

(No Model.)

C. KORFHAGE.

ELECTRIC ALARM CLOCK.

No. 337,067.

Patented Mar. 2, 1886.

Fig. 1

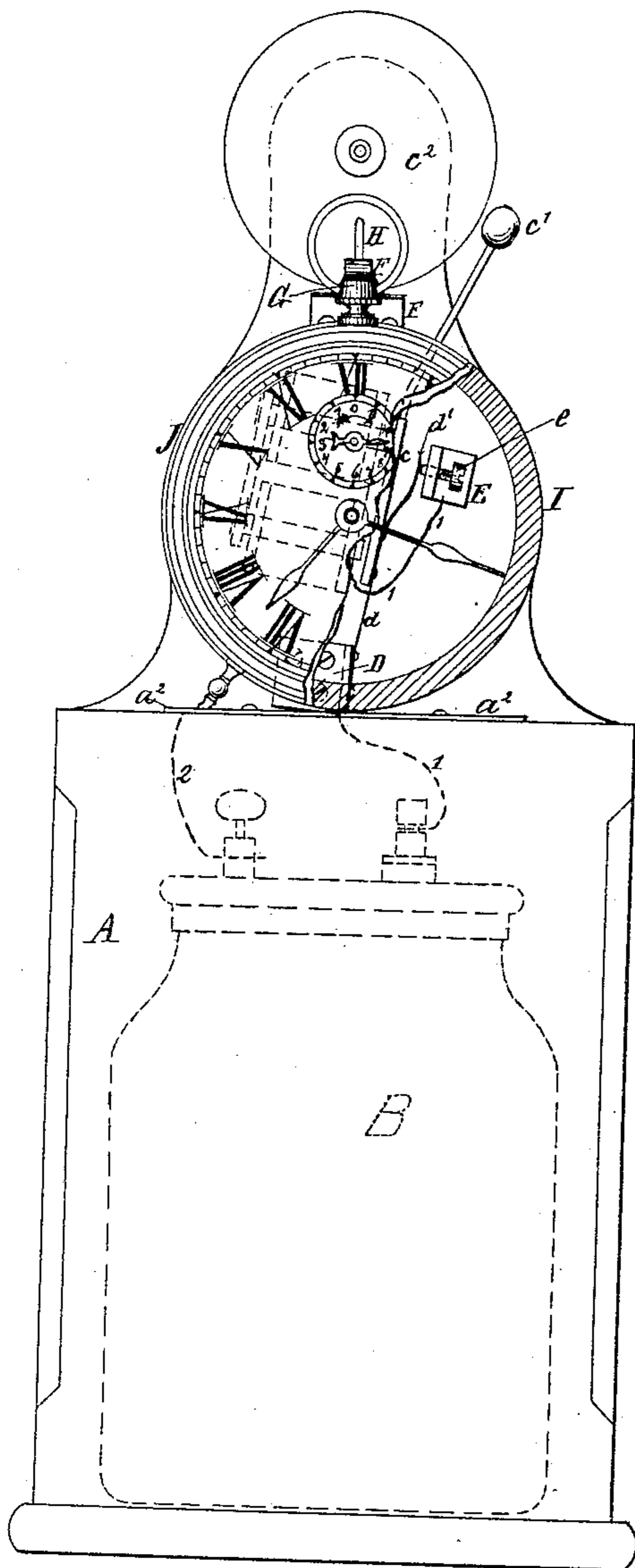


Fig. 2

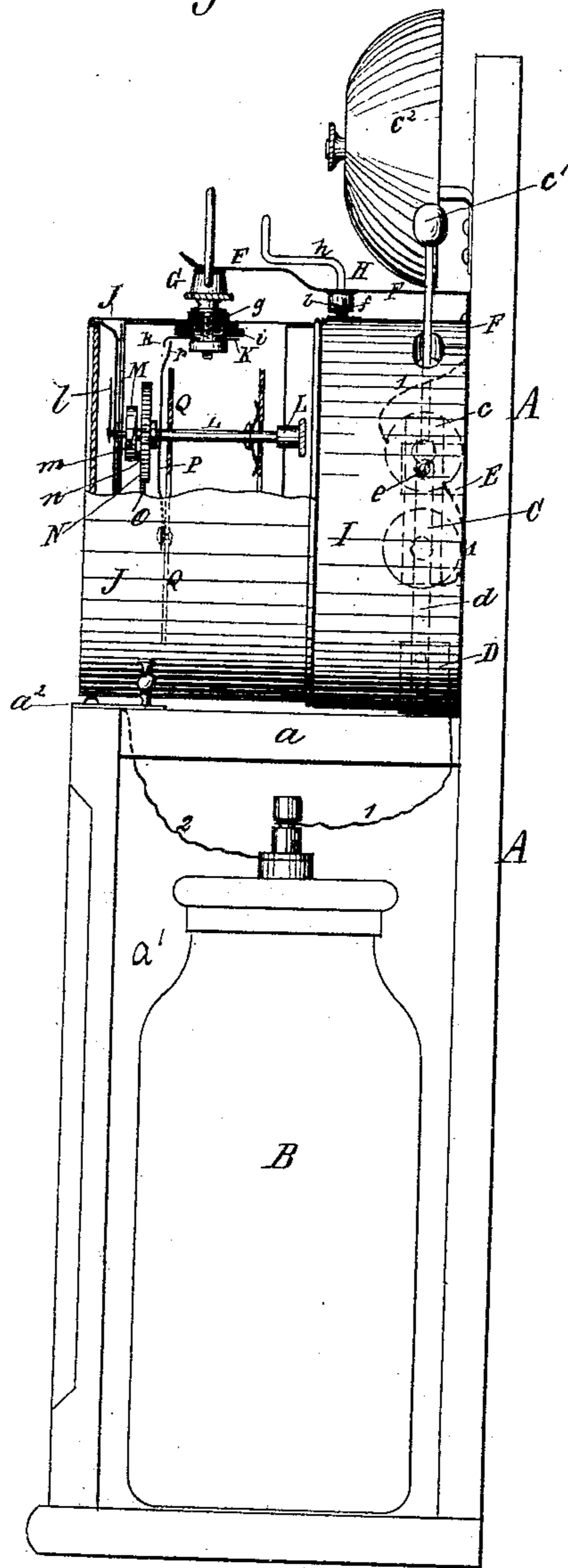
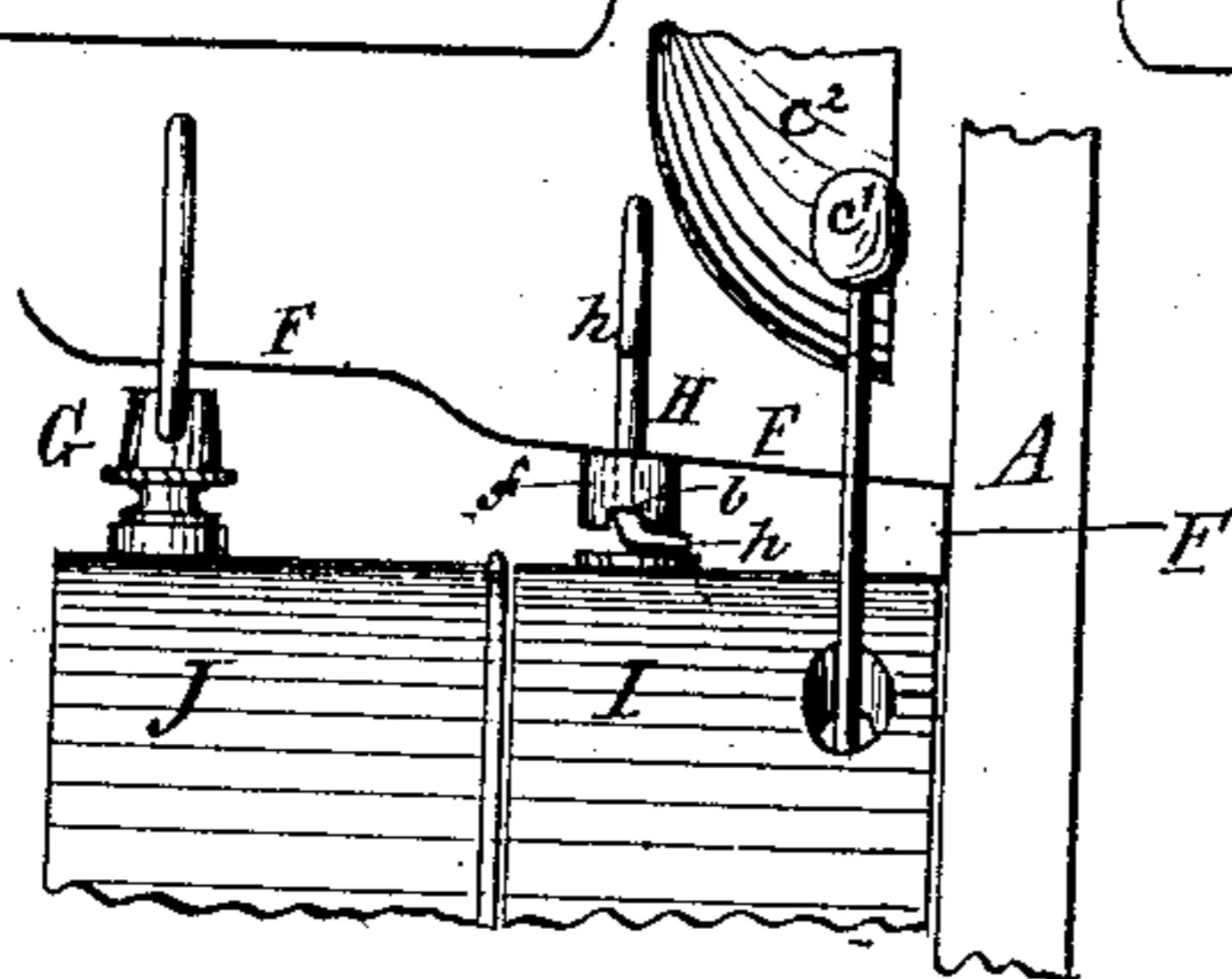


Fig. 3



Witnesses:

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# UNITED STATES PATENT OFFICE.

CHARLES KORFHAGE, OF BROOKLYN, NEW YORK.

## ELECTRIC ALARM-CLOCK.

SPECIFICATION forming part of Letters Patent No. 337,067, dated March 2, 1886.

Application filed May 16, 1885. Serial No. 165,709. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES KORFHAGE, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Electric Alarm-Clocks, of which the following is a specification.

My invention relates to clocks provided with electric alarm mechanism, which may be set to operate and arouse a person at a desired hour in the night. The broad principle of construction of the alarm by the combination of a setting-index, a bell, a bell-hammer connected to the armature of an electro-magnet, a switch, an electric source with circuit-connections, and means for closing or opening the circuit automatically when the hour-hand and the said setting-index both indicate the same hour on the dial is the same as in my previous patent application, filed February 9, 1885, Serial No. 155,291, to which I refer as a sample of the state of the art previous to this application. In my previous invention, however, the setting-arm was attached upon the spindle of the hour and minute hands, and considerable change had to be made in the clock as bought in the market, and entailing extra expense to utilize it for this purpose.

The object of my present improvement is to adapt (without other change in the existing mechanism than the simplifying removal of the escapement-wheel and nearest parts directly connected with the hammer) the ordinary round cheap clock as found in the market to automatically operate an electric alarm by simply placing it upon a stand separately made for the purpose; and it consists in the construction and combination of the various parts.

In the accompanying drawings, Figure 1 represents a face view of the stand and clock placed thereon in position to operate the alarm, and partly broken out to show the armature-connections. Fig. 2 is a side view of the same with part of the clock broken out and the slide-door of the case removed to show the battery-jar within, the switch being in position, (as also in Fig. 1,) to form electric contact with the knob of the clock-case. Fig. 3 is a partial detail view on a larger scale than in the other figures, and shows the switch turned off to break contact.

A is the stand adapted to receive the clock, and has a receptacle or box,  $a'$ , for receiving an electric battery, B, and the top  $a$  of the box constitutes the platform on which the clock is placed, and is provided with a metallic plate,  $a^2$ , which forms immediate contact with the feet or casing of the clock. Above the platform  $a$ , at the rear of the stand, is placed an electro-magnet, C, whose armature  $c$  carries at its upper end a hammer,  $c'$ , to strike on the bell  $c^2$ , its lower end being connected by a spring,  $d$ , to a metallic plate, D, secured to the stand A. The two poles of the battery B are connected by wire to the plates  $a^2$  and D, respectively.

The armature acts substantially as in my previous invention, except that its lower end is secured to the spring  $d$ , as aforesaid, and the said spring  $d$  is extended and deflects laterally in the rear of the armature opposite to the magnet-coils C, and the tension of the spring is regulated to act (more or less) to move the armature toward the core by a set-screw,  $e$ , adjustable through a plate, E, which is secured to the stand A, said set-screw acting against the upper end,  $d'$ , of the said spring.

The battery-wire marked 1 leads the current through the spring  $d$ , screw  $e$ , and plate E to the magnet-coils, and thence to a spring, F, which is secured at one end to the stand A, its other end projecting forward with an elastic downward tendency in position to press upon a stud or knob, G, on the clock-casing. To raise it from contact with the clock-knob, I have provided a switch, H. This consists simply of a little hub,  $f$ , soldered to the under side of the spring F, and a wire,  $h$ , free to turn in a hole through the hub, the lower end of the said wire being bent at right angles or under the edge of the hub, (to support the latter on the non-conducting casing I of the electro-magnet,) and the upper part of the wire being bent to form a crank for convenience in turning it. The lower end of the hub  $f$  has a notch,  $b$ , one edge of which is inclined to allow of turning the wire  $p$  in one direction, and the other edge abrupt or vertical to form a stop against turning the wire crank in the opposite direction. When the crank is turned in the position shown in Fig. 2, its lower end is in the said notch, thus allowing the free end

of the spring F to rest upon and make contact with the knob G; but when turned out of the notch, as in Fig. 3, the spring F is raised and the said contact is broken.

5 The knob G is insulated from the metallic clock-case J by a nipple, *g*, and washer *i*, of rubber, and between the said washer and the nut upon the threaded knob-shank is clamped a metal strip, K, having upon its forward or  
10 free end a downward bend, *k*. Upon the hand-spindle L of the alarm-index *l* is secured the disk M, having upon its face the usual inclined notch, *m*, and a wheel, N, free to turn and slide upon the spindle L, has a pin, *n*, which,  
15 when the wheel has revolved uniformly with the hour-hand to the time indicated by the alarm-index, comes in juxtaposition to the notch *m*, and thus makes the wheel N free to be slid nearer to the disk M by the action of  
20 a metallic spring, P, fastened with one end to the clock-frame Q. The wheel N is thicker than the wheel O, from which it receives motion, so as to always keep in gear. The upper  
25 free end, *p*, of the spring P, when set as in Fig. 2, is at a slight distance in the rear of the bent end *k* of the strip K, but comes in contact with it when the position of the pin *n* oppositely to the notch *m* allows of the aforesaid forward  
30 deflection of the spring P. When the points *p* and *k* thus come in contact with each other, metallic connection is established through the clock-frame J and knob G from the battery-wire 2 and plate *a*<sup>2</sup> to the switch-spring F, and the  
35 circuit is closed, thereby vibrating the armature *c* (by the alternate making and breaking between the armature-spring *d*<sup>1</sup> and the set-screw *e*) and ringing the bell *c*<sup>2</sup> continuously until the switch H is turned off, or until the wheel has gradually revolved far enough for  
40 the pin *n* to have traveled out of the notch *m*, and the spring P to have been pushed back out of contact with the strip K.

It is evident that the clock, being complete in itself as a time-keeper, may be lifted out or  
45 off from the stand A, if so desired, when the alarm is not to be used.

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

1. A stand, A, provided with a battery-receptacle, an electro-magnet with bell-hammer 50 on the armature thereof, a bell, a switch, a platform having metallic contact-surface, and suitable wires connecting the battery and the said switch-magnet and contact-surface for receiving a clock between the said platform and 55 switch, and thus placing it in the electric circuit, substantially as and for the purpose set forth.

2. The stand A, having platform *a*, with metallic contact-surface *a*<sup>2</sup>, and provided, also, with 60 battery-connections, electro-magnet, hammer, and bell, substantially as described, and the spring F and switch H, in combination with a clock adapted to be placed upon the said surface *a*<sup>2</sup>, and provided with an insulated button, 65 G, for contact with the said spring F, an alarm-index, and means, as P K, for placing the said button G in the circuit when the hour-hand of the clock has reached the same hour as indicated by the alarm-index, for the purpose set 70 forth.

3. The combination, with the stand A, provided with an electric alarm, a metallic contact-surface, *a*<sup>2</sup>, switch H, and spring F, substantially as described, of a clock provided 75 with insulated button G and alarm-index, and adapted to be placed between the said surface and spring, the said button being connected to a stationary metal strip, K, and the spindle of the said alarm-index being provided with 80 the notched disk M, loose wheel N, having pin *n*, and receiving motion from the clock-work, and the spring P, tending to slide the said wheel toward the said disk and form contact with the said strip K, all substantially as and 85 for the purpose set forth.

In testimony that I claim the foregoing as my invention, I have signed my name, in presence of two witnesses, this 24th day of March, 1885.

CHARLES KORFHAGE.

Witnesses:

A. W. ALMQVIST,  
A. WAHLBERG.