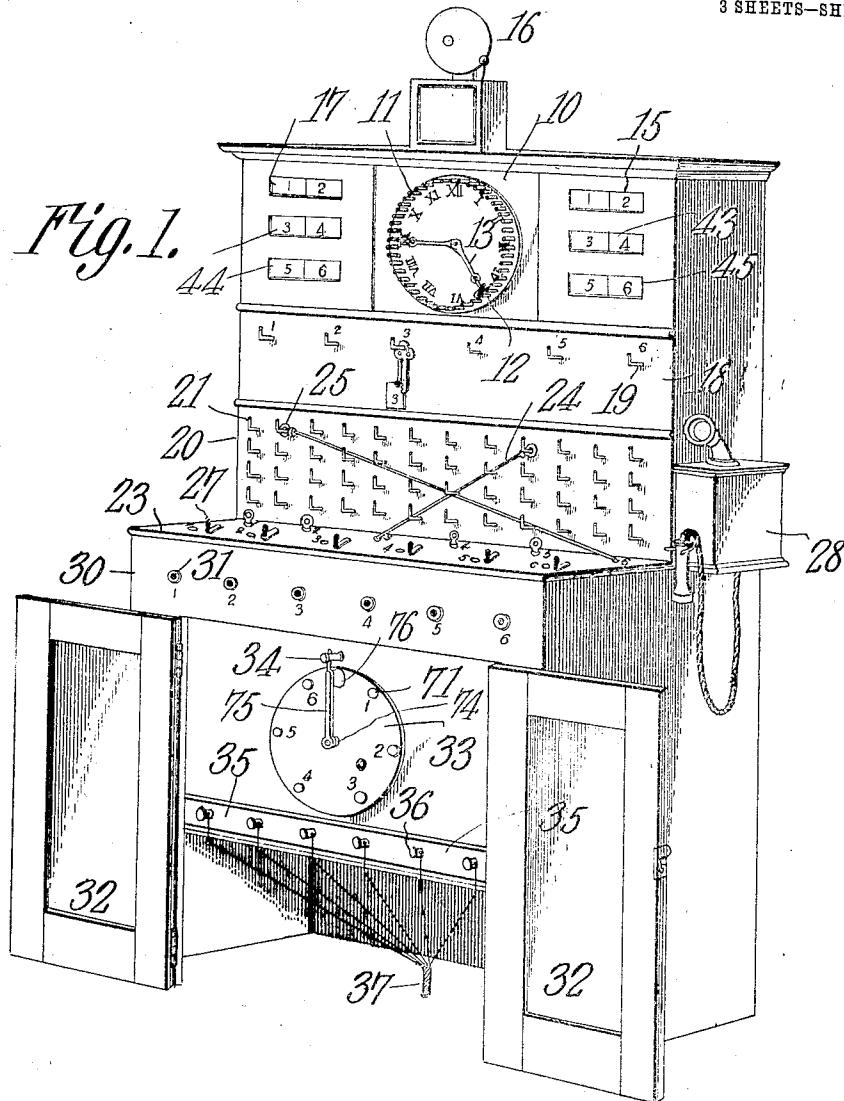


O. C. BAKER.
ELECTRIC CALL AND ALARM SYSTEM.
APPLICATION FILED MAR. 23, 1907.

933,412.

Patented Sept. 7, 1909.
3 SHEETS—SHEET 1.



WITNESSES:

E. W. Stewart
John C. Parker

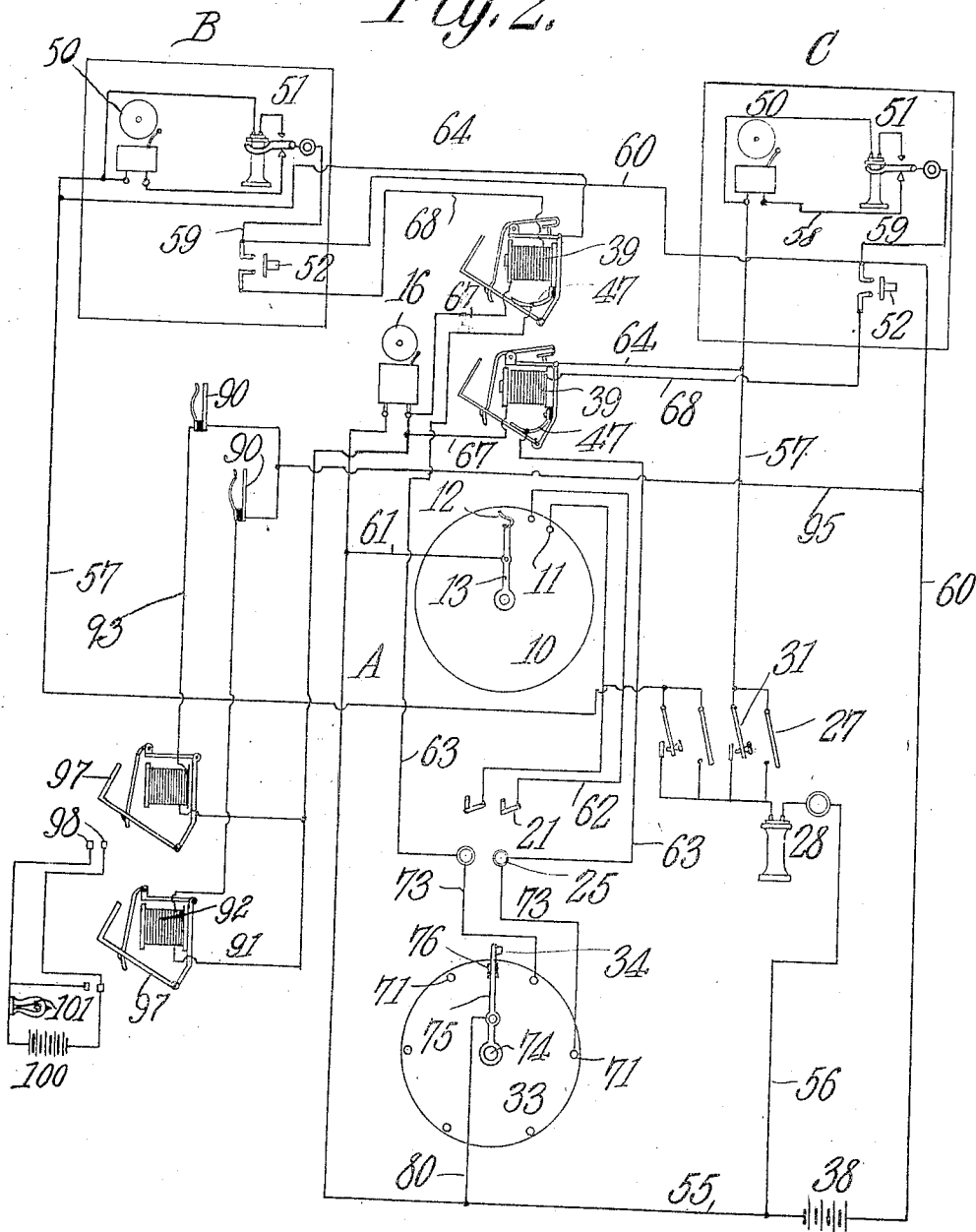
Otis O. Baker, INVENTOR.
By *C. A. Knowlton,*
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Fig. 2.



WITNESSES:

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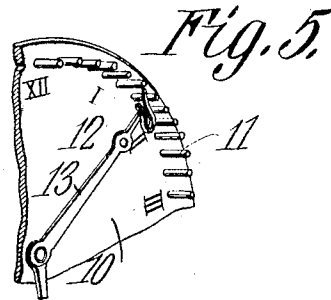
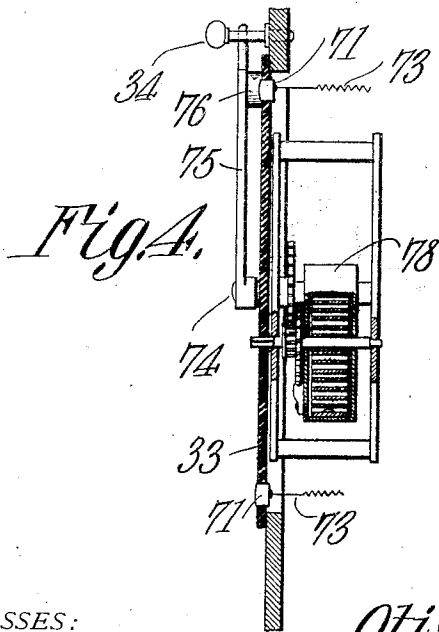
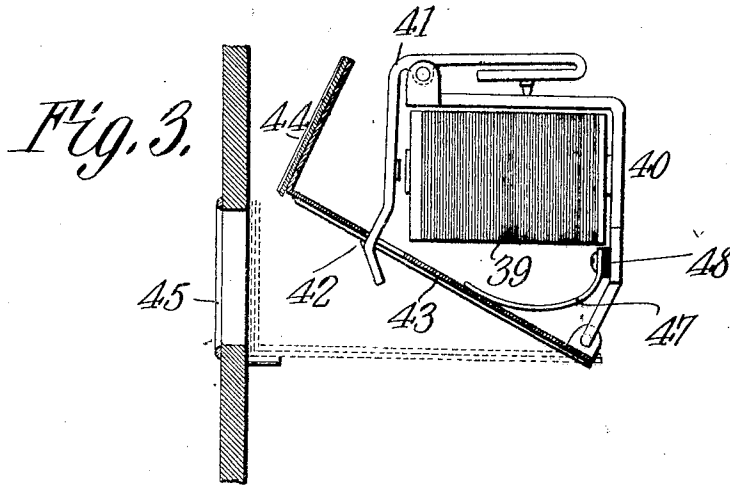
Otis O. Baker, INVENTOR.

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WITNESSES:

E. J. Stewart
Jno E. Parker

Otis O. Baker, INVENTOR.
By *C. A. Snow & Co.*
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UNITED STATES PATENT OFFICE.

OTIS O. BAKER, OF PORT ALLEGANY, PENNSYLVANIA, ASSIGNOR OF ONE-TENTH TO JOSEPH SILMAN, ONE-TWENTIETH TO DANIEL S. HELMER, ONE-TWENTIETH TO WILLIAM J. BARRHO, ONE-TWENTIETH TO MARK M. POMERY, ONE-TWENTIETH TO M. LAFAYETTE APP, ONE-TWENTIETH TO DANIEL MCCONEGHY, ONE-TWENTIETH TO MILES N. ALLEN, ONE-TWENTIETH TO BARBER D. ALLEN, AND ONE-TWENTIETH TO MANLEY C. FIELD, ALL OF PORT ALLEGANY, PENNSYLVANIA.

ELECTRIC CALL AND ALARM SYSTEM.

933,412.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed March 23, 1907. Serial No. 364,175.

To all whom it may concern:

Be it known that I, OTIS O. BAKER, a citizen of the United States, residing at Port Allegany, in the county of McKean and State of Pennsylvania, have invented a new and useful Electric Call and Alarm System, of which the following is a specification.

This invention relates to electric call and alarm systems adapted especially for use in connection with hotels and other large buildings.

One object of the invention is to provide a device of this class in which a circuit may be automatically closed by a clock work or similar mechanism at the clerk's office for the purpose of sounding an alarm in any desired room at any predetermined time, and to so arrange and construct the connections at the clerk's desk that any number of alarms in a corresponding number of rooms may be simultaneously sounded, if desired.

A further object of the invention is to provide a device of this class in which the alarm in the room will continue sounding until the circuit is broken from the room, so that when the device is used in hotels for calling guests it becomes necessary for the person in the room to press a button, close a switch, or the like, for the purpose of breaking the alarm circuit, the latter otherwise continuing sounding for a predetermined period of time, as, for instance, twelve to fourteen minutes.

A still further object of the invention is to provide a device of this class in which the breaking of the alarm circuit in the room will register the fact at the clerk's desk, and farther to so arrange the system that while the alarm circuit may be broken it will not in any manner interfere with free communication between the room and the desk.

A still further object of the invention is to so arrange the system as to permit free telephonic communication between the clerk's desk and any room either before or after the breaking of the alarm circuit.

A still further object of the invention is to so arrange the system that the same wires may be used in order to close circuit with a fire alarm mechanism, the latter being so ar-

ranged as to sound an alarm in every room to which the desk is connected.

A still further object of the invention is to utilize the wiring system for a burglar alarm, so that in the event of the opening of a window, door or other place where contacts are placed an alarm is sounded at the desk in the manager's room or in the watchman's office, and the point of entry or attempted entry indicated.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a perspective view showing the apparatus employed at the clerk's desk forming a part of a system arranged in accordance with the invention. Fig. 2 is a diagram of the wiring system between the clerk's desk and two rooms. Fig. 3 is a sectional elevation of one of the annunciator magnets showing the means for breaking the alarm circuit. Fig. 4 is a transverse sectional view of a portion of the fire alarm apparatus. Fig. 5 is a detail perspective view of the hour hand of a clock showing the manner of closing the circuits through the different rooms.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

In carrying out the invention, a suitable cabinet of the type shown in Fig. 1 is placed at the clerk's desk, said cabinet having at the upper central panel a suitable clock which serves for the purpose of automatically closing the different calling or alarm circuits through the rooms, and the clock dial being provided with a plurality of pro-

jecting contact pins 11 disposed preferably at quarter hour intervals and designed to be engaged by a yieldable contact 12 carried by the hour hand 13, and as the hour hand 5 rotates a circuit will be closed consecutively between the hour hand and the several contact pins 11. At the right hand side of the clock is arranged a series of annunciators 15, the construction of which is more fully 10 described hereinafter, these annunciators bearing numerals designating the different rooms of which there are supposed to be six in the present instance, and whenever a circuit is closed in a room by the pushing of a 15 button or the like, the annunciator indicator card of that room will be moved to display position and an alarm bell 16 at the top of the cabinet will be sounded in order to call the attention of the clerk. At the left hand 20 side of the cabinet is another series of annunciators 17 which are connected in the burglar alarm system, and which are moved to display the point of entry or attempted entry.

Extending across the full width of the cabinet is a key rack 18 having numbered hooks 19 on which the room keys may be hung in the ordinary manner. Below the key rack is a hook contact board 20. This 30 board carries a plurality of hooks 21, forty-eight in number in the present instance, and corresponding to the number of contact pins 11 of the clock dial. The first of these hooks is wired to the first contact pin 11 beyond 35 the hour number 12 of the clock, the second hook to the second pin, and so on around the entire dial.

Arranged below the panel or hook switch 20 is a switchboard 23 having openings for 40 the passage of flexible contact cords 24 that terminate in contact rings 25 which may be hung on the hooks 21, each of these cords 24 being preferably provided with a counterweight which may be arranged in the same 45 manner as in telephone exchange systems, and each cord is connected in the manner hereinafter described to a wire leading to a room or other point where an alarm is to be sounded. If a call is left for any hour the 50 clerk lifts the ring 25 belonging to the room in which the call is to be made, and places said ring over the hook 21 corresponding to the time at which the alarm is to be sounded, and these hooks 21 are of sufficient size to 55 accommodate any number of rings 25, so that, if necessary, the entire number of rings may be placed on a single hook if all of the guests are to be aroused at the same time, thus overcoming one of the principal difficulties of 60 existing systems of this type, where it is impossible to call more than one or two guests at the same hour.

In front of the rings 25 is a series of telephone switches 27, which are under the con-

trol of the clerk, and which may be closed by 65 hand for the purpose of opening communication between his telephone 28 and any of the room telephones, there being independent communication between the desk and each 70 of the rooms.

Arranged below the switch board 23 is a panel 30 bearing a number of push buttons 31 which are connected in the calling system in such manner that by pressing any one of 75 them the clerk may sound an alarm at any time in any of the rooms for the purpose of calling the occupant's attention, and if necessary for opening telephonic communication.

The bottom of the cabinet is provided with 80 a pair of doors 32 which are shown in open position, and when these are open, access may be had to a fire alarm apparatus 33 that is under the control of the clerk, this apparatus being so arranged that by withdraw- 85 ing a stop pin 34, the alarm circuit will be closed consecutively in the several rooms and a distinct alarm sounded in such rooms.

Below the fire alarm dial 33 is a connecting board 35 carrying binding posts 36 90 which are connected to the wires of a cable 37 which leads to a battery 38 located at any convenient point.

Each of the annunciator magnets of the group 15 is of the construction illustrated 95 in Fig. 3. The electro-magnet 39 is carried by a suitable frame 40 to which is pivoted an armature lever 41 having a hook member 42 that passes through an opening formed in a drop 43, and at the front of the drop is ar- 100 ranged a display card 44 which, when the magnet is energized and the armature withdrawn, will move to display position to the rear of an opening 45 in order to display the number of the room where the circuit has 105 been closed. The drop 43 is engaged by a contact spring 47 carried by an insulating block 48 that is secured to the frame 40 or any other convenient point, and when the annunciator is in the position shown in Fig. 110 3, circuit will be closed between the drop 43 and the spring 47, this pair of contacts being arranged in the circuit which leads from the clock to the alarm in the room, and when the guest closes his circuit by the depressing 115 of a button or the like and energizes the electro-magnet 39, the drop 43 will fall and the contacts will be separated, thus breaking the alarm circuit, as will hereinafter appear.

In the diagram, Fig. 2, A indicates the 120 clerk's desk and B and C two separate rooms or stations where alarms are to be sounded and with which communication may be established to and from the desk. In each of the rooms A and C is an alarm bell 50, tele- 125 phone 51 and a push button 52. Tracing first a straight circuit, that is to say, from one of the push buttons 31 to the alarm 50,

the circuit may be followed from the battery 38 to wire 55, wire 56, clerk's telephone 28, push button 31, wire 57, bell 50, wire 58, telephone 51, wire 59, to one contact of push button 52, and back from same contact of push button 52 through wire 60 to battery, thus showing that the alarm 50 may be rung by the closing of the button or switch 31 at the clerk's desk. If the clerk wishes to telephone to the guest, he closes the switch 27, thus cutting out the push button 31 and completing the circuit between the two telephones through the wiring just described. Tracing now an alarm circuit by the time mechanism, the circuit may be followed from the battery 38, through the wire 55, wire 61 to the clock frame and circuit closing hand, thence to one of the pins 11, wire 62, hook 21, ring 25, wire 63, contact spring 47, of the annunciator, the annunciator frame, wire 64 to wire 57, through bell 50, wire 58, telephone 51, wires 59 and 60 back to battery, so that when the circuit closing end of the clock engages the contact pin, the corresponding hook of which is connected to one of the rings 25, an alarm will be sounded in the room, and the alarm will continue to sound until the contact continues to pass from the peg or pin 11, there being a period of from twelve to fourteen minutes. If the guest wishes to cut off the alarm, it is necessary for him to press his button 52, and when this occurs, a circuit is closed which may be traced as follows:—starting from battery 38, through wire 55, the clerk's bell 16, wire 67, annunciator magnet 39, wire 68 to one side of push button 52, opposite side of push button 52 and back through wire 60 to the battery, thus closing a circuit through the annunciator magnet, and when the latter is energized it attracts its armature, permitting the drop to fall and move away from the contact spring 47, so that the alarm circuit is broken, and the alarm ceases to sound. At the same time, however, the breaking of the alarm circuit does not in the least interfere with free communication between the desk and the room, for at any time the button 52 may be pressed and the clerk's bell 16 sounded, or the clerk's button or switch 31 may be closed to sound the alarm 50 in the room.

In the diagram, Fig. 2, the circuits of two rooms have been shown, and the wire 60 is common to all of them, being a common return to the battery, so that there are three wires leading to each room, to wit, wires 60, 57, and 68, there being two separate wires 57 and 68 leading from each room to the clerk's desk, and a third wire 60 leading from the battery around through all of the rooms.

The fire alarm apparatus is best shown in Figs. 1 and 4, and includes a dial 33 bearing

contact points 71 of a number equal to the number of rooms, and connected to the several rings by wires 73, as shown in Fig. 2. At the center of the dial is an arbor 74 to the outer end of which is secured a contact arm 75 bearing a brush 76 which, when the hand rotates, will travel over all of the contacts 71 and close a circuit through each of the alarm circuits to each of the rooms. The hand is normally held from rotation by a removable pin 34 which may be drawn out of its socket by the clerk or other person in order to allow the hand to rotate. The inner portion of the arbor 74 is connected through suitable gearing to a motor mechanism preferably in the form of a spring motor 78, and when once the pin is withdrawn the motor mechanism may travel the arbor and the hand around until the power has exhausted, and an alarm circuit will be closed through the several bells 50 in successive order. The alarm circuit may be readily traced from the battery 38, wire 55, wire 60, arm 75, contacts 71, wires 73, wires 63, contact 47, annunciator frame, wire 64, wire 57, bell 50, wire 58, telephone 51, wire 59 and wire 60 back to battery, so that each individual alarm 50 will be sounded when the contact brush engages the contact 71.

For a burglar alarm the annunciators 17 at the left are employed and two of these annunciators are shown in the diagram, Fig. 2. At any suitable point, such as a window, door or adjacent to a safe or the like, are spaced contacts 90 which are normally out of engagement when the window or door is closed, but in an attempt to open the window or door these contacts will be moved into engagement and the circuit will be closed which may be traced from the battery 38 to wire 55, clerk's bell 16, wire 91, the electro-magnet 92 of the annunciator, wire 93, contacts 90, wire 95, and wire 60 back to battery, thus energizing the annunciator magnet, and at the same time sounding the alarm in the clerk's office, and for sounding a further alarm in the manager's or watchman's office through an extension bell. Each of the electro-magnets 92 is arranged adjacent to an armature, and when this armature is attracted it releases a drop 97 to display the locality or the point at which an attempt at entry has been made. When the drop falls it closes circuit between two contacts 98, that are arranged in circuit with a battery 100, and a lamp 101, so that the lamp circuit will be closed and a visible alarm employed as well as an audible alarm to attract the attention in the proper places.

It will be seen that with a system arranged in accordance with the present invention, the clerk may call any person at any time by depressing one of his push buttons and may open telephonic communication while the

guest may do likewise. The clerk by properly adjusting the rings 25 on the hooks 21 may cause the automatic sounding of an alarm at any room or any number of rooms at the same time, or at different times, and the guest may stop the sounding of the alarm without in any manner interfering with further free communication of the office. At the same time the wiring system is employed for the purpose of sounding both fire and burglar alarms, and in the latter case for indicating the point of attempt of entry.

I claim:—

1. In a system of the class described, an automatic circuit closer, an alarm, a circuit connecting the two, a pair of contacts included in said circuit, an annunciator having a movable member forming one of said contacts, an electro-magnet controlling the operation of said movable member, and an auxiliary circuit in which said electromagnet is placed, whereby on closing the auxiliary circuit the alarm circuit may be broken.

2. In a system of the class described, an automatic circuit closer, an alarm, an annunciator including an electro-magnet, and a movable member under its control, a pair of contacts, one of which is formed by said movable member, a circuit connecting the automatic circuit closer, the contacts and the alarm, and an auxiliary circuit extending

through the electro-magnet, whereby on closing the auxiliary circuit the alarm circuit may be broken.

3. In a system of the class described, an annunciator, and an automatic circuit closer arranged at the clerk's desk, an alarm, and a push button in each of the rooms, a circuit connection between the circuit closer and the alarm, said circuit being in part completed by a movable part of the annunciator, and a second circuit extending from the push button through the annunciator.

4. In a system of the class described, an automatic circuit closer, and a source of electrical energy at the clerk's desk, alarms in each of the rooms, an annunciator at the clerk's desk, a circuit leading from the automatic circuit closer to the alarm and under the control of the annunciator, a second circuit leading from the room through the annunciator magnet, and a common return wire leading through all of the rooms to the battery and from the battery to the mechanism at the clerk's desk.

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

OTIS O. BAKER.

Witnesses:

JNO. E. PARKER,
J. ROSS COLHOUN.