

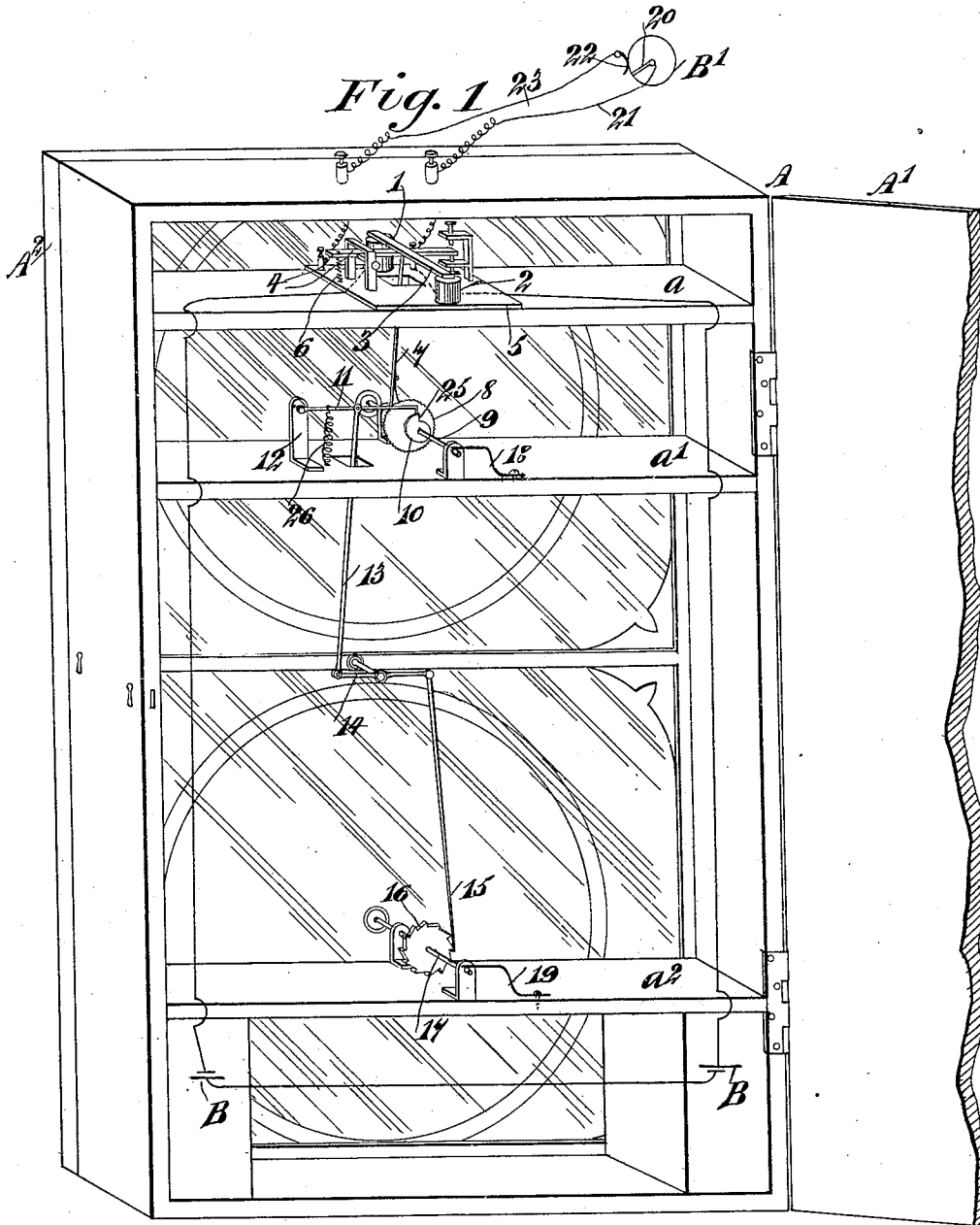
(No Model.)

2 Sheets—Sheet 1.

J. H. WILSON.
SECONDARY ELECTRIC CLOCK.

No. 564,811.

Patented July 28, 1896.



WITNESSES:

J. B. Walker
C. R. Ferguson

INVENTOR

J. H. Wilson.

BY

Attorneys

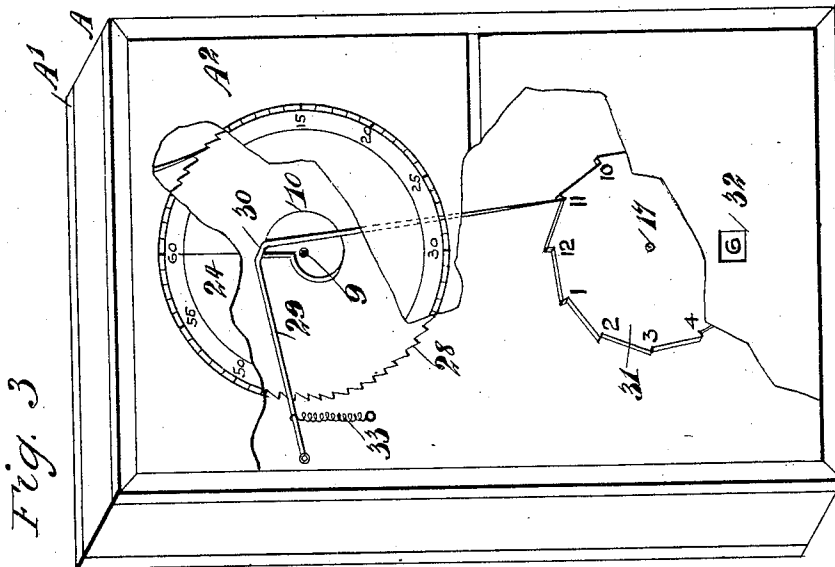
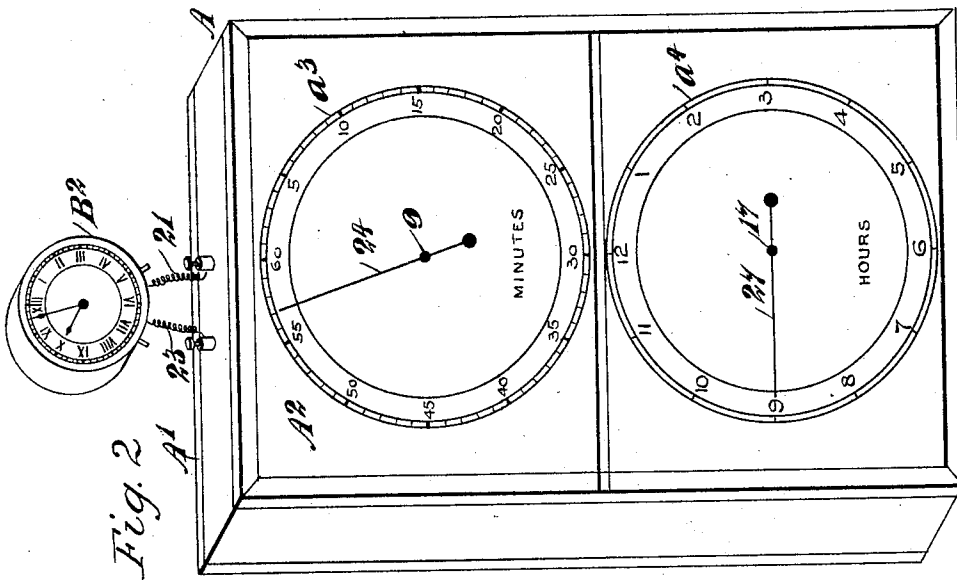
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UNITED STATES PATENT OFFICE.

JASPER H. WILSON, OF ROCKWOOD, TENNESSEE.

SECONDARY ELECTRIC CLOCK.

SPECIFICATION forming part of Letters Patent No. 564,811, dated July 28, 1896.

Application filed January 9, 1896. Serial No. 574,821. (No model.)

To all whom it may concern:

Be it known that I, JASPER H. WILSON, of Rockwood, in the county of Roane and State of Tennessee, have invented new and useful
5 Improvements in Electric Clocks, of which the following is a full, clear, and exact description.

This invention relates to clocks operated by an electric motor and comprising a circuit-closer within another clock.

The object is to provide an electric clock of very few operative parts, therefore not liable to get out of order, and, further, to produce a clock that may be cheaply made.

15 I will describe a clock embodying my invention, and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a rear elevation in perspective of a clock embodying my invention. Fig. 2 is a front elevation thereof, and Fig. 3 is a front elevation showing a modification and with a portion of the front wall broken away to show parts of the interior mechanism.

Referring first to Figs. 1 and 2, A designates a casing, here shown as rectangular in form and having a rear door A' and a front door A². Of course, I do not confine myself to any particular form of casing, as it may be shaped otherwise than that shown without departing from the spirit of my invention.

35 Within the casing is arranged a shelf a, upon which the motor is fixed, a shelf a', upon which the minute-hand-operating mechanism is affixed, and a shelf a², upon which mechanism for operating the hour-hand is supported.

40 The upper portion of the front of the casing is provided with a minute-dial a³, and below this minute-dial is arranged an hour-dial a⁴. The said minute-dial is divided into sixty equal spaces and the hour-dial is divided into twelve equal spaces.

45 The electric motor on the shelf a comprises electromagnets 1 2 and an armature 3, mounted on a lever 4, fulcrumed in a yoke extended upward from a base-plate 5 and having a retractile spring 6 at one end. From the lever 4 a push-bar 7 extends downward and engages with a ratchet-toothed wheel 8,

mounted on the minute-hand shaft 9. This ratchet-toothed wheel 8 is provided with sixty teeth, representing the sixty minutes or divisions of an hour. On the minute-hand shaft 9 is mounted a cam 10, the periphery of which is engaged by the downwardly-projecting end of a lever 11, pivoted to a standard 12 on the shelf a'. A rod 13 is pivotally connected to this lever 12 and extends downward to a pivotal connection with one end of a rock-lever 14, to the opposite end of which is pivoted a pawl 15. This pawl 15 is adapted to engage its hook end with the teeth of a ratchet-toothed wheel 16 on the hour-hand shaft 17. Spring-yielding retarding or graduating devices 18 19 bear upon the respective shafts 9 and 17.

The electromagnets 1 2 are located in a circuit comprising batteries B B, arranged within the clock-casing, and a circuit-closer B'. The said circuit-closer consists of a disk of insulating material suitably mounted within the clock B², of ordinary construction, in such manner as to be completely rotated once in every minute. This disk carries a contact-piece 20, with which the wire 21, leading to the electromagnet 2, is in fixed or permanent engagement, and it is here shown as adapted to engage with a spring contact-finger 22, from which a wire 23 extends to one pole of the electromagnet.

It is to be understood that any form of circuit-closer within a clock may be employed for operating the clock mechanism embraced in my invention, the closure herein shown and described being one of a form adapted for the purpose.

The operation of my invention is as follows: 90 When the circuit is closed by means of the circuit-closer B', the electromagnets will be energized to draw the armature-lever 4 downward. This will cause the bar 7 to rotate the wheel 8 through the space of one tooth, causing the hand 24 to move through the space of one minute, (indicated on the dial a³.) During the rotation of the wheel 8 the hook end of the lever 11 will ride upon the periphery of the cam 10; but when said wheel 8 shall have made its complete rotation the hook end of the said lever 11 will drop toward the center of the cam against the shoulder 25 on said cam, and this downward movement 100

of the lever 11, which is forced by means of a spring 26, will rock the lever 14 and cause the dog 15 to rotate the wheel 16 through the space of one tooth, and consequently move the hour-hand 27 through the space of one hour on the dial α' . When the circuit is opened, the armature-lever 4 will move upward and draw the push-bar 7 into engagement with the next tooth of the wheel 8, and during the intermittent rotary motion of this wheel 8 the lever 11 will be gradually raised at its free end to force the dog 15 downward to an engagement with the next tooth of the series.

Referring now to the example of my invention shown in Fig. 3, I have shown a large ratchet-toothed wheel 28, attached to the minute-hand shaft 9, carrying the hand 24, and upon this shaft 9 is mounted a cam 10 similar to the one first described. An angle-lever 29 has its laterally-extended portion pivoted to a fixed part of the clock-casing and a part 30 extended forward therefrom to engage upon the periphery of the cam 10. The downwardly-extended portion of this lever is in engagement with the ratchet-formed teeth on an hour-disk 31, mounted to rotate within the casing. This hour-disk is divided and numbered into twelve equal parts, and the numbers are designed to show consecutively through an opening 32 in the front of the clock-casing. The lever 29 is forced downward by means of a spring 33, and a motor like the one first described is employed for operating the wheel 28.

It is obvious that any desired number of clocks embodying my invention may be located in a single circuit controlled by one circuit-closer, and that my invention is particularly adapted for use in railway-stations, factories, streets, or in fact in any building where it is desired to have a number of clocks. Of course all the clocks in a circuit will be under the complete control of the clock within which the circuit-closer is located, so that

there can be no variation of the several clocks as to time, provided, of course, they are originally set in proper relation.

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

1. A clock comprising a casing, a dial indicating minutes, arranged in the front thereof, a dial indicating hours, arranged in the front thereof, a rotary shaft upon which the minute-indicator is mounted, a toothed wheel on said shaft, an electromotor comprising an armature-lever, a push-bar extended from said armature-lever to an engagement with the wheel, a cam on the shaft, a fulcrumed lever having a hook end engaged with the periphery of the said cam, a rock-lever within the casing, a connection between one end of the said rock-lever and the hook-lever, a dog extended downward from the opposite end of the said hook-lever, a rotary shaft carrying the hour-indicating device, a ratchet-toothed wheel on the said shaft engaged by the dog, and an electric circuit comprising a circuit-closer operated by a clock mechanism, substantially as specified.

2. A clock comprising a casing, a series of shelves arranged within the casing, a dial indicating minutes arranged in the front of the casing, a dial indicating hours arranged below the first-named dial, an electromotor mounted on the upper shelf in the casing, a rotary shaft on the next lower shelf and carrying a minute-hand, a toothed wheel on said shaft, a push-bar engaging with said wheel and operated by the motor, a cam on said shaft, a lever operated by said cam, means for operating the hour-indicator from said shaft, and an electric circuit comprising a battery within the casing, substantially as specified.

JASPER H. WILSON.

Witnesses:

J. M. CLACK,
S. B. ESKRIDGE.