

No. 694,792.

Patented Mar. 4, 1902.

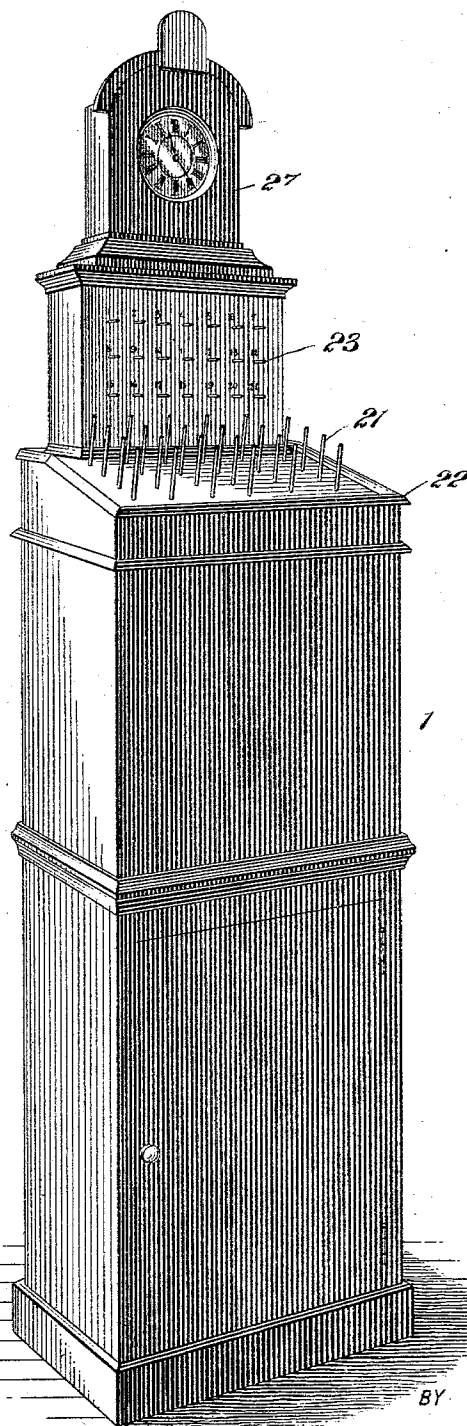
J. SALMON.  
ELECTRIC CALL.

(Application filed Jan. 31, 1901.)

(No Model.)

3 Sheets—Sheet 1.

*Fig. 1.*



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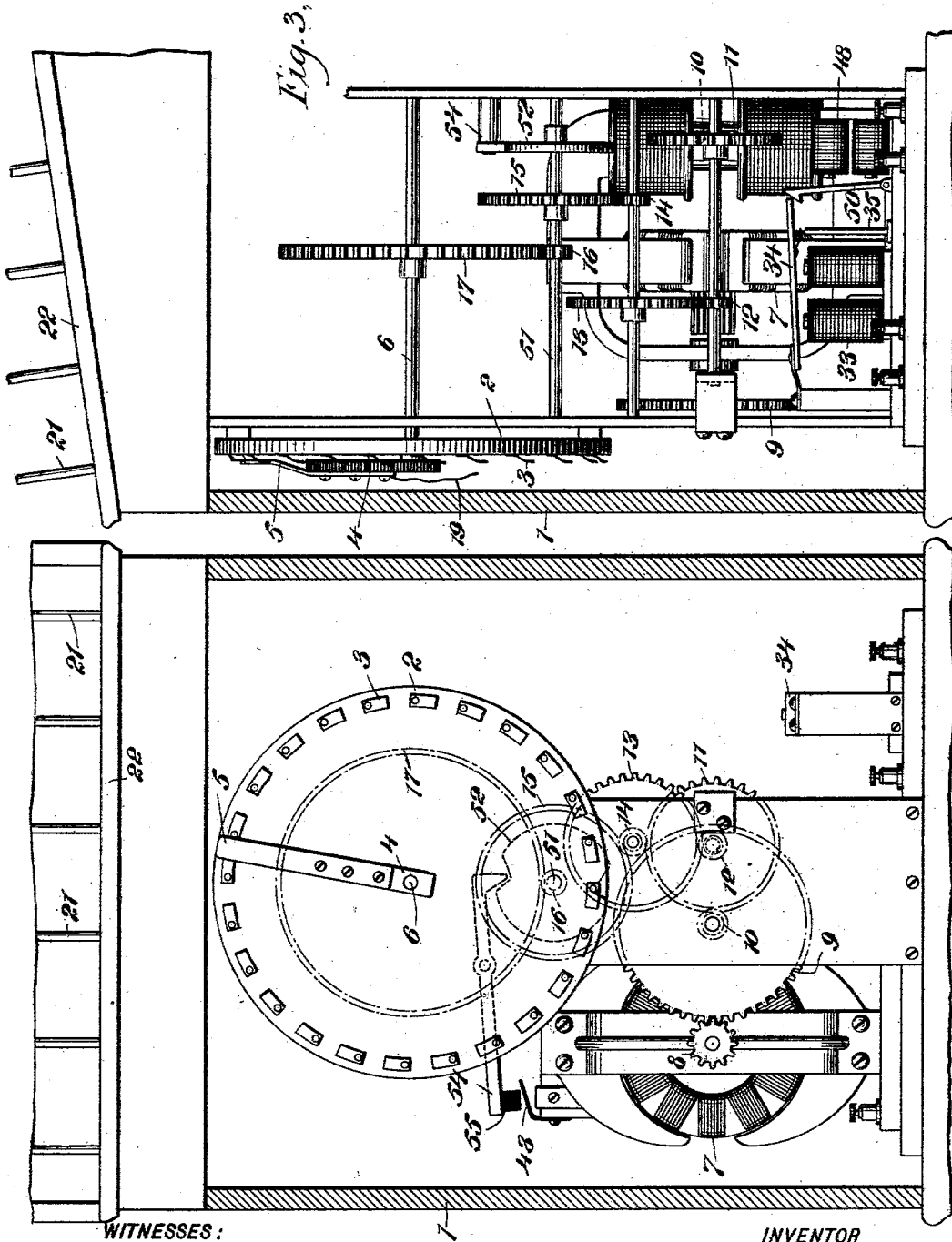
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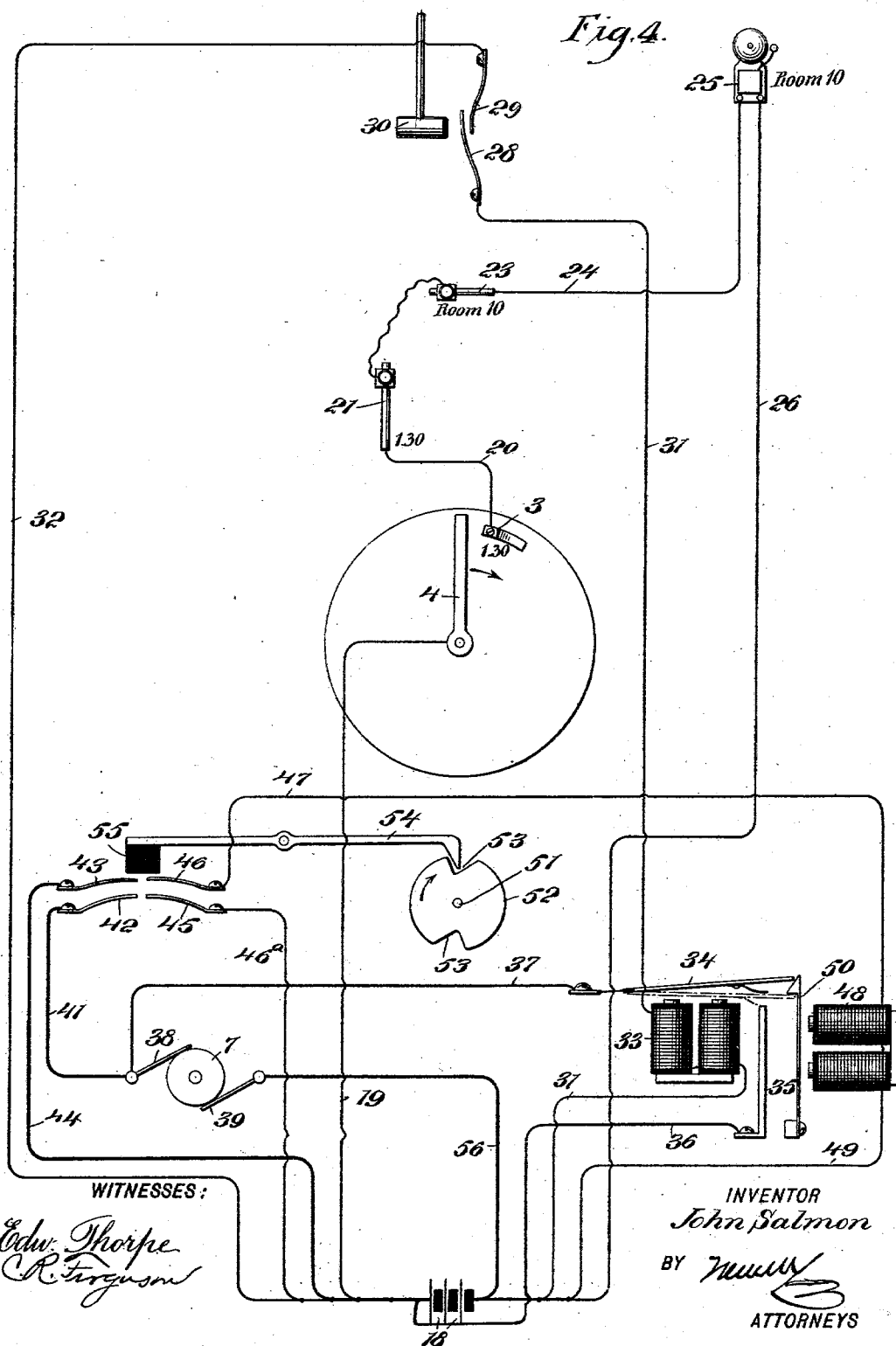
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3 Sheets—Sheet 3.



# UNITED STATES PATENT OFFICE.

JOHN SALMON, OF NEW YORK, N. Y.

## ELECTRIC CALL.

SPECIFICATION forming part of Letters Patent No. 694,792, dated March 4, 1902.

Application filed January 31, 1901. Serial No. 45,467. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN SALMON, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Electric Call, of which the following is a full, clear, and exact description.

This invention relates to improvements in electric-call devices for use in hotels to call guests at any desired time; and the object is to provide a device of this character of simple construction and under the control of a clock or similar timepiece.

I will describe an electric call 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 figures.

Figure 1 is a perspective view of an electric-call device embodying my invention. Fig. 2 is a front view of the circuit-closing mechanism employed. Fig. 3 is a side view thereof, and Fig. 4 is a diagrammatic view indicating the electric circuits.

Referring to the drawings, 1 designates the casing of the machine, in the lower portion of which the battery may be arranged, and in the portion above the battery are arranged the controlling and operating devices, (here shown as a disk 2,) upon which are mounted a number of spring-yielding contacts 3, separated one from another. The disk of course will be made of insulating material. Movable around the disk and adapted to engage with the contact-points 3 is an arm 4, carrying a contact-point 5. This arm 4 is mounted on a shaft 6, designed to be rotated by a suitable motor in the upper portion of the casing. As here shown, this motor consists of an electric motor 7, on the armature-shaft of which is a pinion 8, engaging with a gear-wheel 9, and on the shaft of this gear-wheel 9 is a pinion 10, engaging with a gear-wheel 11, on the shaft of which is a pinion 12, engaging with a gear-wheel 13, on the shaft of which is a pinion 14, meshing with a gear-wheel 15, and on the shaft of this gear-wheel 15 is a pinion 16, which engages with a large gear-wheel 17 on the shaft 6. This train of gearing is designed

to reduce the speed of movement of the shaft 6, and consequently the speed of movement of the contact 5 over the contacts 3. From the battery 18 a wire 19 extends to electrical connection with the contact 5, and from the several contacts 3 wires 20 extend to connections with pins 21, extended upward from the top of the casing 1. There will be, of course, a pin 21 for each contact-point 3. From a series of contact-pins 23 on the casing wires 24 extend to alarm devices—such, for instance, as bells 25—arranged in various rooms, and from these alarm devices wires 26 extend to the battery 18.

The operation of the motor is designed to be controlled from a clock mechanism. Therefore arranged within the clock 27, placed upon the casing or at any suitable point, are spring-yielding contact-points 28 and 29, designed to be pressed one upon the other by means of the striking-hammer 30 of the clock mechanism. From the contact-point 28 a wire 31 extends to one pole of the battery 18, while from the spring-contact 29 a wire 32 extends to a connection with the opposite pole of said battery.

Arranged in the circuit of the wire 31 is a motor consisting of an electromagnet 33, and coacting with this electromagnet is an armature 34, adapted to be moved into engagement by said magnet with a post 35, having a wire connection 36 with the battery. The armature 34 is connected by means of a wire 37 with a brush 38 of the motor. The other brush 39 of the motor is connected through a wire 36 with the battery. The wire 37 is also connected by means of a wire 41 with a spring contact-point 42, designed to be engaged, as will be hereinafter described, by a spring-contact 43, from which a wire 44 leads to the battery. A spring-contact 45, opposite the contact 42, has a wire connection 46<sup>a</sup> with the same pole of the battery with which the wire 44 connects, and this contact 45 is designed to be engaged by a spring-contact 46, having a wire connection 47 with an electromagnet 48, from which a wire 49 leads to the battery. This electromagnet 48 is designed to operate a spring-yielding locking device 50 to disengage it from the armature 34.

On one of the shafts of the train of gearing, here shown as the shaft 51, to which the

gears 15 and 16 are attached, is mounted a circuit-closing disk 52. This disk 52 is provided with opposite notches 53, designed to receive the downwardly-turned end of a lever 54, which operates to close the circuit through the contacts 42 and 43 and 45 and 46. As here shown, this lever at its outer end is provided with a block 55 of insulating material to engage upon said circuit-contacts 43 and 46.

In operation, assuming that a guest in room 10 desires to be called at 1.30 o'clock, the attendant will then connect the pin 21 which has connection with the contact 3 marked "1.30" with the pin 23, from which the wire 24 leads to the alarm device 25 in room 10. When the clock reaches 1.30, the striking mechanism will be operated, which will cause the contact 28 to engage with the contact 29. This will close the circuit through the electromagnet 33, drawing down the armature 34 against the post 35, and the armature will be held momentarily in its closed position by means of the locking device 50. This will close the circuit from the armature 34 through the post 35, the wire 36, the battery 18, the wire 56, thence through the motor, and back to the armature 34 by way of the wire 37. The motor will now be in operation, consequently starting the train of gearing, so that by the rotation of the disk 52 the periphery thereof between the notches 53 will engage with the downwardly-extended point of the lever 54, rocking said lever and causing it to close the contact 43 against the contact 42 and the contact 46 against the contact 45. This will close the main circuit through the motor by way of the wire 41, the contacts 42 and 43, the wire 44, leading to one pole of the battery, and the wire 56, leading from the other pole of the battery, back to the motor. At the same time the circuit will be closed through the contacts 45 and 46, the wire 46<sup>a</sup>, to one pole of the battery, then from the opposite pole of the battery through the wire 49 to the electromagnet 48, and thence back through the wire 47 and contact 46. This will energize the electromagnet 48, attracting the locking device 50, moving it out of engagement with the armature 34, permitting said armature to break the connection with the post 35, so that the motor is operated directly from the battery and will continue to operate until the downwardly-extended portion of the lever 54 drops into the opposite notch 53 of the disk 52, which permits the contacts 43 and 46 to move out of engagement with the contacts 42 and 45.

While I have indicated a clock having a half-hour-striking mechanism, it is obvious that I may employ a clock striking at the quarter-hours. As each pin 23 is in a circuit leading to a room, it is evident that any desired number of said pins may have their wires coupled with any one of the pins 21, so that the occupants of the several rooms so connected will be called at the same time, and it is also obvious that the various rooms may

be connected with different pins 21, depending, of course, upon the time the guest desires to be called.

During the operation of the motor the arm 4 will make one complete rotation of the contact-carrying disk 2, and as it will move quite slowly over each contact 3 each call will be for a considerable length of time. This length of time, however, depends upon the train of gearing employed and operated by the motor. The motor-circuit controlled by the disk 52 may be termed the "main" motor-circuit, while the circuit controlled by the striking mechanism of the clock may be termed an "auxiliary" or "starting" circuit.

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

1. An electric-call device, comprising a series of contacts having electrical connection with calling or alarm devices, a support upon which said contacts are mounted and insulated one from another, a contact movable over said first-named contacts, an electric motor for operating said movable contact, a source of electricity, a main connection between said source of electricity and the motor, and a supplemental circuit connecting with said source of electricity and closed by the striking-hammer of a clock mechanism for starting said motor, substantially as specified.

2. An electric-call device, comprising a series of fixed contacts, each adapted for connection with a call or alarm device, a contact movable over said fixed contacts, a source of electricity with which said movable contact has connection, a circuit-closing device, a clock mechanism for operating said closing device to close the motor-circuit through said source of electricity, an electric motor, a train of gearing between said electric motor and the movable contact, and means operated by the train of gearing for closing a main circuit from the source of electricity through the motor, substantially as specified.

3. An electric-call device, comprising a series of fixed contacts arranged in the circuit and adapted for connection with call or alarm devices, a contact movable over the fixed contacts, an electric motor for operating said movable contact, a source of electricity with which the movable contact connects, means for closing the circuit in which the movable contact is arranged, a motor having connection with said source of electricity, means having connection with the source of electricity for starting the motor, and means operated by the motor for closing a main circuit from the motor through the source of electricity during a complete rotation of the movable circuit closer or contact, substantially as specified.

4. An electric-call device, comprising a casing, a series of fixed contacts arranged in said casing, a contact movable over said fixed contacts, a series of contact-pins on the casing

and having connection with the fixed contacts, a series of pins having connection with calling devices and adapted for connection with any one of the first-named pins, a source  
 5 of electricity, a motor adapted to be placed in connection with said source of electricity and having a driving connection with the movable contact, an electrical controlling device for starting said motor, an electrical controlling  
 10 device for momentarily holding the starting device in circuit-closing position, and means for maintaining the motor-circuit, substantially as specified.

5. An electric-call device, comprising a casing, a disk of insulating material supported  
 15 in said casing, a series of contacts attached to said disk, contact-points on the casing and with which said first-named contacts connect, a series of call devices, pins with which said  
 20 call devices connect, means for connecting said pins with the first-named pins, a contact movable over the fixed contacts, a source of electricity with which said movable contact  
 25 has connection, an electric motor arranged in the casing and having a main connection with said source of electricity, means operated by the motor for closing said main-circuit connection, an electrically-operated device  
 30 for starting the motor, and an electrically-operated device for opening the circuit through said first-named electrically-operated device, substantially as specified.

6. In an electric call, a casing, a series of fixed contacts arranged in said casing, call  
 35 devices adapted for electrical connection with said fixed contacts, a contact movable over the fixed contacts, a motor for operating said movable contact, a source of electricity with which said motor is adapted to be connected,  
 40 an electromagnet having connection with said source of electricity, means for closing the circuit through said electromagnet, a supplemental circuit leading through the motor and  
 45 closed by an operation of said electromagnet, means operated by the motor for closing the

main circuit leading from said motor to the source of electricity, and an electromotive device controlled by the operation of the motor for opening the auxiliary circuit, substantially as specified.

7. In an electric-call device, a casing, a series of contact-points fixed in said casing and arranged in a circular row one independent  
 50 of another, call devices or alarms, means for connecting any one or all of said call devices with any one of the fixed contacts, a source  
 55 of electricity common to all the call devices, an arm mounted to rotate, a contact carried by said arm and movable over the fixed contacts, the said contact on the arm being in  
 60 connection with the source of electricity, a motor for rotating the arm, the said motor being arranged in an electric circuit for operating the motor, an electromotive device  
 65 for starting said motor, and a circuit-closer operated by a clock mechanism for closing the circuit through said electromotive device and means for maintaining the motor in circuit, substantially as specified.

8. In an electric call, a casing, a circular  
 70 row of fixed contacts in said casing and adapted for electrical connection with calling or alarm devices, a source of electricity, a contact movable over said fixed contacts and having  
 75 connection with said source of electricity, a motor arranged in the casing and having connection with said source of electricity, means controlled by a clock mechanism for  
 80 closing a primary circuit through said motor, and means actuated by the motor for closing a main circuit through said motor, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN SALMON.

Witnesses:

JNO. M. RITTER,  
 C. R. FERGUSON.