

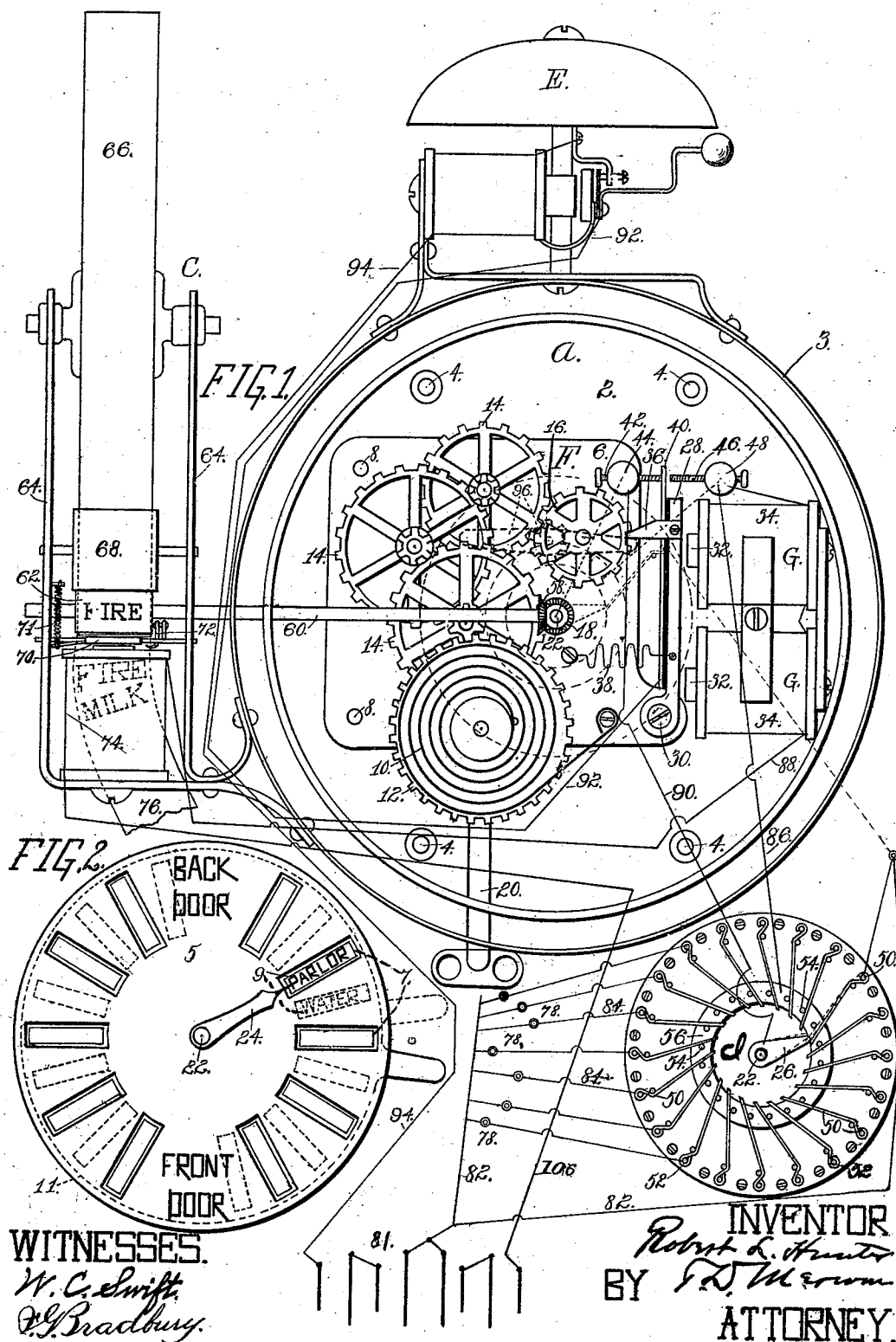
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3 Sheets—Sheet 1.

R. L. HUNTER.
ELECTRICAL ANNUNCIATOR.

No. 549,240.

Patented Nov. 5, 1895.



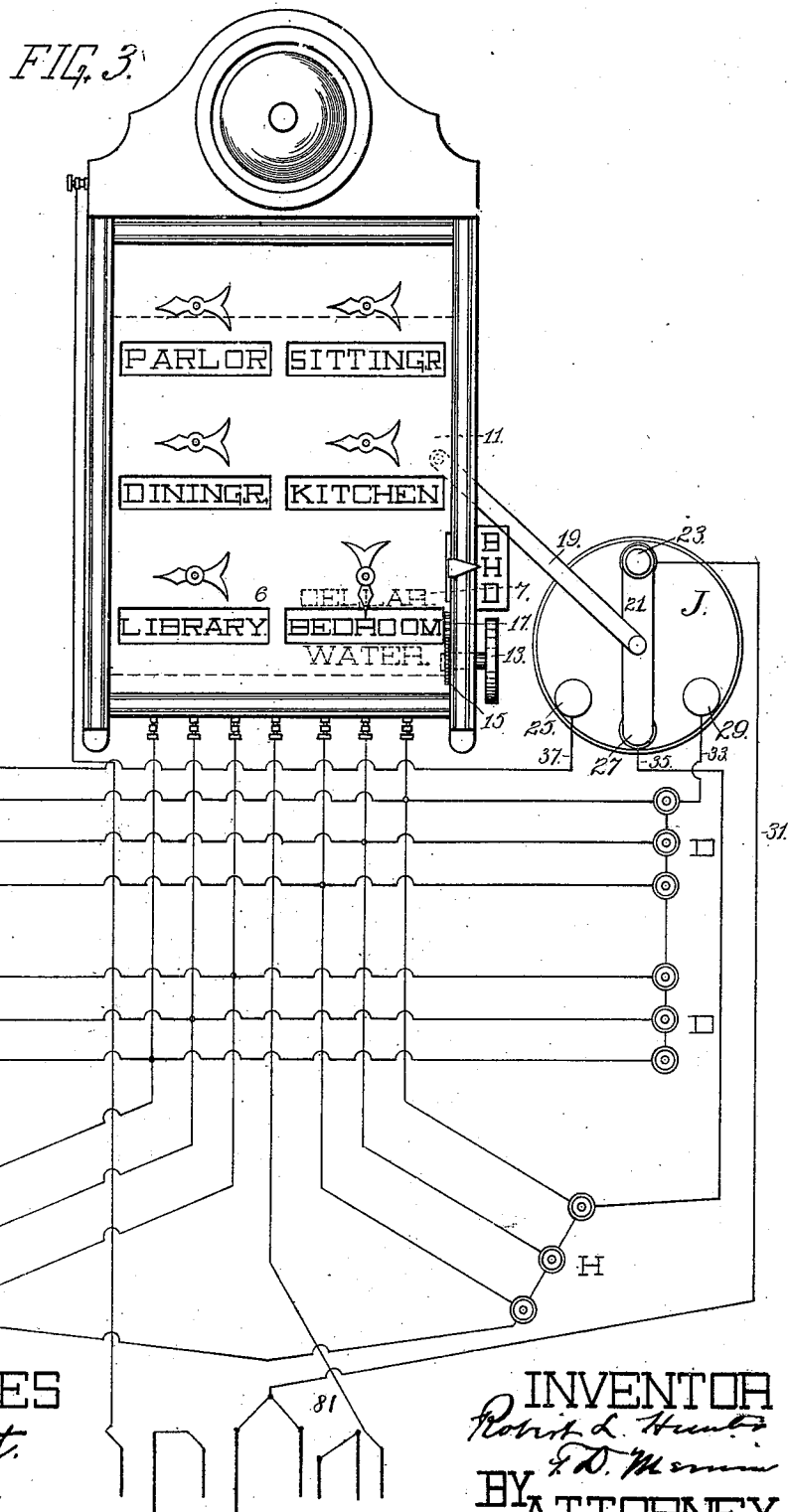
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WITNESSES
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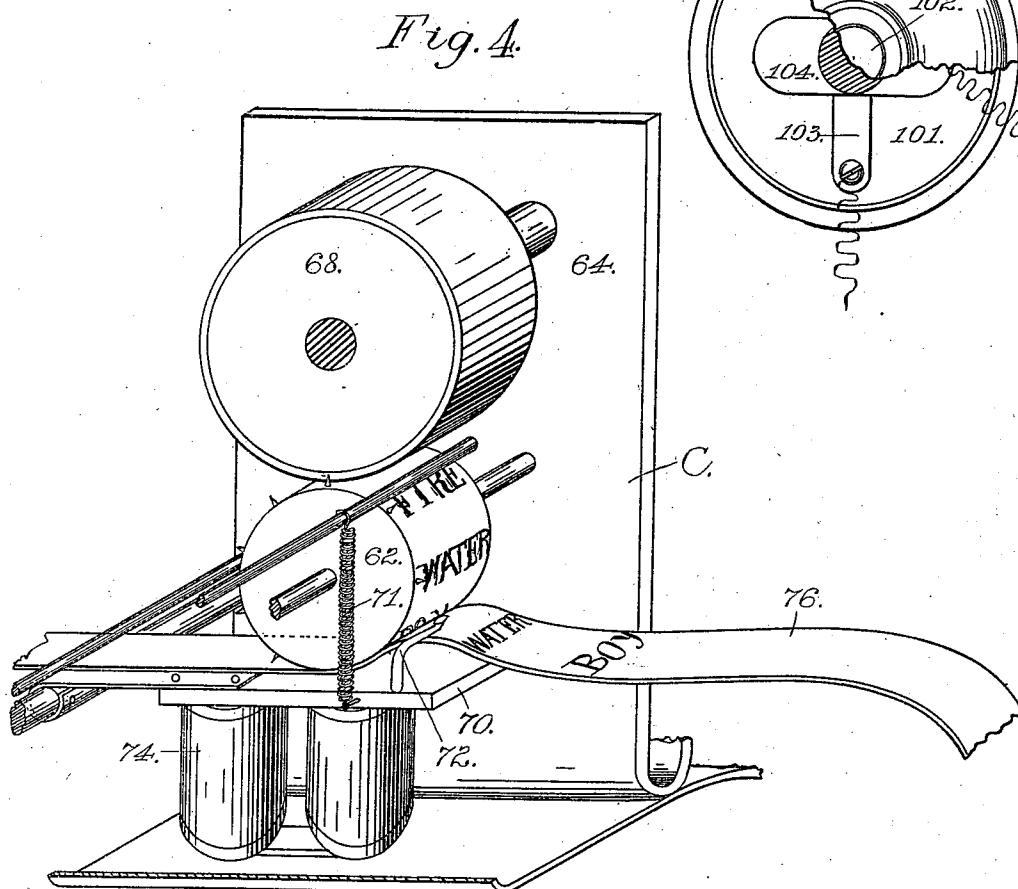
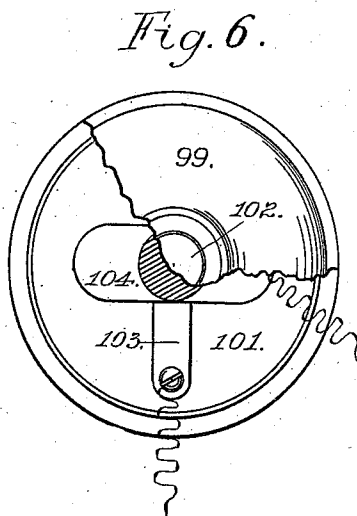
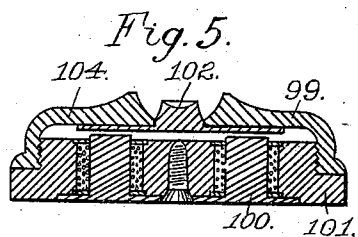
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W. C. Swift.

Inventor:

Robt. L. Hunter.
per: T. D. Mearns
Attorney.

UNITED STATES PATENT OFFICE.

ROBERT L. HUNTER, OF MINNEAPOLIS, MINNESOTA.

ELECTRICAL ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 549,240, dated November 5, 1895.

Application filed December 11, 1893. Serial No. 493,341. (No model.)

To all whom it may concern:

Be it known that I, ROBERT L. HUNTER, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Electrical Annunciators, of which the following is a specification.

My invention relates to improvements in electrical annunciators, its object being to provide an improved form of annunciator and a recording mechanism therefor; and it consists in the various features of construction hereinafter more particularly described and claimed.

In the accompanying drawings, forming part of this specification, Figure 1 is an elevation of my annunciator with the face removed to show the interior mechanism, the connected signal-bell and recorder, and detail of the central rear portion and diagrammatic illustration of the battery and connected wiring. Fig. 2 is a plan view of the dial. Fig. 3 is an elevation of an annunciator of slightly different form with a diagrammatic plan of wiring and connections therefor. Fig. 4 is a detail of the recorder. Fig. 5 is a sectional, and Fig. 6 is a partial, plan detail of the push-button.

In the drawings, A represents the annunciator made up of the base 2, adapted to be secured to any suitable support by means of screws 4. Upon this base the plate 6 is secured by means of the screws 8.

F is the clockwork mounted upon the plate 6, comprising the coil-spring 10, the gear-wheels 12, 14, and 16, the bevel-pinion 18, mounted upon the central shaft, and the winding-key 20. Operated by means of this mechanism is the shaft 22, carrying the indicator-needle 24 on the front end and on the rear end the switch-arm 26.

G is the electric magnet, having the cores 32 and the windings 34, and provided with the armature 28, mounted on the pin 30. The armature is provided with the spring 38, which tends to draw it away from the armature, and a dog 36, adapted to engage the gear-wheels 16 when drawn toward it by means of the spring 38. The armature also carries the insulated metallic strip 40, normally making contact with the screw 42, adjustable in the post 44, and also adapted when oscillated in the opposite direction by

the magnet G to make similar contact with the adjustable screw 46 and the post 48.

Arranged centrally on the base 2, as shown in Fig. 1, is the make-and-break mechanism comprising a series of springs 50, substantially radially arranged thereon, and insulated upon supports 52 to make electrical contact with the pins 54, and through them with the insulated metallic ring 56, to which the pins are secured, but adapted to be thrown out of contact with said pins by the switch-arm 26. The bevel-gear 18 meshes with the similar bevel-gear 58, mounted upon the counter-shaft 60, which carries the type-cylinder 62 of the recorder C, which is attached in any convenient way adjacent to the annunciator.

As shown, the sides 64 of the recorder are riveted to the casing 3 of the annunciator and supports, the shafts of the tape-wheel 66, the ink-roller 68, the type-cylinder 62, the armature 70, and paper-mover 72, and also carrying the magnet 74, which is energized at the same time with the annunciator-magnet G and draws the armature 70 from its normal pressure on the paper-strip 66 against the notation on the type-wheel 62.

In Figs. 5 and 6 of the drawings is shown a double-pole-magnet push-button 99, in which, when the button 102 is depressed, the armature 104 makes contact against the cores 100 of the magnet which project through the wooden base 101 of the button. The armature and button are normally held out of contact with the magnet by the spring 103, secured to the base 101. The current is conducted to the spring and through it to the armature, which, when it touches the magnet-cores, allows the magnet to touch them, and thence through windings and off through the circuit made thereby. The circuit thus made is therefore held closed until friction at some exterior point whereby the magnet will be de-energized and permit the spring 103 to pull the armature 104 away from it, thereby breaking the circuit. The push-button 78 is located at the room or station in which the call is to be made, which, when pressed, closes the circuit through the batteries 80, the main wires 82, the button, the branch wire 84, the corresponding spring-support 52, its spring 50, its pin 54, ring 56,

wire 86, post 48, magnet G, wire 88, printing-magnet 74, and wire 106 to the battery 80. By this current the magnet G is energized, which then attracts the armature 28, carrying the dog 36 out of engagement with the gear-wheel 16, permitting the clockwork F to start. The shaft 22 of the clockwork rotates the indicating-needle 24 and contact-breaking arm 26 until the arm presses the spring 50, corresponding to the push-button operating away from its pin 54. By the breaking of the current the magnet D is de-energized, and the spring 38 draws the arm 28 away from the magnet and thrusts the dog 36 again into engagement with the gear-wheel 16, thereby stopping the clockwork and further movement of the needle 24 and arm 26. The needle then indicates the call corresponding with the button operated, and the arm 26 holds the spring 50 out of engagement with its pin, thus breaking the magnet-circuit, but closing a new one through the spring 50, the arm 26, the wire 90, the post 44, the screw 42, the insulated armature-strip 40, the wire 92, the bell E, the wire 94, and the battery 80. The bell-circuit is also established through the push-button as follows: Through the wire 82, the push-button, wire 84, spring 50, pin 54, ring 56, wire 81, post 48, screw 46, insulated strip 40, wire 92, bell E, and wire 94 to the battery. After the arm 26 has carried the spring out of contact with its pin the bell may be rung without starting the machine by again depressing the button and establishing a circuit by the wire 82, the push-button, wire 84, spring 50, arm 26, wire 90, post 44, insulated strip 40, and thence through the bell to the battery, as in the previously-described circuit.

Since the recorder-magnet 74 is connected in series with the magnet G of the annunciator by the wire 88, it follows that when the magnet G is energized the magnet 74 is also energized, attracting the armature 70 from its pressure of the paper tape 76 against the type-cylinder and causing the hook 72 to guide the paper from the cylinder 62. When the magnet G is de-energized, causing the clockwork to stop, the recorder-magnet is also de-energized, allowing the armature 70 to be lifted by the spring 71, thus striking the paper tape 76 against the type-cylinder 62, thereby printing the call appearing on the dial, and also pressing the paper upon the small points 107 on the tape-wheel, so that the next rotation of the wheel will pull the paper along until it is taken from the points by the hook 72.

In the drawings are shown the circuit connections of the machine, recorder, and bell. After one of the push-buttons 78 has been depressed and the machine has been started and before it has made its indication the current flows through the signal-circuit in that one of the wires 82 connected with the push-button depressed, and through the button, wire 84, post 52, spring 50, pin 54, ring 56, and

wire 81 to the post 48, where the current divides, one part flowing through the wire 105 to and through the machine-magnet G, thence by the wire 88 to and through the recorder-magnet 74, and by wire 106 to the battery 80. The other portion of the current passes through the post 48, the screw 46, insulated strip 40, wire 92, bell E, and wire 94 to the opposite pole of the battery 80. The circuit is divided, having in one branch a repeatedly broken or interrupted current, such as that passing through the bell E, would, if the bell machine-magnet and recorder-magnet were connected in series at each break of the current permit the tension-springs 38 and 71 to pull their attached armatures 28 and 70 from the magnets G and 74 and into engagement with the gear-wheels 16 and type-wheels 62. This would in the first instance repeatedly stop and interfere with the action of the indicator, and in the second would blur the paper tape as it passes under the type-wheel; but by using instead of a series circuit a circuit divided just before the current passes to the machine and recorder-magnets causes a continuous current to flow through them until broken by the arm 26, when it makes contact with the spring 50, corresponding to the depressed button 78, and also permits a portion of the current at the same time to pass through and operate the bell mechanism E.

I show in Figs. 2 and 3 two styles of annunciators fitted with my improved dial, which serves to multiply the possible indications of the annunciator. This dial is composed of two plates, the front plate 5 having no indications printed thereon excepting those which are to be subject to indication at all times. For example, as shown in Fig. 2, the notations "back door" and "front door" are printed upon this plate. The plate is slotted, as at 7, to permit the printed notations 9 upon the rear plate 11 to be seen there-through. The front plate is stationary, but the rear plate 11, in the circular form shown in Fig. 2, is mounted to rotate parallel upon the central shaft, and in the rectangular annunciator shown in Fig. 3 is movable by means of a hand-wheel 13, actuating a gear-wheel 15, which in turn engages a rack 17 upon the rear plate. The notations 9 on the rear plate are disclosed by shifting it, so that they will register with the openings in the front plate. Connected to the rear plate 11 of the arm 19 is the switch J, with its main arm 21 turning on the post 23, and the outer end rubbing successively upon the posts 25, 27, and 29 in its rotation. These posts are connected, respectively, as shown in Fig. 3, by the main wire 31 with the battery 80, and by the multiple wires 33, 35, and 37 with the burglar, house, and dinner services, so that as the rear plate is shifted, showing either the burglar, house, or dinner indications, the switch J is shifted accordingly, connecting the machine in correspondence with the indications exhibited to the burglar,

house, or dinner services. The annunciator with the detachable dial may also be connected up without the switch J, when the main wire 31 would be run to all of the push-buttons directly. When so connected, the different services would be numbered 1, 2, 3, &c., and the person calling would give that number of rings corresponding to the service in which the calls were classed, whereupon the attendant would cut any such service and observe the indication of the needle or drop.

I claim—

1. In an electrical annunciator having an electric circuit composed of the main line and a plurality of branch lines in multiple therewith, a motor driven circuit changer for successively changing the circuit of said main and branch lines, and the electric magnet located in said main line for controlling the movement of said circuit changer, the recorder operated by mechanical connection with said circuit changer and having its electro magnet controlling the recording located in said main line.

2. In an electrical annunciator having the electric circuit, composed of the main line and the plurality of branch lines in multiple therewith, a motor driven circuit changer for successively changing the circuit of said main and branch lines, the electro-magnet in said main line controlling the movement of said circuit changer, the dial with a plurality of interchangeable series of notations which no-

tations are in correspondence with said branch lines, and the pointer in correspondence with said circuit changer for designating any of said notations, the recorder operated by mechanical connection with said circuit changer and having the electro-magnet controlling the recording located in said main line.

3. In an electrical indicator, the combination of a slotted front plate, an annotated rear plate with a plurality of sets of service notations thereon, means for shifting said rear plate so that the sets of notations severally register with the slots in the front plate, and a switch whereby other services are electrically cut out and that service cut in which corresponds to the set of notations then registering with the slots of the front plate.

4. In an electrical indicator, the combination of the main line, a plurality of normally open branch lines in multiple therewith, circuit closers in said branch lines, means for automatically breaking connection between said circuit and its branches, a recording device, and a motor driven shaft in mechanical connection with the pointer of said indicator, and actuating said recording device.

In testimony whereof I have hereunto set my hand this 27th day of November, 1893.

ROBERT L. HUNTER.

Witnesses:

C. H. WINSOR,
J. H. SHELDON.