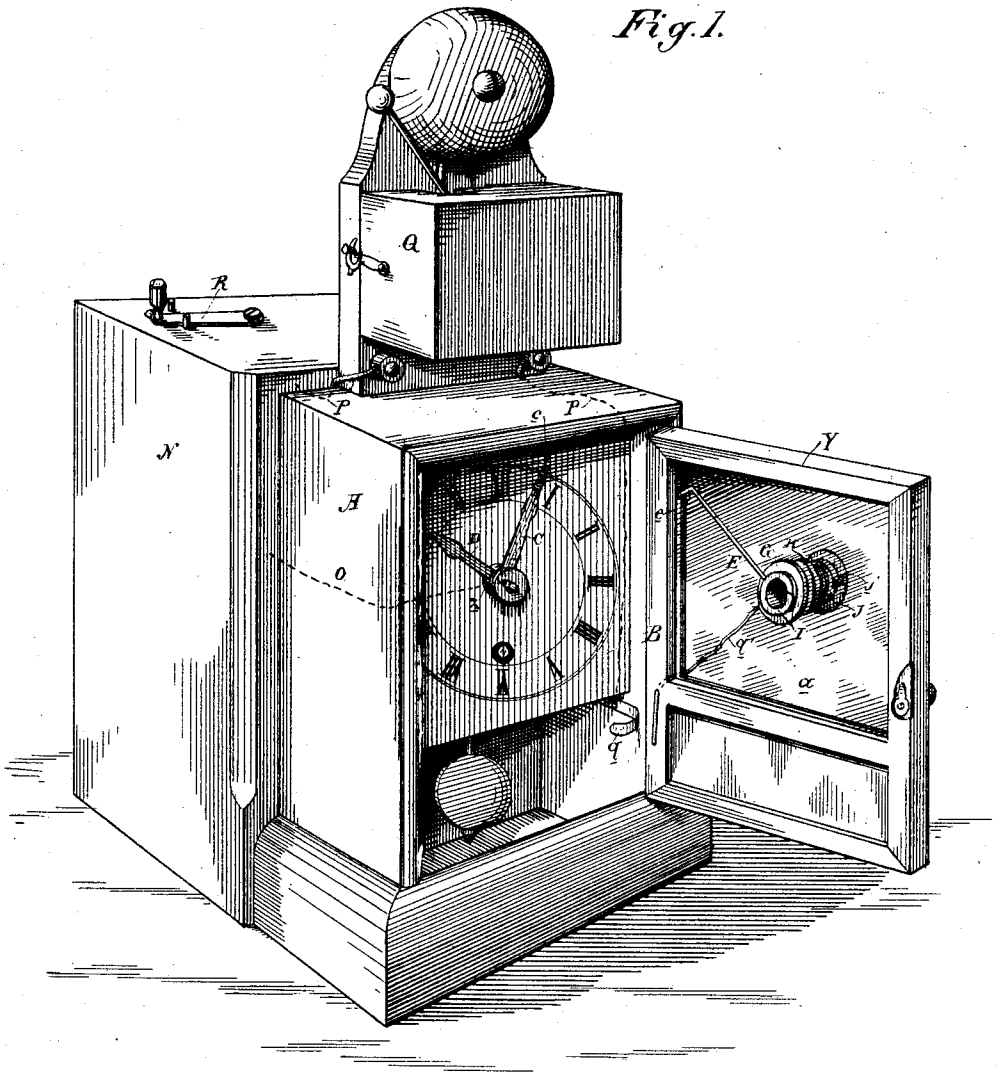
(No Model.) 2 Sheets—Sheet 1.

S. P. MEADS.

ELECTRIC ALARM CLOCK.

No. 371,696. Patented Oct. 18, 1887.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

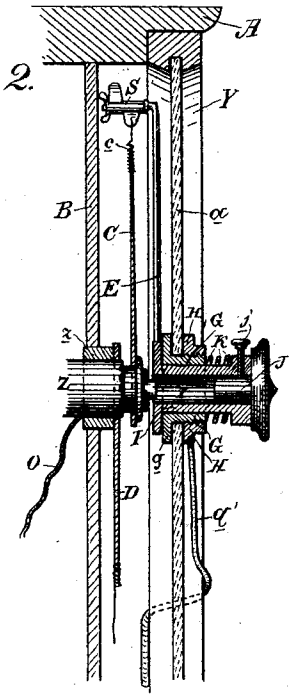


Fig. 3.

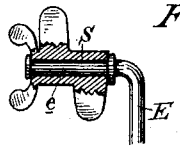
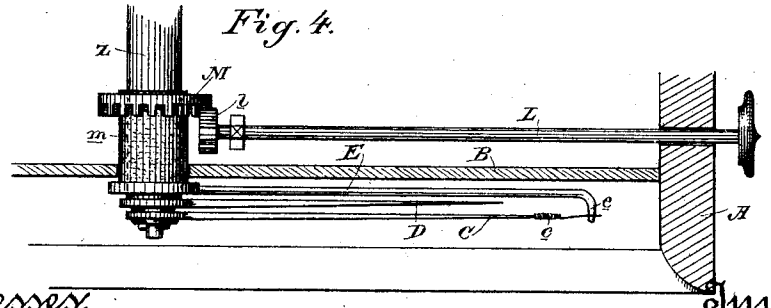


Fig. 4.



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UNITED STATES PATENT OFFICE.

SIMEON PEASE MEADS, OF OAKLAND, CALIFORNIA.

ELECTRIC ALARM-CLOCK.

SPECIFICATION forming part of Letters Patent No. 371,696, dated October 18, 1887.

Application filed May 23, 1887. Serial No. 239,152. (No model.)

To all whom it may concern:

Be it known that I, SIMEON PEASE MEADS, of Oakland, Alameda county, State of California, have invented an Improvement in Electric Alarm-Clocks; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of clocks in which the alarm is sounded by means of a current of electricity passing through a circuit which is completed and broken by means of an electrical connection dependent upon the movement of the clock-hands; and my invention consists in a supplementary hand adapted to be moved over the face of the dial to any position thereon, and arranged to have electrical connection made with it directly by either hand of the clock, whereby the circuit is completed.

My invention further consists in details of arrangement relating to the circuit and mechanism for adjusting the supplementary hand, and to a means for causing either the minute or the hour hand of the clock to make the electrical connection with the supplementary hand, whereby a frequent alarm may be had through the contact of the minute-hand, and which I therefore prefer to call a "minute-alarm," and a less frequent alarm provided for through the contact of the hour-hand, as may be most desirable for particular purposes.

The general object of my invention is to provide an electrical alarm-clock, the alarm of which can be set in operation at any time and as often as may be desired.

My particular object is to provide a clock for use in school-rooms where periods of equal or unequal length are set apart for accomplishing certain work, said periods being required to be accurately defined, and therefore not to be made dependent upon the memory of the person having the regulation of the matter.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of the door B, being shown open. Fig. 2 is a vertical section through the center of the front of the clock. Fig. 3 is a view of the piece S. Fig. 4 is a modification of the means for setting hand E.

A is the clock-casing, containing suitable actuating mechanism, unnecessary herein to show, a dial, B, a minute-hand, C, and an hour-hand, D, all arranged as usual.

E is the supplementary hand, which is adapted to be moved manually over the face of the dial, and without interfering with either of the hands of the clock to any portion of the dial, in order to indicate any required time. The outer end of this hand is bent inwardly toward the face of the dial, as shown at *e*, and with this end the end of either hand of the clock is adapted to come in contact, said contact being here shown as made by the minute-hand either directly or through a small contact-wire, *c*, on its end. I will presently explain the means by which I may make this contact either by the minute or the hour hand, as may be desirable. The supplementary hand E may be arranged to move over the dial by means of any suitable mechanism.

In Fig. 2 I show the form I prefer in cases where the construction of the clock-casing itself will admit of it without inconvenience or at the expense of appearances.

The clock-casing A is provided with the glass face *a*, covering the dial, said face being usually in the door of the casing. The glass is centrally bored, and through it is passed a sleeve, G, the inner end of which is provided with a flange, *g*, which bears against the inner surface of the glass. The outer end, which projects beyond the glass, is externally threaded, and upon this externally-threaded part is screwed an internally-threaded sleeve, H, the inner end of which is provided with a flange bearing against the outer surface of the glass, so that between the two the glass is firmly clamped. Through the sleeves is passed a tubular shank or center piece, I, adapted to turn axially in its seat, and carrying on its inner end the supplementary hand E. Its outer end receives the button J, which has a milled head for convenience in turning, and is secured to the projecting end of the tubular piece by means of a set-screw, *j*, or in other suitable ways, so that by turning the button the tubular center piece will turn, thereby moving the hand. A spring, K, encircling the tubular piece between the button and the flange of the outer sleeve, holds the parts and takes up any wear which may occur.

For some clocks I have shown in Fig. 4 another mechanism for turning the supplementary hand, which consists of a headed spindle, L, passing through the side of the clock-casing, and having on its inner end a pinion, *l*, which meshes with a gear, M, on the inner end of a tubular gutta-percha sleeve, *m*, journaled on the hand-arbor Z, the outer end of said sleeve carrying the supplementary hand E. To the back of the clock-casing I have here shown secured a casing, N, containing the electric battery, though it is obvious that the battery may be located in any position. One of the circuit-wires O passes from the battery and behind the dial of the clock to a small metal collar, *z*, on the arbor Z, which carries the clock hand or hands. Another wire, P, passes from the battery through the alarm apparatus (represented here by Q,) and to a contact-spring, *q*, which makes electrical contact with the wire *q'* on the inside of the swinging door Y of the clock-casing, said wire passing on the outside of the glass of said door to the outer metal sleeve, H, forming part of the mechanism by which the supplementary hand E is operated. It will thus be seen that the clock-hand is connected with one pole of the battery, while the supplementary hand is connected with the other, so that when they come in contact the circuit is completed and the gong is sounded. A switch, R, I have here shown on the top of the casing, which contains the electric battery, so that by its operation the circuit can be broken at night and the alarm not sounded.

The operation of the device as far as described is as follows: If I desire the alarm to be sounded at twenty minutes after the hour, I turn the supplementary hand E to the proper position on the dial, and when the minute-hand moves around to that time its point will come in contact with the inturned end of the supplementary hand, thereby making the electric circuit complete and sounding the alarm. If now I wish to sound it again ten minutes later, I turn the hand E to the proper position, and when the minute-hand reaches that time the alarm is again sounded, and so on, from which it will be seen that where the electrical connection is made through the minute-hand I may set the alarm for operation at any time, and at short intervals—as a minute—throughout the entire hour, for which reason the alarm can be properly called a "minute-alarm." If I desire the hour-hand to make the electrical connection, I must arrange it so that said hand will come in contact with the supplementary hand, and the minute-hand will pass on by without touching it. In order, therefore, to make the hands of the clock interchangeable in the circuit, I provide the following means, shown in Figs. 2 and 3: On the inturned end of the supplementary hand E, I pivot a contact-piece, S, which is made in the form of a double eccentric, the bulging portion of each being oppositely located, one being in the path of the minute-hand and the other in the path of the hour-hand. Now by turning this contact-piece in such a way that the bulging-portion, which is in the path of the minute-hand, shall extend inwardly, it will readily be seen that the minute-hand will come in contact with it, while by reason of the other bulging portion being extended the other way the hour-hand will not come in contact with it, and vice versa.

I am aware that electric alarm-clocks are known in which the circuit is opened and closed by mechanism dependent upon the movement of the hands of the clock, and that said mechanism may be accurately adjusted by means of an arm moving over the face of the dial in order to determine its proper position. I do not therefore claim, broadly, the making and breaking of the circuit by the movement of the hands, but confine myself to the adjustable supplementary hand with which the hands of the clock may make direct electrical connection.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an electric alarm-clock, a pivoted supplementary hand adapted to be moved manually over the face of the dial in order to accurately indicate its position, in combination with the hand of the clock, arranged to come in contact directly with the supplementary hand, an electrical circuit which includes the supplementary hand and the clock-hand, and an alarm apparatus in said circuit, substantially as herein described.

2. In an electric alarm-clock, a pivoted supplementary hand adapted to be moved manually over the dial of the clock, and having an inwardly-turned outer end, in combination with the clock-hand arranged to come in contact with the inwardly-turned end of the supplementary hand, an electric circuit which includes the supplementary hand and the clock-hand, and an alarm apparatus in said circuit, substantially as herein described.

3. In an electric alarm-clock, a supplementary hand adapted to be moved manually over the face of the dial and a contact-piece pivoted on its outer end, and having a double eccentric shape, the bulging portions extending in opposite directions and in the path of the minute and hour hands of the clock, respectively, in combination with said clock-hands arranged to come in contact with the eccentric-piece, an electric circuit which includes the clock-hands and the supplementary hand, and an alarm apparatus in said circuit, substantially as herein described.

4. In an electric alarm-clock, a supplementary hand adapted to be moved manually over the dial of the clock and adapted to make electrical connection with the hands of the clock, as described, in combination with the means for mounting and operating said supplementary hand, consisting of the sleeves G and H, clamped on the glass of the clock-face, the tubular center piece carrying said hand, and the outer button secured in the tubular

center piece and outside of the glass, substantially as herein described.

5. In an electric alarm-clock, the supplementary hand adapted to be moved manually over the face of the clock-dial and adapted to make electrical connection with the hands of the clock, as described, in combination with the means for mounting and operating said supplementary hand, comprising the sleeves clamped on the glass of the clock-face, the tubular center piece seated in said sleeves and carrying the hand, the button in the outer end of the center piece, and the spring by which the wear is taken up, substantially as herein described.

6. In an electric alarm-clock, the supplementary hand adapted to be moved manually over the face of the dial, and the means for moving and operating it, comprising the metallic sleeves, the tubular center piece, and the button, in combination with the hands of the clock, the metal arbor on which they are mounted, the wire from an electric battery to said metal arbor, and the wires from the battery to the metal sleeves by which the supplementary hand is mounted, said wires forming an electrical circuit, and an alarm apparatus in said circuit, all arranged and adapted to operate substantially as herein described.

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