

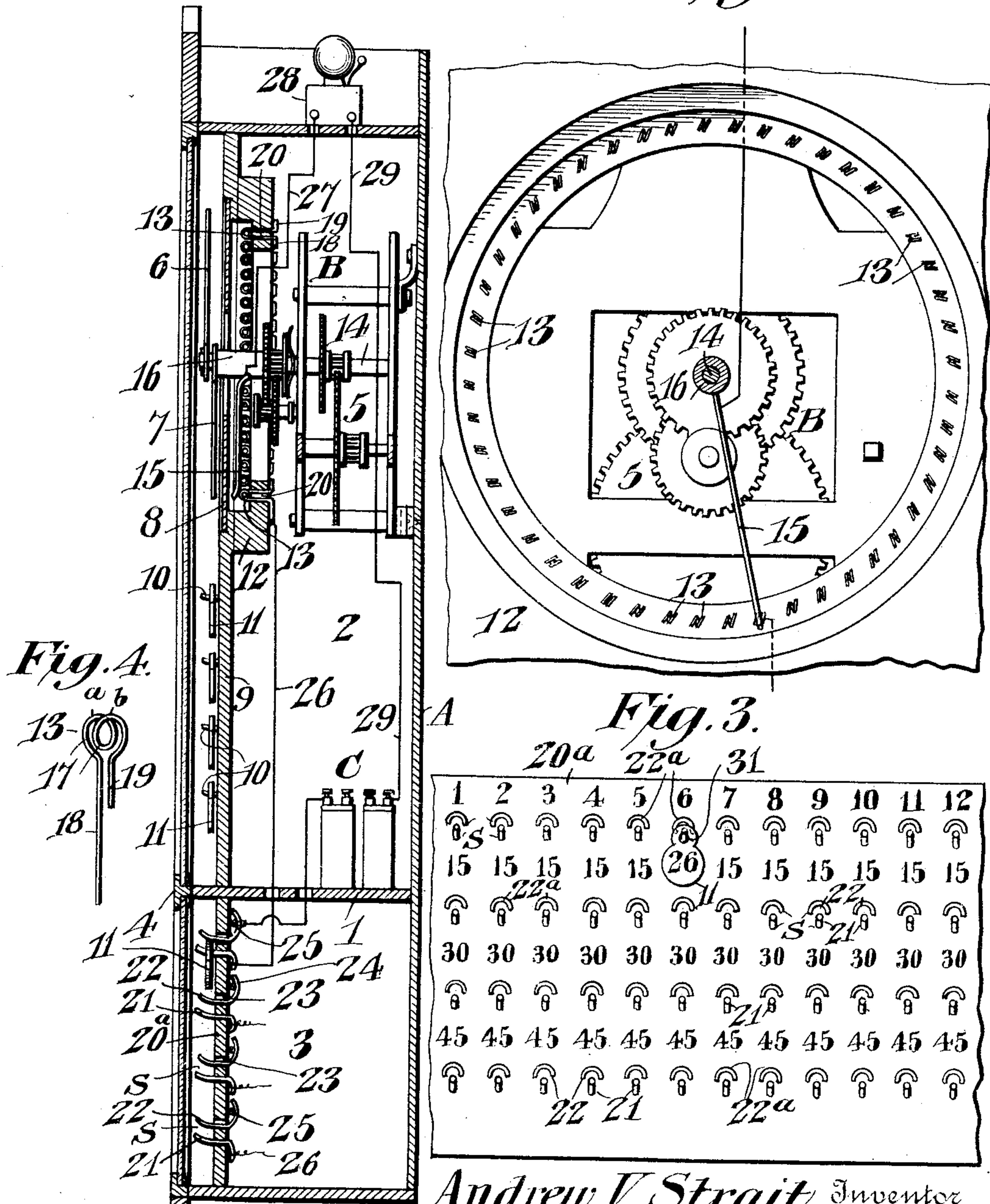
A. V. STRAIT.
 SWITCH MECHANISM FOR ELECTRICAL ALARM APPARATUS.
 APPLICATION FILED FEB. 27, 1909.

945,634.

Patented Jan. 4, 1910.
 2 SHEETS—SHEET 1.

Fig. 1.

Fig. 2.



Witnesses
Jas. M. Cathran
C. Bradway.

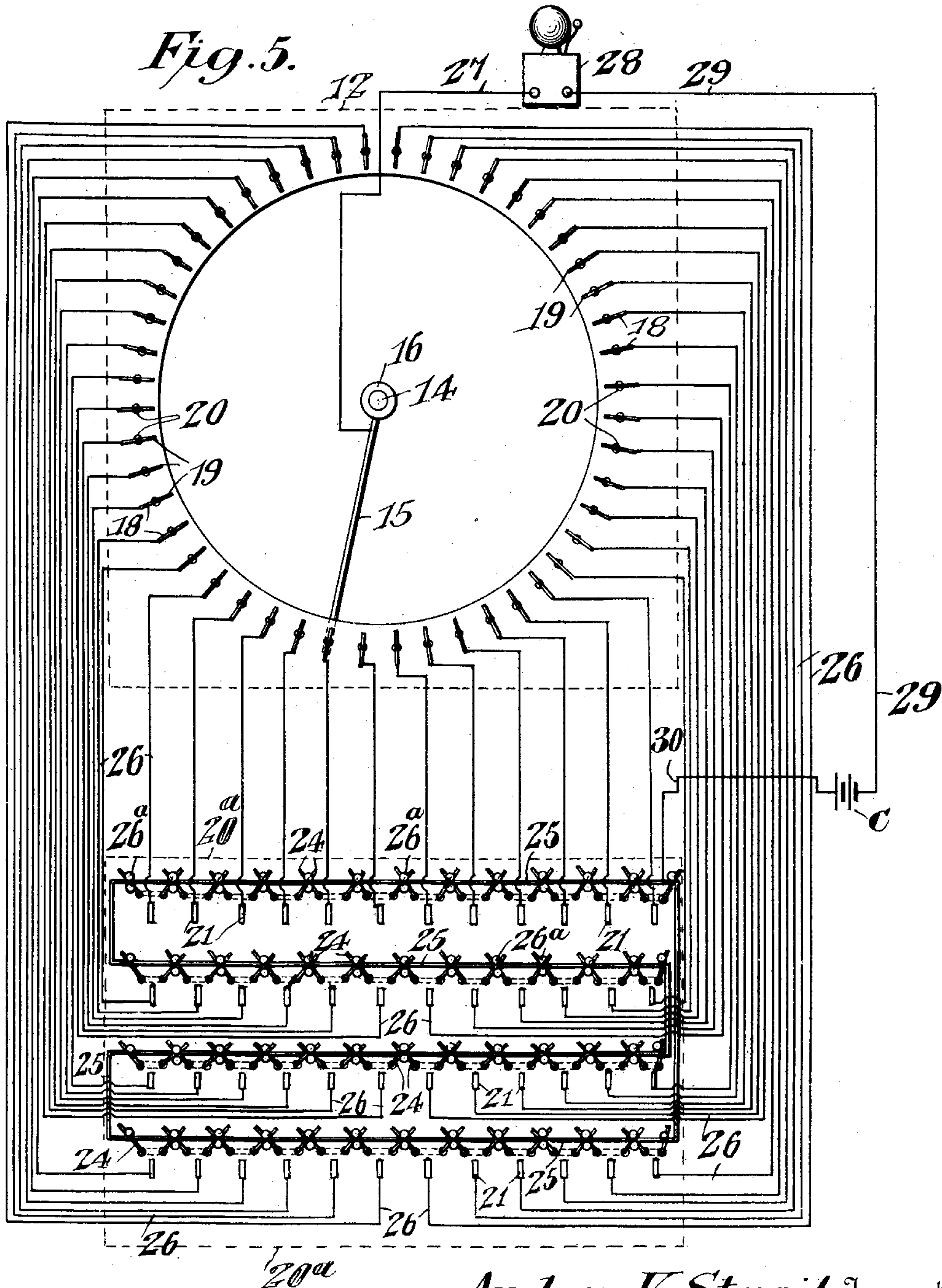
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UNITED STATES PATENT OFFICE.

ANDREW V. STRAIT, OF SIDNEY, NEW YORK, ASSIGNOR OF ONE-FOURTH TO WILLIAM BRONK AND ONE-FOURTH TO FRANK A. WILLIAMS, OF ONEONTA, NEW YORK.

SWITCH MECHANISM FOR ELECTRICAL ALARM APPARATUS.

945,634.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed February 27, 1909. Serial No. 480,348.

To all whom it may concern:

Be it known that I, ANDREW V. STRAIT, a citizen of the United States, residing at Sidney, in the county of Delaware and State of New York, have invented a new and useful Switch Mechanism for Electrical Alarm Apparatus, of which the following is a specification.

This invention relates to an electric call clock which automatically actuates a bell or other signal at a predetermined time and which is designed more especially for use in hotels, lodging houses and the like for enabling the office clerk to call the guests at the appointed time for rising, and while the invention is particularly useful in this connection, it is to be understood that certain of its features may be employed in connection with electrical alarms and indicators for boiler pressure devices, thermostats and the like.

The invention has for one of its objects to improve and simplify the construction and operation of apparatus of this character so as to be comparatively simple and inexpensive to manufacture, reliable and efficient in use, and readily manipulated.

Another object of the invention is the provision of an improved switchboard for time clocks and the like including especially designed contacts whereby a room number check or similar device can be applied to the contacts to electrically connect them so that upon the closing of the alarm circuit by a contact arm or supplemental hand of the clock mechanism, the signal will be sounded.

An additional object is the employment of a novel form of contact point used in connection with the clock-actuated contact hand whereby an effective current-conducting engagement can be obtained.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of the invention,

Figure 1 is a central vertical section of the apparatus. Fig. 2 is a fragmentary front elevation of the clock with the dial removed. Fig. 3 is a front view of the switchboard. Fig. 4 is a perspective view of one of the hand-engaged contacts of the clock. Fig. 5 is a diagrammatic view of the circuit connections.

Similar reference characters are employed to designate corresponding parts throughout the views.

Referring to the drawings, A designates the casing of the clock which is of any approved construction or design and the casing is divided by a partition 1 into the clock-works compartment 2 and a switchboard compartment 3, there being a glazed door 4 at the front of the casing for providing access to the clock-works and switchboard. Mounted in the upper part of the compartment 2 is a clock-works B of any approved construction including a train of gears 5 that turn the minute and hour hands 6 and 7, respectively, in timed relation, the hands moving over the number dial 8. Under the dial 8 is a check panel 9 provided with a plurality of hooks 10 for receiving the checks 11 that bear the numbers of the bed-rooms of the hotel, there being obviously as many checks as there are sleeping rooms.

Supported behind the dial 8 is a plate 12 of wood or other insulating material which is provided with a plurality of contacts 13 arranged in a circle concentrically around the arbor 14 of the clock-works so as to be engaged by an auxiliary hand or spring contact 15 secured to the hub 16 of the hour hand 7. The contacts 13 are arranged at suitable intervals apart so that the alarm circuit can be closed every hour or at intervals of fifteen minutes or less between the hours. Each contact 13 is constructed as shown in Fig. 4, and the same consists of a wire formed into two or more coils or turns bent around a common axis and of the same diameter, so that the points *a* and *b* will be in the same plane to insure the engagement of both by the spring contact 15, thereby making the closing of the circuit doubly certain. This form of contact provides resiliency so that a firm engagement

and consequently a better electrical contact can be obtained between the hand 15 and each contact terminal 13. The ends 18 and 19 of the wire of which the contact 13 is constructed are disposed parallel so as to be inserted through openings 20 in the plate 12, and the extremities of the members 18 and 19 are turned backwardly against the back face of the plate 12 so as to securely hold the contacts in place without the use of fastenings. The member 18 of the contact 13 is somewhat longer than the member 19 for the purpose of enabling the current-conducting wires leading to the switchboard to be spliced to the contacts.

The switchboard mounted in the compartment 3 comprises a panel 20^a of suitable insulating material and on this panel are arranged switches S, there being as many switches as there are hand-engaging contacts 13 on the clock.

As shown in Fig. 3, the switches S are arranged in horizontal rows and the switches of the upper row are numbered 1 to 12 inclusive to correspond with the hours of the clock, and the switches of the second row are numbered 15, those of the third 30, and those of the last row 45, so that by this arrangement the alarm signal can be closed at any hour or at intervals of fifteen minutes between the hours. Each switch S comprises a hook-shaped contact or supporting terminal 21 that projects forwardly from the panel 20, and disposed above the contact 21 is a contact or yielding terminal 22 constructed of a looped wire so disposed that the parallel members thereof are equidistant from the hook contact 21. The side members of each contact 22 are extended rearwardly through openings 23 in the switch-board panel and the rear extremities are bent flat against the rear side of the panel and the bent-up extremities 24 of each looped contact 22 are overlapped with the adjacent extremities of the adjacent looped contacts, so that all the contacts 22 of the switchboard cooperate to form a continuous current-conducting path. Passing under the rear extremities 24 of the contacts 22 is a common wire 25 which is employed as an additional means for securing electrical connection through the contacts, and this wire, as well as the extremities 24, are secured fixedly in place by fastenings 26^a, as shown in Fig. 5. The hook-shaped contacts 21 are connected respectively by wires 26 with the corresponding contacts 13 with which the hand 15 engages. The hand 15 is connected by a wire 27 with a signal such as a bell 28, which is, in turn, connected by a wire 29 with a suitable source of current, as for instance, the battery C, Fig. 4, the cells of which are mounted on the partition 1 behind the panel 9, the battery being itself connected by a conductor 30 with the

common wire 25, as shown in Fig. 5. The room number checks or tags 11 are each provided with an opening 31 so as to be received on any contact 21, and the upper portion of the tag or check has a curved edge disposed concentrically with respect to the opening 31 so as to engage both side members of the contact 22 of the switch on which the tag or check is placed, the distance between the opening 31 and the concentric edge of the tag being greater than the normal distance between the contacts 21 and 22 to the switches, so that when a tag is applied to a switch, it is necessary to force the contacts apart to accommodate the tag and thereby insure firm engagement between the contacts and tag for providing good electrical connection between them. The front extremity of each contact 22 is bent upwardly into a lip 22^a for facilitating the placing of the tag or check in the switch.

In practice, let it be assumed that the guest of the hotel who is occupying room 26 desires to be called the next morning at six o'clock. The hotel clerk is informed of this fact and he takes the check for room 26 from the check board 9 of the clock and applies it to the switch immediately under the number 6 of the switchboard. By this means, the continuity of the electric circuit is completed at the switchboard so that when six o'clock arrives, the hand 15 of the clock-works will engage the contact point 13 opposite the 6 on the clock dial, thereby completing the circuit and energizing the bell so that the hotel clerk will be informed that the hour has arrived for calling the guest in room 26. The switches are so constructed that several checks can be placed in any one switch as when several guests desire to be called at the same time.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, I desire to have it understood that the apparatus shown is merely illustrative and that such changes may be made when desired as are within the scope of the claims appended hereto.

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

1. In apparatus of the class described, the combination with an upright base, of an outstanding electrical supporting terminal projecting from the base, a yielding outstanding contact terminal also projecting from the base, said yielding terminal being dis-

posed above and in spaced relation to the supporting terminal, and a metallic circuit-closing tag having an opening in its upper portion that receives the supporting terminal, the upper margin of the tag, between the opening and the upper edge, being wider than the space between the terminals and constituting an electrical connection between the same, the main body of the tag depending below the supporting terminal.

2. In apparatus of the class described, the combination with a base, of a plurality of terminals projecting from the base, a plurality of looped terminals, each cooperating with one of the projecting terminals and having side arms that pass through the base, said side arms having their rear ends outturned and connected to the side arms of the adjacent looped terminals, and circuit-closing devices arranged to connect the cooperating terminals.

3. In apparatus of the class described, the combination with a projecting terminal, of a looped terminal disposed adjacent to and spaced from the said projecting terminal, said looped terminal having side members located on opposite sides of the same, and a circuit-closing device adapted to be placed upon the projecting terminal and in engagement with the side members of the looped terminal, the said device constituting a conductor between the terminals.

4. In apparatus of the class described, the combination with a supporting terminal hook, of a spring looped terminal disposed adjacent to the hook but spaced therefrom, said spring terminal having side arms located adjacent to the hook and furthermore having its free end outturned to form a guide lip, and a metallic circuit-closing tag having a portion arranged to be placed upon the hook, said portion bridging the space between the hook and side arms and constituting an electrical connection between the same.

5. In an apparatus of the class described, the combination of a supporting member of insulating material, a contact mounted thereon and projecting from the plate, a second contact having spaced members arranged equidistant from the first contact, and a circuit connected with the contacts, with a metallic check having an opening for receiving the first contact and provided with a portion arranged to simultaneously engage both members of the second contact for completing the circuit through the contacts and check.

6. In an apparatus of the class described, the combination of a supporting base having apertures, a plurality of switches mounted on the supporting base, and circuits connected with the switches, each switch including spaced contacts, and a device engaged

between and electrically connected with the contacts, one of the contacts being composed of a looped wire having its members extending through the apertures and bent back against the supporting plate, the proximate bent-back extremities of adjacent contacts being arranged in engagement for providing a current-conducting path through all the contacts.

7. In an apparatus of the class described, the combination of a supporting base having apertures, a plurality of switches mounted on the supporting base, and circuits connected with the switches, each switch including spaced contacts, and a device engaged between and electrically connected with the contacts, one of the contacts being composed of a looped wire having its members extending through the apertures and bent back against the supporting plate, the proximate bent-back extremities of adjacent contacts being arranged in engagement for providing a current-conducting path through all the contacts, and a common conductor connected with all the said contacts to form a supplemental path for the current through the switches.

8. In an apparatus of the class described, the combination of a supporting base having apertures, single wire contacts passing through certain of the apertures, doubled wire contacts passing through the remaining apertures and having their extremities bent backwardly against the supporting base and contacting with each other whereby all the doubled contacts form a single current-conducting path, devices adapted to be supported on the single wire contacts and engage the doubled wire contacts for forming a bridging conductor between them, a group of contacts, wires extending from the contacts of the said group to each of the single wire contacts on the said supporting base, a member movable into engagement with the said group of contacts, a single wire connecting the said member with all of the doubled wire contacts and including a source of current.

9. In an apparatus of the class described, the combination of a supporting base having rows of apertures, single wire contacts passing through the apertures of one row, doubled wire contacts passing through the apertures of the other row and having their extremities bent backwardly against the supporting base to engage each wire with the adjacent wires to form a single conductor for current, a conductor electrically connected with the bent-back extremities, fastenings for securing the extremities and conductor in engagement with each other and fastened to the supporting base, a plurality of contact points, a wire leading from each point to one of the single wire contacts, a

member movable over the contact points to
engage therewith, a wire connected with the
member and said conductor and including a
source of current, and contact bridging de-
5 vices adapted to be inserted between the
single and doubled wire contacts for closing
the circuits.

In testimony that I claim the foregoing as
my own, I have hereto affixed my signature
in the presence of two witnesses.

ANDREW V. STRAIT.

Witnesses:

ANDREW SHELTON,
JENETTE B. SIMONS.