(No Model.) 2 Sheets—Sheet 1.

W. T. KELLOGG.

ELECTRIC ALARM AND CALL BELL SYSTEM FOR HOTELS, &c.

No. 306,084. Patented Oct. 7, 1884.

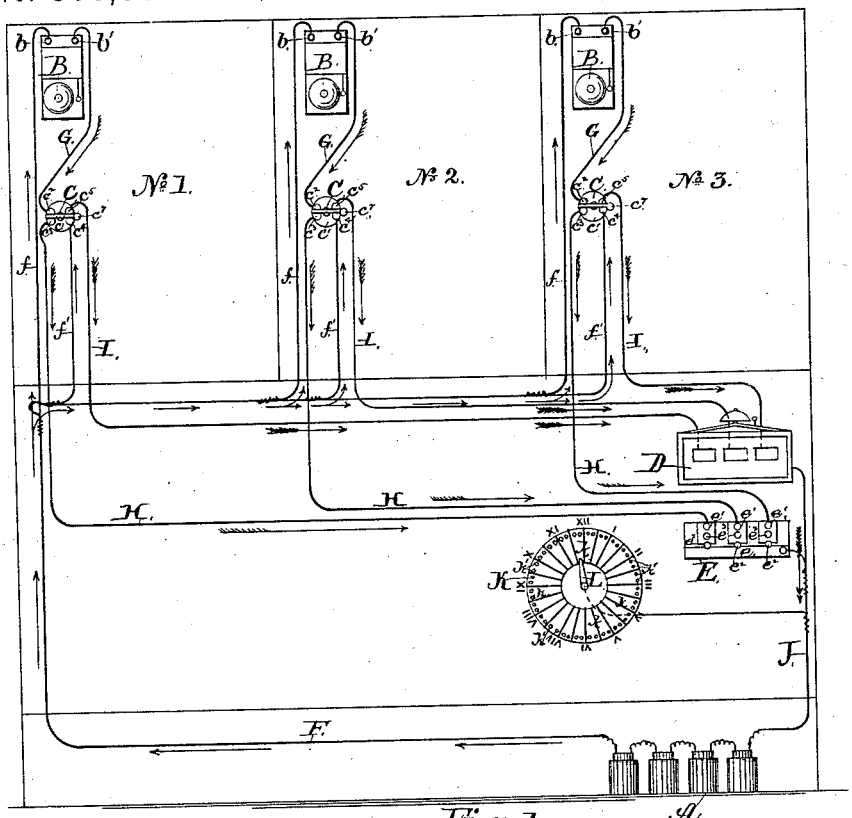

Fig. 1.

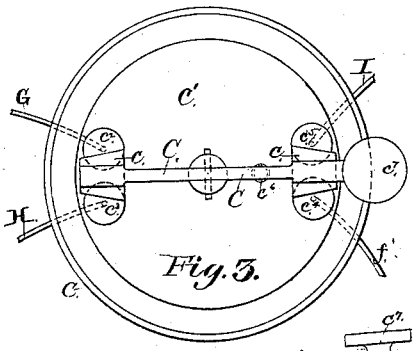

Fig. 3.

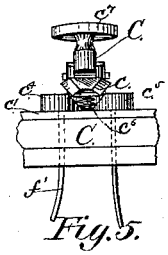

Fig. 5.

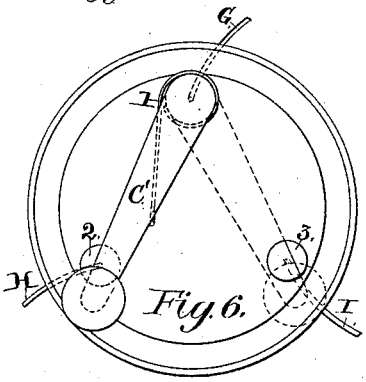

Fig. 6.

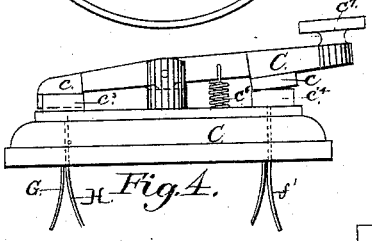

Fig. 4.

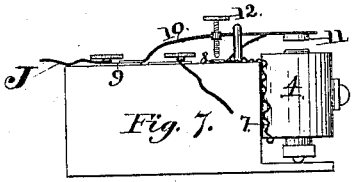

Fig. 7.

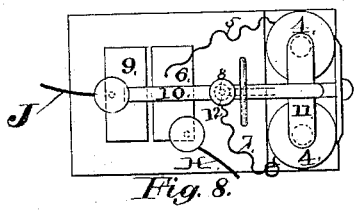

Fig. 8.

Witnesses:
S. B. Brewer,
Henry A. Goffe,

Inventor:
Warren T. Kellogg,
by
William H. Bond,
Attorney.

N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

W. T. KELLOGG.

ELECTRIC ALARM AND CALL BELL SYSTEM FOR HOTELS, &c.

No. 306,084. Patented Oct. 7, 1884.

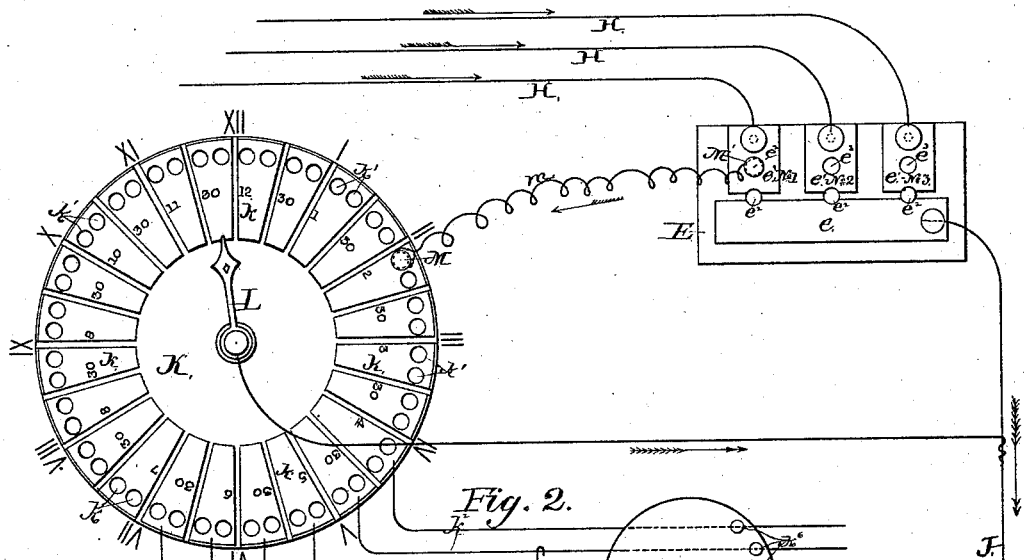

Fig. 2.

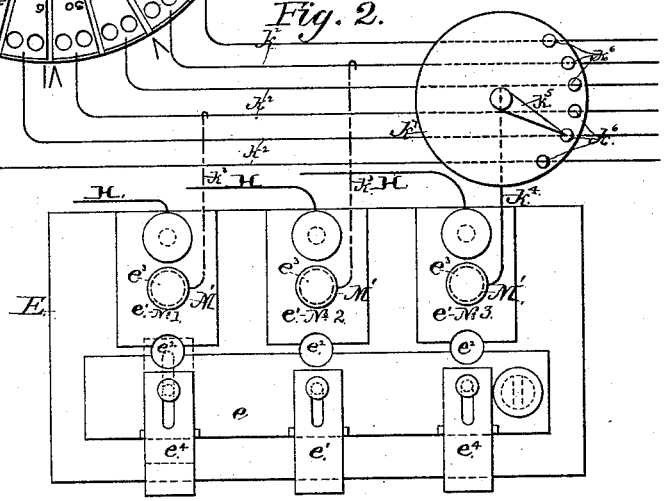

Fig. 9.

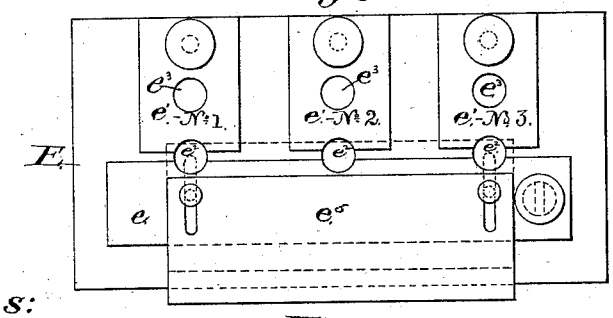

Fig. 10.

To ring alarm in all rooms simultaneously.

Witnesses:
S. B. Brewer,
Henry A. Goffe.

Inventor
Warren T. Kellogg,
by
William W. Lowe,
Attorney.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WARREN T. KELLOGG, OF COHOES, NEW YORK.

ELECTRIC ALARM AND CALL BELL SYSTEM FOR HOTELS, &c.

SPECIFICATION forming part of Letters Patent No. 306,084, dated October 7, 1884.

Application filed February 19, 1884. (No model.)

To all whom it may concern:

Be it known that I, WARREN T. KELLOGG, of Cohoes, in the county of Albany and State of New York, have invented certain new and useful Improvements in Electrical Alarm and Call Bell Systems for Hotels and other Buildings, of which the following is a specification.

My invention relates to a system of electrical communications, by means of audible signals, between the office or other selected part of a hotel or other building or buildings and the different rooms thereof; and the objects of my improvements are, first, to provide a more perfect system for interchanging signals and alarms between the office and any or all of the other rooms; second, to render the apparatus for sounding the alarms in the rooms automatic in its action; third, to provide for each room containing an alarm-bell a suitable switch for automatically closing the line leading through said alarm-bell, which switch may be used, as occasion requires, for operating an annunciator or other apparatus placed in the office for communicating signals from the room to the office; and, fourth, to provide for the office a separate circuit-closer for each wire connecting with an alarm-bell, which circuit-closer may be automatically thrown out of action from the room to which it is appropriated. I attain these objects by means of the apparatus illustrated in the accompanying drawings, which form part of this specification, and in which—

Figure 1 is a skeleton diagram showing an arrangement and distribution of the various appliances used for accomplishing the purposes above set forth; Fig. 2, an enlarged front elevation of the automatic circuit-closing device. Figs. 3, 4, and 5 are enlarged details of a switching device for each room containing an alarm-bell; Fig. 6, a modified form of the latter. Figs. 7 and 8 are respectively a side elevation and a plan view of a combined circuit-closer and switch to be located in the office and used in connection with the separate lines of wires to each room containing an alarm-bell; and Figs. 9 and 10 are different modifications of the office switch-board.

As illustrated in the drawings, A represents a galvanic battery for furnishing the electric currents for effecting the different operations of my apparatus. Said battery may be made of any required power and located in any convenient part of a building. The latter for convenience of illustration is represented by simple boundary-lines in Fig. 1, and the several rooms are designated by means of words and numbers; but it should be understood that my improved system can without further invention be adapted to the requirements of any building or buildings, howsoever large, without regard to their contiguity or to the number and location of the various rooms.

B is an electrical alarm or call bell located in each room, with which communication to and from the office is required. Said electrical bells may be of any suitable construction, and each is provided with binding-posts b and b', or other suitable means for connecting the conducting-wires thereto.

C represents automatic room-switches, one of which is placed in every room that contains an alarm-bell, B. Said switch, as shown in Figs. 3, 4, and 5, is composed of a vibratile lever, C, which is provided at each end with a circuit-closer, c, and is pivoted to a non-conducting bed-piece, c', which contains contact-studs c^2, c^3, c^4, and c^5. A spring, c^6, is fixed beneath one end of the lever C for the purpose of depressing the opposite end of said lever, so as to keep the circuit-closer c at that end in constant contact with the studs c^2 and c^3, and maintain the electrical connection between the office and each alarm-bell in readiness for instant use, so that by proper manipulations at the office any or all of the alarm-bells can be operated therefrom whenever occasion requires. The circuit-closer c on the opposite or elevated end of the lever C is fitted to engage with the studs c^4 and c^5 whenever that end of the lever is depressed against the resistance of the spring c^6, for the purpose of communicating a signal from the room to the office through an ordinary electrical annunciator, D, such as is commonly used in hotels for that purpose.

E is an office switch-board, consisting of a non-conducting bed-piece provided with a metallic plate, e, which is electrically connected to one side of the battery A. Said switch-board is also provided with a series of metallic

plates, e', one for each room, which are fixed adjacent to, but disconnected from, the plate e, and each of them is electrically connected with a stud, c^3, of the switch C of its allotted room. Pin-holes e^2 are formed in the switch-board E between the adjacent edges of the plates e and e', and the latter are provided in said adjacent edges with concave indentations, which conform in shape and location to the pin-holes e^2, so that a metallic pin inserted in any of said pin-holes will complete the electrical connections between the plate e and any one of the plates e' against which the pin bears, and it is obvious that by inserting several pins the electrical current with a corresponding number of rooms may be maintained at the same time.

F is a conducting-wire leading from one side of the battery A, and electrically connected by the branch wires f to the binding-post b of each alarm-bell, and by branch wires f' to the stud c^4 of each room-switch; G, conducting-wires for electrically connecting the binding-post b' of each alarm-bell with the stud c^2 of its appropriate room-switch.

H represents conducting-wires for electrically connecting the stud c^3 of each room-switch with the plate e' allotted to the same room on the switch-board E in the office.

I represents conducting-wires for electrically connecting the stud c^5 of each room-switch with its appropriate drop or number on the annunciator D.

J is a conducting-wire for electrically connecting the opposite side of the battery A with the annunciator D, switch-board E, and other parts of the apparatus as require a return current to the battery to complete an electrical circuit.

The different directions of the currents of electricity are indicated by different arrows on Fig. 1—that is to say, the current from the battery A to the binding-posts b and studs c^4 through the wires F, f, and f', is indicated by unfeathered arrows; the currents from the binding-posts b', through the room-switches C, to the office switch-board E, through wires G and H are indicated by arrows feathered on one side; and the currents from the annunciator D, office switch-board E, and hand L of the time-indicating dial are indicated by double-headed arrows.

The operation of the above-described part of my invention is as follows: Whenever, from any cause, it is necessary to sound a signal on an alarm-bell, B, in any room, the clerk or other person inserts a metallic pin in the hole e^2 of the switch-board E that corresponds to the number of the room in which the alarm-bell is to be rung. By the insertion of said pin the electrical circuit leading from and to the battery A through the operating mechanism of the alarm-bell B in the designated room will be closed, and said bell will continue to ring as long as the circuit remains closed. If the occupant of the room desires to apprise the persons on duty in the office that he has heard the signal, or if he wishes to communicate with the office at any time through the annunciator D, he simply presses down upon the button c^7, thereby depressing that end of the lever C to break the circuit through the studs c^2 and c^3, thus cutting out that alarm-bell B and closing the circuit through studs c^4 c^5 to the annunciator D, giving to the person on duty in the office the required signal for withdrawing from the switch-board the pin which closes the circuit to his room. The moment the button c^7 is released the lever C will be tilted by the spring c^6 to close the connection between the studs c^2 and c^3, and thus the apparatus is automatically restored to a condition for an immediate use of the alarm-bell B in the manner just described.

In Fig. 6 I have shown a modified form of a room-switch which may be used as a substitute for the room-switch C, above described. In this modification the device has a swinging arm, C′, that is pivoted to a stud electrically connected to the wire G, above described. The arm C′ is held by the spring 1 against a stud, 2, that is electrically connected by the wire H to a plate, e', of the switch-board E, and the stud 3 is electrically connected by a wire, I, to the annunciator D. While the arm c' is in its normal position, as shown by the full lines on Fig. 6, the switch will be in condition for the ringing of its attached alarm-bell from the office, as above described, and when the arm C′ is swung over against the stud 3, as indicated by the dotted lines on Fig. 6, the circuit will be closed to operate the annunciator D, as hereinabove described.

While I have only shown these two constructions of self-acting switches that will, while the parts are in their normal positions, always keep the connection between the office and its connected alarm-bell in readiness for instant use, I am aware that many different modifications of such a device may be constructed to operate in substantially the same manner to effect the same purpose. Therefore I do not confine myself to any particular construction of such switches.

In Figs. 7 and 8 I show a combined circuit-closer and switch, of which several are to be used in the office instead of the switch-board E. (Shown in Figs. 1, 2, 9, and 10.) One of these devices is to be employed for each room containing an alarm-bell, B; and it consists of the following parts arranged as follows: A pair of electro-magnets, 4, is connected from one side by a wire, 5, to a plate, 6, which is also connected by a wire, H, that leads to the stud c^3 of its appropriate room-switch. The opposite side of the electro-magnets is connected by a wire, 7, to a stud, 8. A plate, 9, connected to the wire J, that leads to one side of the battery A, is provided with a spring-arm, 10, which has on its outer end an armature, 11, that is arranged to connect with the cores of the electro-magnets. Said spring-arm 10 is also provided with an adjusting-screw, 12, that is so arranged that when the spring-

arm is depressed to bring the armature 11 in contact with the cores of the electro-magnets, the point of the adjusting-screw 12 will be in contact with the stud 8, thereby closing the circuit through its connected alarm-bell B in the room to which the described device is specially appropriated, and that circuit will remain closed to produce a continuous ringing of its connected alarm-bell until the occupant of the room depresses the lever C of his room-switch, thereby breaking the circuit, the wire H, and permitting the spring-arm to resume its normal position. From the foregoing it will be seen that when this combined circuit-closer and switch is used the occupant of each room is enabled, by one simple movement of the lever C of his room-switch, to signal the office that he hears the alarm, and to automatically break the circuit to stop the ringing of the alarm-bell in his room. An automatic circuit-closer, which forms one part of my improved system of alarm and call bells, consists of a dial, K, made of any suitable non-conducting material, graduated to represent twelve hours and any required fractions of each hour by means of sectoral metallic plates *k*, which are electrically separated from each other, as clearly shown in Fig. 2, in which figure said dial is divided into half-hour graduations. The dial K is provided with a hand, L, that is an electrical conductor connected through its pivotal center to the wire J, that leads to the battery A. The said hand is so arranged that its point will bear successively upon the inner end of each of the sectoral plates *k*, and it may be moved by ordinary clock-work, or by any other suitable mechanism that will move it to correspond to the correct time of day. For the purpose of adapting the dial K for connecting with the switch-board E, each of the sectoral plates *k* may have one or several pin-holes, *k'*, made therein, each of said pin-holes being fitted to receive one of a coupled pair of pins, M and M', that are electrically connected by an insulated conducting-wire, *m*.

This part of my invention operates as follows: One of the pins, either M or M', is inserted in a pin-hole, *k'*, in the sectoral plate *k*, that represents the time at which the alarm-bell in any specified room is to be sounded, and the opposite pin of the coupled pair is inserted in the pin-hole e^3 of the plate *e'*, that is connected with the room in which the alarm is to be sounded; or, to be more definite, let it be understood that the occupant of room No. 1 requires to be awakened at two o'clock, the apparatus will then be connected as shown in Fig. 2, in which the pin M is fixed in one of the holes *k'* of the sectoral plate *k*, that designates that hour, and the opposite pin, M', is inserted in the plate *e'*, No. 1, then at two o'clock, when the hand L comes in contact with the sectoral plate *k*, that contains the pin M, the electrical circuit will be closed and the alarm-bell B in room No. 1 will begin to ring and continues so to do until the hand L has passed off from that sectoral plate, unless the circuit is sooner broken at the office.

While I have only described above this automatic circuit-closer and switch as operating to sound one of the alarm-bells, it is obvious that by inserting the necessary pins M and M' it will act automatically to sound the alarm-bells in any number of different rooms at the same time, or at different periods of time, as occasion requires.

In Fig. 2, in conjunction with Fig. 9, I show two modified arrangements for connecting the dial K with the switch-board E. In both of these modifications I employ a series of metallic bars or wires, k^2, each of which is permanently connected to its appropriate plate *k*, so as to become a part thereof and represent the same division of time. The said bars should be placed conveniently adjacent to the switch-board E and the required electrical connection between any of the bars k^2 and any of the plates *e'*, (which, as hereinbefore described, are connected to the rooms by the wires H,) by either of the means shown in the drawings, or by any means that is substantially the same—that is to say, on plates *e'*, Nos. 1 and 2, the connection between said bars and plates is made by means of short wires k^3, which run from plates *e'* to the required bar k^2 for plate *e'*, No. 3, a short wire, k^4, is permanently attached to the plate *e'* and to the center pivot of an arm, k^5, that is arranged to be moved around so that its outer end may be brought into contact with any of the metallic points k^6, that are fixed in an insulated dial, k^7, and attached to the wires k^2 separately. In Figs. 2, 9, the plate *e'*, appropriated to room No. 1, is connected with the five-thirty bar k^2; the plate for room No. 2 is connected with the four-thirty bar k^2, both of said connections being made by means of the wires k^3, and the plate for room No. 3 is connected through the dial k^7, by means of the arm k^6, to the six o'clock bar k^2; but it will readily be seen that all or any number of the rooms may be temporarily connected to any one of the bars k^2, and it is evident that the instant the hand L touches a plate, *k*, to which a plate, *e'*, is connected, the alarm-bell B, that is connected with said plate, will begin to ring.

While I have only shown and described the dial K as being a stationary one having a conducting-hand, L, adapted to revolve so as to bear against each of the sectoral plates *k* in succession, I contemplate using in some instances an arrangement wherein the dial K is made to revolve by clock-work once in twelve hours, so as to bring the plates *k* successively in contact with a stationary electrified hand, L, and when so arranged the plates *k* are provided with standing flanges, each being curved to arcs of different radiuses, so that a flange on a plate, *k*, representing any specified division of time, will, as the dial attains the required position, be brought into contact with a standing point on a bar, k^2, appropriated to the same division of time.

In Fig. 9 I show a modification of the switch-board E, which modification consists in several separate slides, e^4, which are attached to the plate e, and adapted to slide up and overlap and close the circuit with its corresponding plate, e', thereby dispensing with the use of the pins in the pin-holes e^2 for closing the circuits.

In Fig. 10 I show another modification of the switch-board E, the same being designed for sounding, in case of fire or other emergency, a simultaneous alarm in all the rooms. Said modification consists of a long sliding plate, e^5, which is attached to the plate e, and adapted to slide up into electrical contact with the several plates e' at one time, and thereby the closing of the circuits between the office and all the rooms will be effected simultaneously. Instead of a separate sliding plate, e^5, it is obvious that the plate e may be arranged to slide up into contact with the several plates e' by one movement, or a wire or other metallic bar may be inserted in the space between the adjacent edges of the plates e and e' to effect the simultaneous ringing of all the alarm-bells. Therefore I do not confine myself to any special device for simultaneously closing the several circuits and effecting a simultaneous ringing of all the alarm-bells.

What I claim as my invention is—

1. In a system of alarm and call bells, the combination, with electric bells located in various rooms, a switch-board located at a central station or office, and connections, as described, for completing the bell-circuit through one or more room-bells, the bell-circuits being normally open at the switch-board, an annunciator located at the central office, the annunciator-circuits being normally open in each room, and a room-switch held normally in each bell-circuit, and adapted to be operated so as to break said circuit and close the annunciator-circuit, returning automatically to its original position when released, substantially as described.

2. In a system of alarm and call bells, the combination, with electric bells located in various rooms, a switch-board located at a central station or office, and connections, as described, for completing the circuit through one or more room-bells, the bell-circuits being normally open at the switch-board, an annunciator located at the central office, the annunciator-circuits being normally open in each room, and a room-switch interposed in each bell-circuit, and adapted to be operated so as to break said circuit and close the annunciator-circuit, substantially as described.

3. In a system of alarm and call bells, the combination of a dial provided with separate metallic plates arranged to represent hours or other divisions of time, and a hand electrically connected, as described, of a series of bars or wires, k^2, extending from the several plates, studs k^6, electrically connected to the said wires and fixed in an insulated dial, k^7, and a movable arm, k^5, electrically connected to the office switch-board, substantially as shown and described.

4. In a system of alarm and call bells electrically connected, substantially as described, an office switch-board, E, consisting of a base-plate of insulating material, a series of metallic plates, e', mounted thereon, each connecting with a separate call-bell, the insulating-plate being provided with holes for the reception of metallic studs e^2, and a sliding circuit-closing plate, e^5, whereby, by inserting the appropriate studs, any desired number of alarm-bells may be rung simultaneously, the rest remaining unrung, substantially as shown and described.

WARREN T. KELLOGG.

Witnesses:
HENRY A. STRONG,
LEES WRIGLEY,