

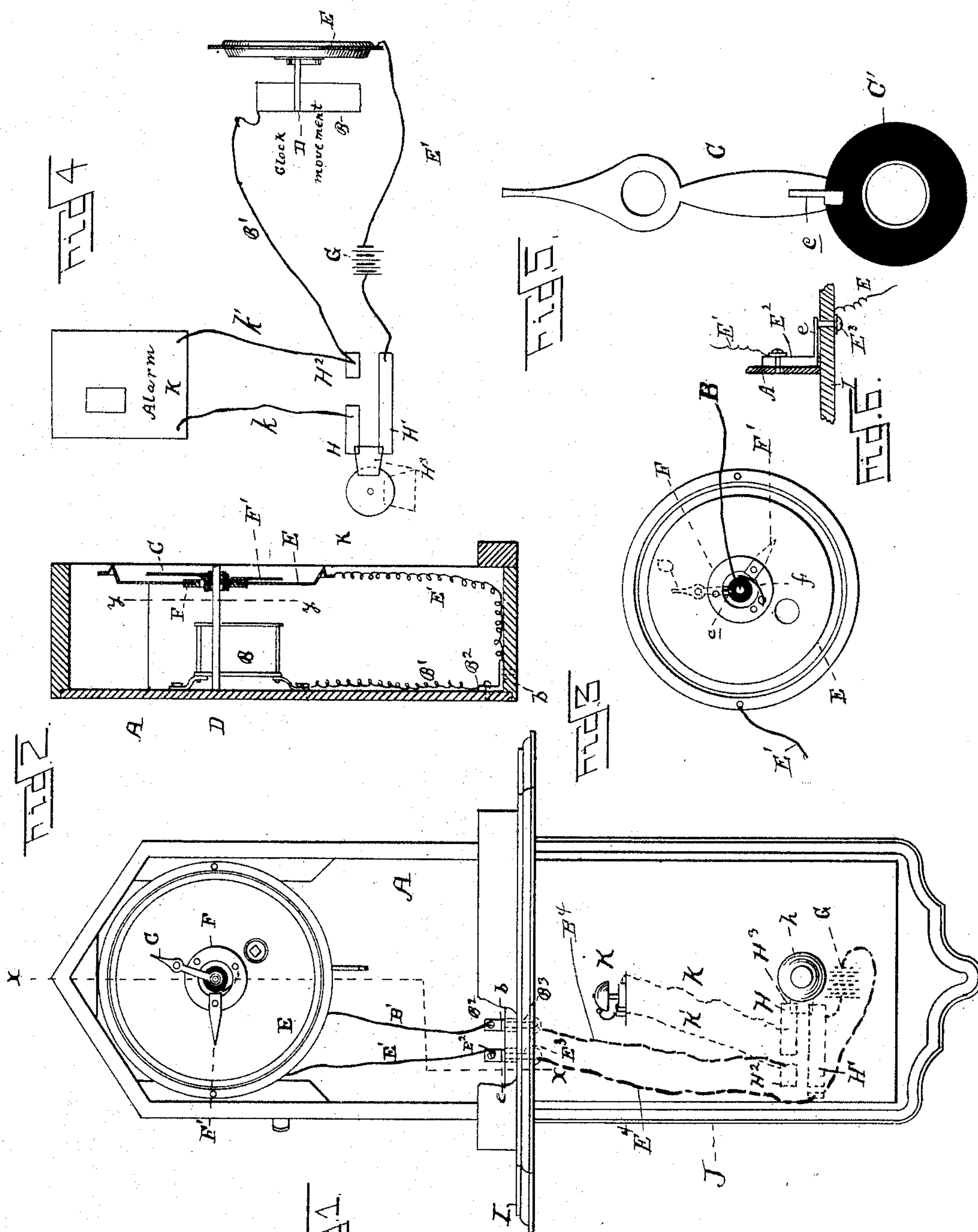
(No Model.)

M. M. SMITH & F. P. JONES.

ELECTRIC CLOCK ALARM.

No. 356,605.

Patented Jan. 25, 1887.



Witnesses

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UNITED STATES PATENT OFFICE.

MILTON M. SMITH AND FERDINAND P. JONES, OF BUFFALO, NEW YORK;
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ELECTRIC CLOCK-ALARM.

SPECIFICATION forming part of Letters Patent No. 356,605, dated January 25, 1887.

Application filed April 13, 1886. Serial No. 198,699. (No model.)

To all whom it may concern:

Be it known that we, MILTON M. SMITH and FERDINAND P. JONES, citizens of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Electric Clock-Alarms; and we do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Our invention relates to electric clock-alarms; and it consists in the novel features more fully hereinafter set forth and claimed, and shown in the accompanying drawings, in which—

Figure 1 is a front view of a clock with the door removed and with parts broken away, said clock being provided with our improvements. Fig. 2 is a section of the clock on the line X X of Fig. 1. Fig. 3 is a section on the line Y Y of Fig. 2. Fig. 4 is a diagram. Fig. 5 is a rear view of the hour-hand on an enlarged scale. Fig. 6 is an enlarged detail view.

The object of the invention is to utilize the clock-dial and the movement as part of the electrical circuit and have them form the terminals or contacting-points, whereby a large contact-surface is secured for the movable pointer or contact carried by the movement, thus insuring a perfectly-reliable electrical connection and avoiding any necessity for special insulation of any part of the clock-works.

The clock A may be of any approved style and provided with a movement of ordinary construction, supported in a frame, B. The hour-hand C is mounted on the arbor D. The dial E is of metal, and a metal disk or washer, F, secured to its inner edge to revolve freely in either direction, is provided with a metal spring, f, to contact with an arm, e, projecting from the hour-hand. The position of this spring may be regulated by moving the disk F in either direction, as desired, which movement may be effected by a pointer or hand, F', secured to the disk and located in front of the dial, the graduations of which serve to indicate the point at which the hour-hand will

be at any desired time, so that the arm e, contacting with the spring, will close the circuit and cause the sounding of an alarm. In order to form a support for the arm e, an insulating-ring, C', is mounted on the metal hub or tubular extension of the hour-hand. This ring is longitudinally grooved to receive the arm, which projects slightly beyond the periphery. The end of the spring projecting within the path of the arm e would be bent or broken if it were pushed end foremost against said arm; but by reason of the insulating-ring it is guided and rides over the arm without doing any injury thereto.

Wires B' E', extending from the clock movement and dial, respectively, have electrical communication with the poles of a battery, G, in the manner presently to be described. As the clock is not designed to be a permanent fixture, and that it may be easily removed for cleaning and repairs, the wires B' E' extend to and connect with the brackets B² E², having spring-arms b and e projecting therefrom, respectively, which may form an integral part or be fixedly secured thereto. The arms b and e are so disposed that they extend over openings in the bottom of the clock-case, and points B³ E³, projecting from a support, I, are adapted to enter the openings in the bottom of the clock-case, and, contacting with the spring-arms, complete the circuit. The weight of the clock is sufficient to hold the tension of such arms b and e.

The battery may be located at any convenient place, and the wires E⁴ and B⁴ run therefrom to the points E³ B³, respectively, on the support I, which latter may be a shelf, bracket, or any suitable ledge. Preferably it is the top of a case, J, secured to the wall, and which incloses the battery.

The cover of this case supports an electric alarm, K, and the switch composed of plates H H' H², and the cut-off H³. Plates H H' are arranged in position, and are brought into connection electrically by means of the cut-off H³, attached to the end of a shaft, h, extending through the cover and partially rotated by means of a knob on the outer end of the shaft. Plate H² is arranged close to the other plates, but insulated therefrom. It forms a common terminal for one end of the wire from the clock

and alarm, as clearly indicated in Figs. 1 and 4. Wires k k' connect the alarm with the plates H H^2 , respectively. The arm projecting from the hour-hand, the spring extending within its path from the metal washer revolving about the inner edge of the dial, and the pointer on the washer are so disposed that when the pointer is set for a certain hour and fraction of an hour, indicated by the clock-dial, the spring will contact with the arm on the hour-hand when the latter shall come opposite the time indicated by the pointer, thus completing the circuit and causing the alarm to be sounded, provided the same be in circuit.

The alarm may be cut out of circuit by rotating the shaft h , which will electrically disconnect the plates H H' , as clearly indicated by dotted lines, Fig. 4. The circuit, when closed, is as follows: from battery through E^1 , E^3 , e , E^2 , E' , E , F , f , c , C B , B' , B^2 , B^3 , B^4 , H^2 , k' , K , k , H , H^3 , H' , back to battery.

We are aware that metal clocks—such as the ordinary round cheap clock found in the market—have been used to operate an electric alarm by placing it upon a stand separately made for it, said stand being provided with contact-points forming the terminals of the battery, which points, coming in contact with the clock-casing and a spring extending from an alarm mechanism connected there-

with, complete the circuit. Our construction differs essentially from the above, as by providing the bottom of the clock with openings and the support with points projecting through said openings the circuit is not only completed, but the clock is prevented from lateral displacement.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

In an electric circuit, the combination of a clock-movement, a hand carried by the arbor and electrically connected with the movement, an arm projecting from said hand forming one terminal of the circuit, an insulating-ring embracing said arm, a clock-dial, a metal washer secured to its inner edge and having a free revoluble movement, a spring projecting from said washer forming the other terminal of the circuit, and a pointer connected with the washer and located in front of the dial, substantially as and for the purposes set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

MILTON M. SMITH.
FERDINAND P. JONES.

Witnesses:

T. D. DEMOND,
GEORGE O. MIDDLETON.