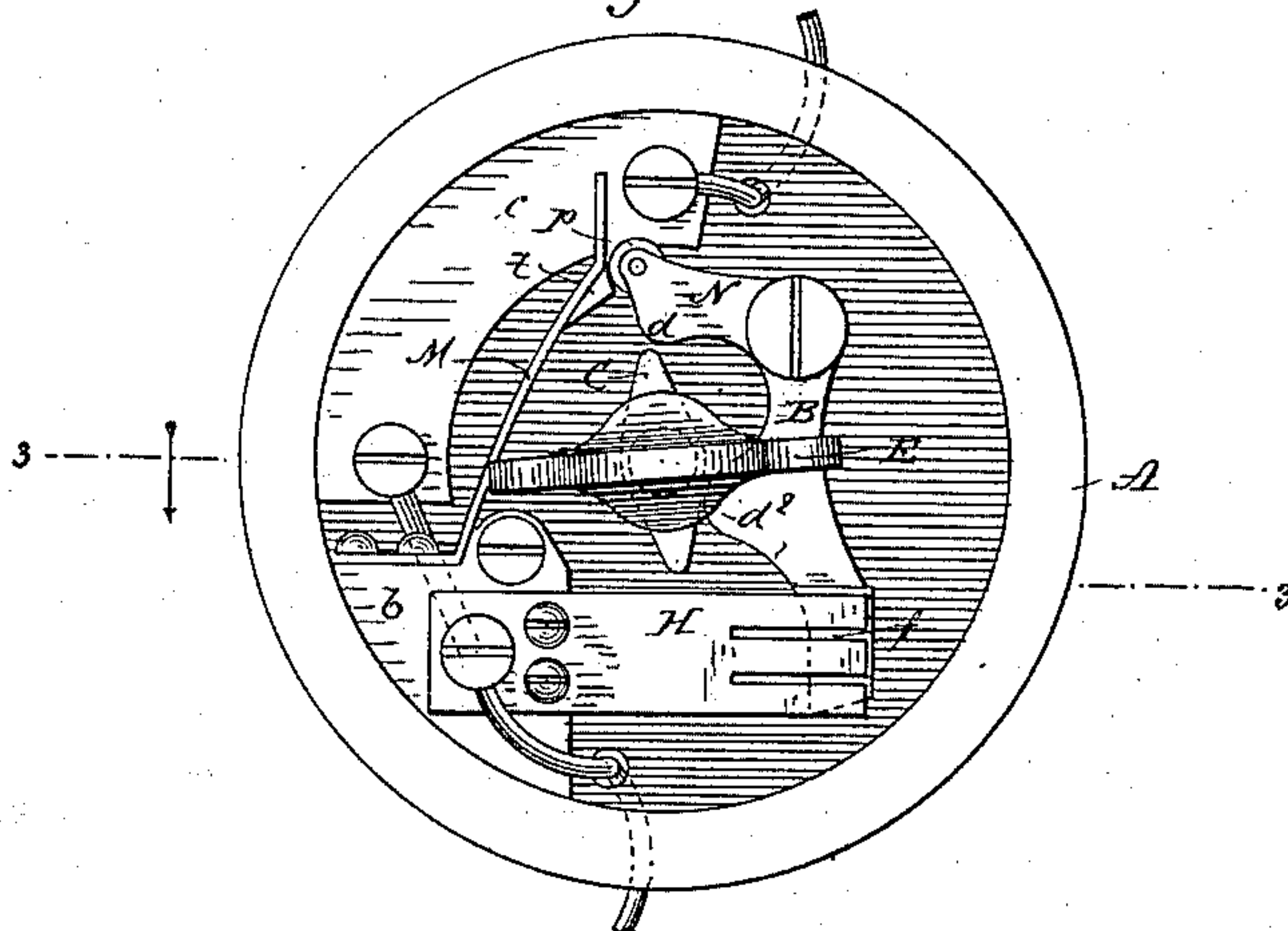
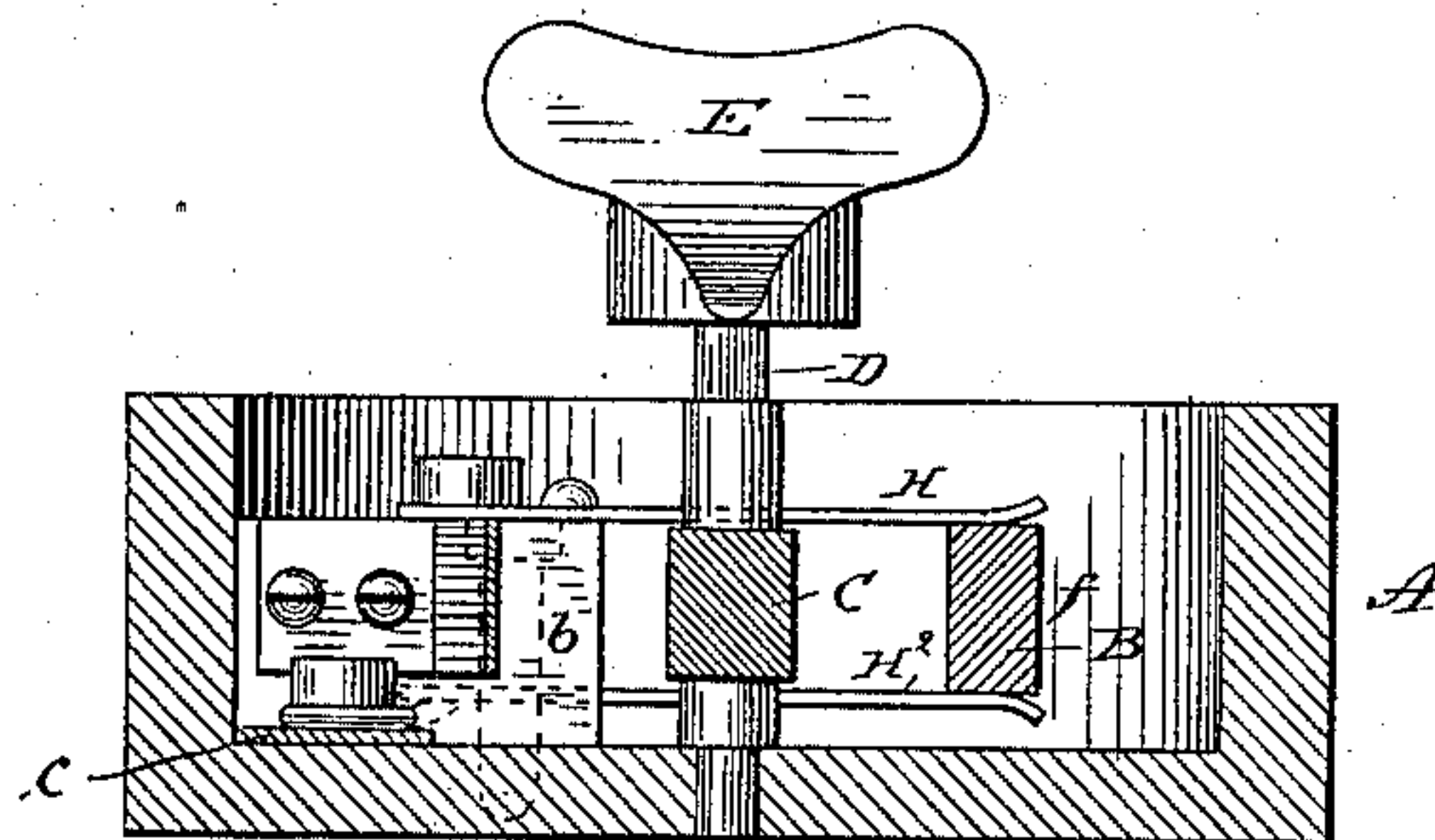


Fig. 3.



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UNITED STATES PATENT OFFICE.

MERLE J. WIGHTMAN, OF HARTFORD, CONNECTICUT.

ELECTRIC SWITCH OR CIRCUIT-CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 330,949, dated November 24, 1885.

Application filed July 8, 1885. Serial No. 170,985. (No model.)

To all whom it may concern:

Be it known that I, MERLE J. WIGHTMAN, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Electric Switches or Circuit-Controllers, of which the following is a specification.

My invention relates to devices for completing, changing, reversing, or otherwise affecting or controlling electric circuits, and, more specifically speaking, to the operating mechanism for such device.

My invention is especially designed for use where it is desirable to employ a turning thumb-piece or spindle, to be operated by hand, as the means of actuating the switch, and its principal object is to so construct the device that the direction in which the spindle or thumb-piece is turned at any time shall be immaterial, the arrangement being such that after any movement of the switching devices the turning of the operating thumb-piece in either direction will, by positive action, reverse the movement of such devices.

My invention is of special use in connection with incandescent electric lamps, since the turning of the button in either direction will light the lamp, and after lighting a turning in either direction will extinguish the same.

My invention consists, broadly, in the combination, with a lever carrying, actuating, or controlling the switching or circuit controlling devices, of a rotary operating-cam mounted in an intermediate position between two cams, lugs, or arms carried by said lever, and arranged at opposite sides of the fulcrum of the lever.

My invention consists, also, in the other combinations and devices which will be described in connection with the accompanying drawings, and will then be more specifically stated in the claims.

In the accompanying drawings, Figures 1 and 2 are plans of a switch or circuit-controller embodying my invention, the lever being shown, respectively, in the two figures in its two opposite positions. Fig. 3 is a cross-section of the apparatus on the line 3 3, Fig. 2.

A indicates a base-block, case, or support upon which the parts are mounted, and B the circuit-controlling or switching lever, which

is herein described as operating solely to make and break an electric circuit, but might be used to reverse or otherwise change or shift a circuit or circuits.

C is an operating-cam, which may have one or more operating portions, and is secured to a spindle, D, having a thumb-piece, E, for permitting it to be turned by hand. This cam is mounted in a position intermediate of two lugs, arms, or projections, d d^2 , extending from the lever B at opposite sides of its fulcrum. The lever is adapted to retain either of its extreme positions until moved into the other by the application of positive force through the cam. It may be held in this way by friction at its pivot or other parts, or by a positively-acting device—such as a spring, M, bearing against the end of an arm, N, of said lever—and furnished with a cam or lug, t , which, by engaging with the arm, holds the lever against movement until the spring is forced back by the action of the arm on the inclined surface of said cam or lug. This arrangement also gives to the lever a quick or sudden movement in the act of making or breaking the circuit, which is a desirable feature in this class of devices. To assist still further in the latter action, as well as to prevent undue wear, the arm N may be provided with the friction-roller p , for the spring to bear upon. The end f of the lever B which is of conducting material, makes and breaks the circuit by passing into and out of the space between the two contact-springs H H^2 , the part f being of sufficient thickness to fill the space between said springs. The springs H H^2 are secured to a block, b , of insulating material, one over the other. Connection is made to H^2 , through the strip c , secured to the base A, and to spring H directly, as indicated.

The operation is as follows: The parts being in the position shown in Fig. 1, the lever is held by the spring M, and the circuit is open at the springs H H^2 . If, now, the cam C be turned in either direction, it will engage with projection d , the projection d^2 being out of its path, thus turning the lever so as to close the circuit, the spring M assisting at the same time in this action the moment that the roll p passes the point of the cam t , so as to give a sudden quick movement. The parts are now in the position shown in Fig. 2, and the lever

is held by the spring M, the lug d^2 being in the path of the cam, having been brought to this position by the movement of the lever to the position shown. If, now, the cam C be again turned in either direction, it will engage with the lug d^2 , the other being out of range, and will move the lever until the spring M comes into action by the passing of the point of cam t , and throws the lever suddenly back to the position shown in Fig. 1, thus breaking the circuit.

My invention is obviously applicable to all kinds of circuit closing and making devices, or to other kinds of circuit-controllers, the part f and the springs H H² constituting a simple form to which I have shown the invention applied only for the purpose of illustrating the general principle.

What I claim as my invention is—

1. The combination, in an electric switch or circuit-controller, of a rotary operating-cam, and a switching or circuit-controlling lever, having two operating projections upon which said cam acts, as and for the purpose described.

2. The combination, with the switching-lever having the two projections, of a cam acting upon the same, and the retaining-spring bearing on the lever, whereby the lever may be held positively in either of its two positions.

3. The combination, with the two contact-

springs, of the connecting-lever having a double lug or projection, and an intermediate operating-cam acting on the latter and carried by a rotary spindle having a thumb-piece.

4. The combination, with the switching-lever, of the friction-wheel mounted on a projecting arm of the lever, and a spring bearing against the friction-wheel, and provided with a projection whereby the lever may be held positively in either position.

5. The combination, in an electric switch or circuit-controller, of a lever carrying or operating upon the contact devices, and adapted to retain either of its two extreme positions until moved positively into the other position, and a rotary operating-cam located between and acting upon two arms, lugs, or projections carried by said lever.

6. The combination, in an electric switch, of a switching-lever, and a double cam-spring bearing against an arm or projection of said lever, whereby the latter may have a quick or sudden action in breaking or completing the electric circuit.

Signed at Hartford, in the county of Hartford and State of Connecticut, this 24th day of March, A. D. 1885.

MERLE J. WIGHTMAN.

Witnesses:

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