

(No Model.)

3 Sheets—Sheet 1.

N. M. WATSON.
ELECTRICAL ANNUNCIATOR.

No. 471,986.

Patented Mar. 29, 1892.

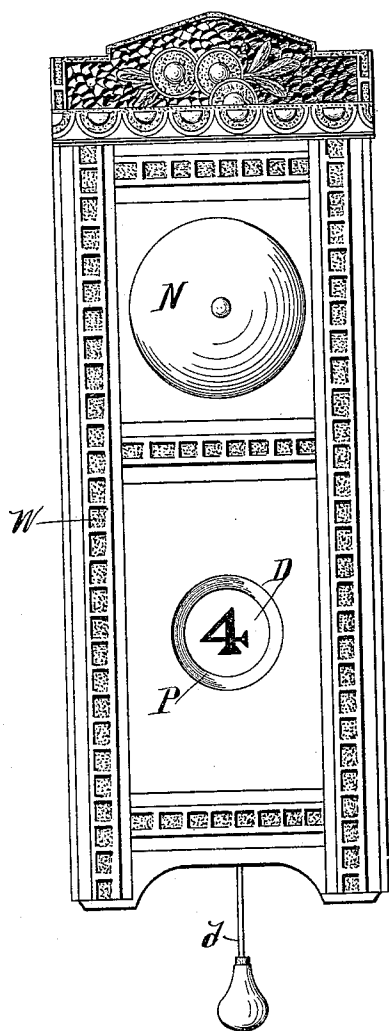


Fig. 1.

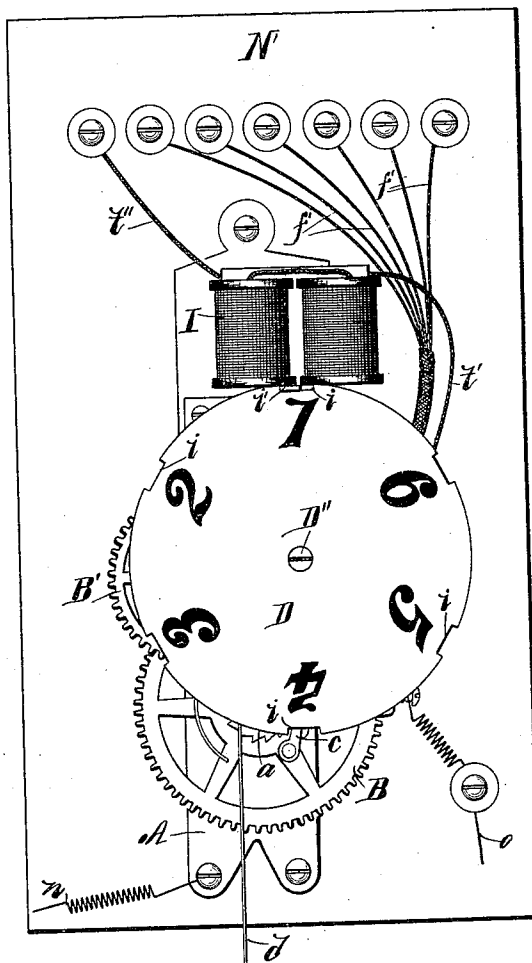


Fig. 2.

WITNESSES

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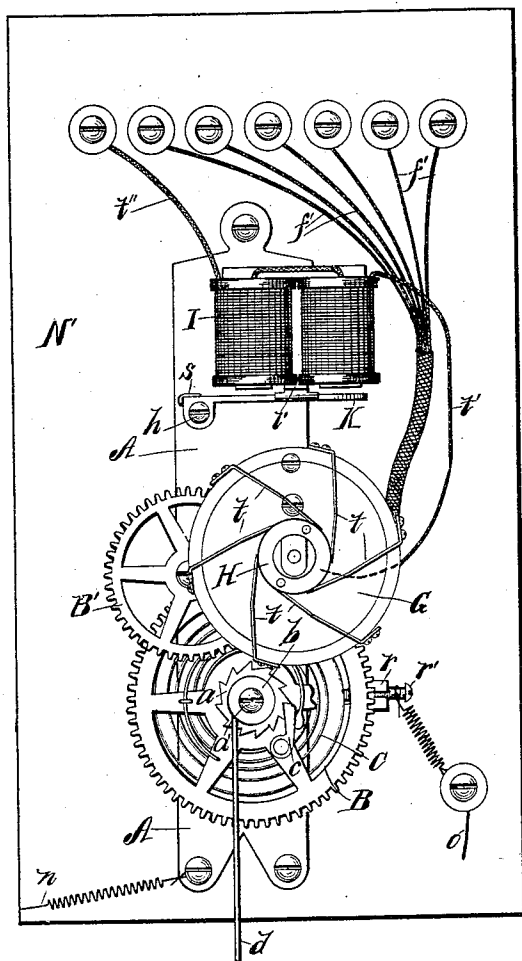


Fig. 3.

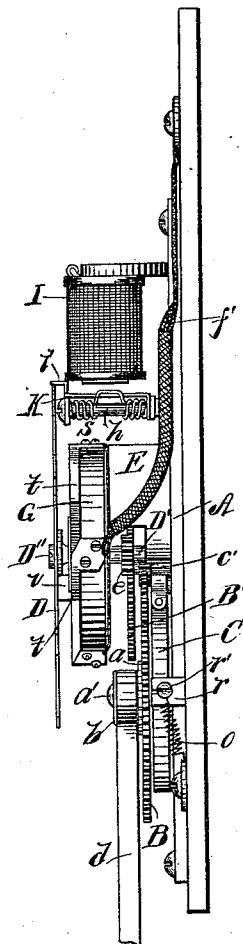


Fig. 4.

WITNESSES

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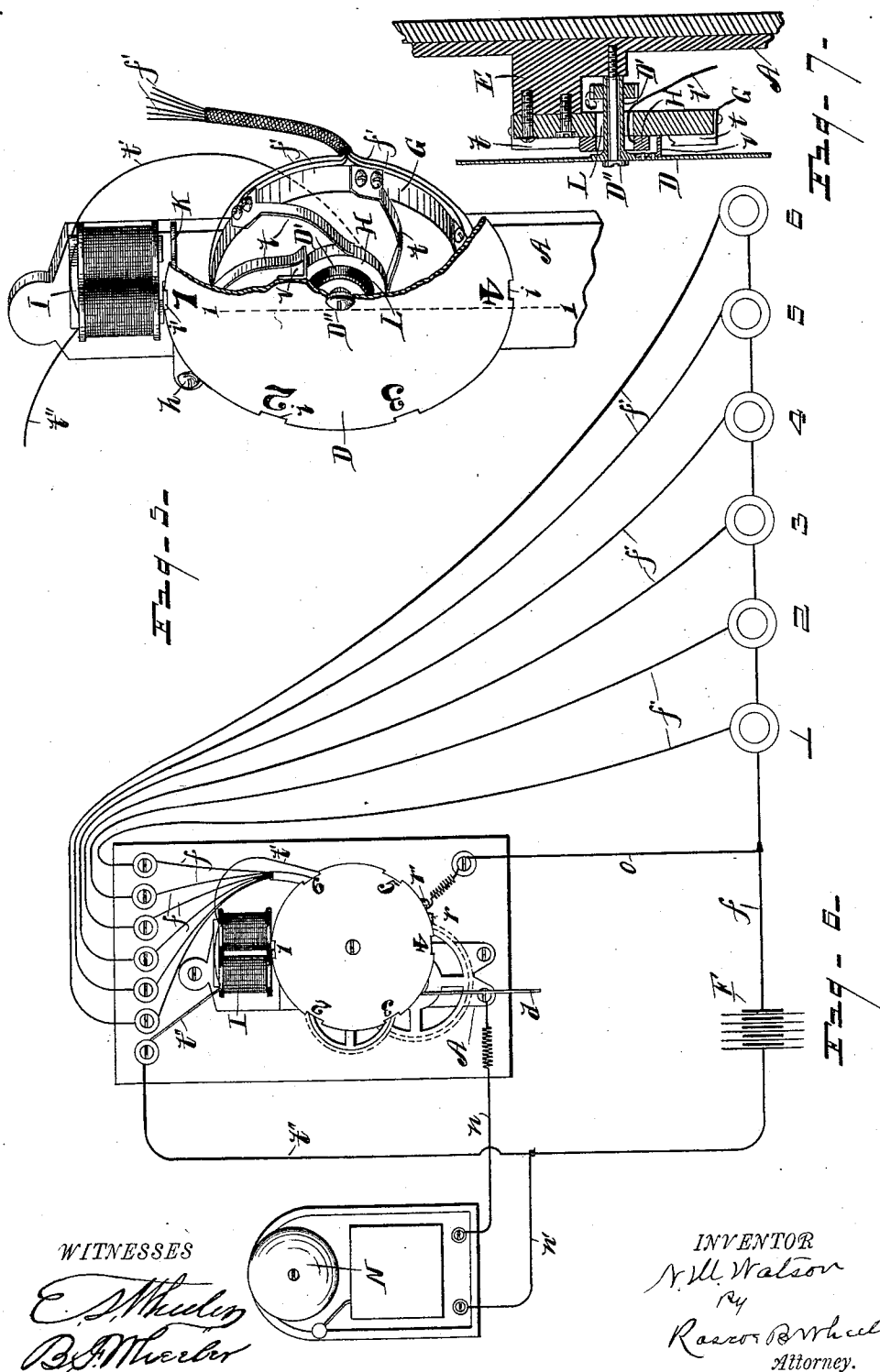
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

NELSON M. WATSON, OF DETROIT, MICHIGAN, ASSIGNOR OF THREE-FOURTHS
TO ALFRED H. HEATH, WILLIAM B. HEATH, AND SARAH A. MILLARD, OF
SAME PLACE.

ELECTRICAL ANNUNCIATOR.

SPECIFICATION forming part of Letters Patent No. 471,986, dated March 29, 1892.

Application filed January 2, 1891. Serial No. 376,544. (No model.)

To all whom it may concern:

Be it known that I, NELSON M. WATSON, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Electrical Annunciators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in electrical annunciators; and it consists in a certain construction and arrangement of parts hereinafter fully set forth, the essential features of which being pointed out particularly in the claims.

The object of the invention is to provide an electrical annunciator that does not require restoring after indicating the call and in which the numerals or characters that indicate the points from which the calls are sent are mounted on a revolving disk or agent, which is located in a suitable cabinet having an opening in its face, through which the called numeral or character only on said disk or agent is exposed when the call is sounded. This object is attained by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front view of a cabinet in which is located my improved annunciator. Fig. 2 is an enlarged front elevation of the annunciator mechanism removed from the cabinet. Fig. 3 is a like view with the revolving disk or agent removed. Fig. 4 is a side elevation of Fig. 2. Fig. 5 is a perspective view of a portion of the mechanism, a portion of the revolving disk being broken away to more clearly show the arrangement of parts. Fig. 6 is a general view showing a series of push-buttons or circuit-closers and the annunciator and call-bell located in an electrical circuit. Fig. 7 is a vertical cross-section on dotted line 1 1 of Fig. 5.

Referring to the letters of reference, A indicates a metallic base, on which is mounted

the operative mechanism of the annunciator and which is adapted to be secured to the base or back N' of the cabinet in which the annunciator is located.

B indicates a gear-wheel, which is driven by a coiled spring C, the inner end of which is secured to a sleeve on which the gear B is loosely mounted, said gear being connected with the sleeve through the ratchet-wheel *a* on said sleeve and the pawl *c*, mounted on the gear that engages therewith, (see Fig. 3,) said sleeve being supported by the post *a'*, that passes therethrough and is secured in the metal base A. On the outer end of said sleeve is a drum *b*, to which is secured the cord or strap *d* and on which said strap is wound as said drum is revolved by the unwinding of the spring C in actuating the mechanism and by means of which said spring is rewound by a downward pull on said strap, which winds said spring as it unwinds from said drum, as will be readily understood. The gear-wheel B meshes with a pinion *c'* (see Fig. 4) on the spindle carrying the gear B', which meshes with the pinion *e* on the sleeve D', carrying the disk D, whereby said disk is revolved, said sleeve and disk being journaled on the post D'', which passes therethrough and is secured in the block E, mounted on the base A.

F indicates an electric battery. Leading from said battery is a wire *f*, which extends to and into contact with each of a series of push-buttons or circuit-closers, (numbered from 1 to 6, inclusive,) as shown in Fig. 6. From each of said buttons leads a wire *f'* to the annunciator, each wire terminating in a spring-contact *t*, as shown in Figs. 3 and 5. Said spring contact-terminals *t* of the wires *f'* correspond in number with the push-buttons or circuit-closers and are mounted on an insulating support or base G, which is secured to the block or bracket E. The inner ends of all of said spring-contacts bear upon and are in electrical connection with a common center, which consists of a stationary metal hub or circular plate H, mounted on the insulating-support G, said plate being in electrical connection with the electro-magnet I through the wire *t'*, as clearly shown in

Figs. 5 and 6, said magnet being in electrical connection with the battery F through the wire t'' . (Shown in Fig. 6.) Thus it will be seen that when one of the push-buttons is actuated to close the circuit a circuit is formed from the battery F through the wire f and the button operated and through the connecting-wire f' of said button to the spring-terminal t of said wire, through said terminal, the annular hub H, and wire t' to the magnet I, and from said magnet to the battery through the wire t'' . The face of the disk D is provided with numerals or characters that correspond in number and character with the number of circuit-closers in the circuit, the perimeter of said disk adjacent to each character thereon being provided with a notch i .

The electro-magnet I is provided with a detent-armature K, which is pivotally mounted on the post h and is provided with a spring s , which normally holds said armature away from the magnet and retains the pin i' of said armature in contact with one of the notches i in the disk D, whereby said disk is restrained from revolution while the circuit is open. Depending from the under face of the disk D and in electrical contact therewith is a metallic lip v . Said lip stands some distance away from the perimeter of the plate or hub H, as shown in Fig. 7, and is adapted to consecutively lift the spring-terminals t from contact with said hub as said disk revolves, for the purposes hereinafter described. It will be seen on looking at Figs. 5 and 7 that the sleeve D' of the disk D passes centrally through the opening L in the hub H and the base or support G and is securely held from contact with said plate by the post D'' , on which said sleeve is journaled.

The operation of the device is as follows, reference being had more particularly to Figs. 1, 5, and 6: In practice the annunciator mechanism and call-bell N will be located in a suitable cabinet W, as shown in Fig. 1, the face of said cabinet having a sight-opening P, through which but one character on the disk D will be exposed at a time, as shown at Fig. 4. When any one of the circuit-closers shown in Fig. 6 is actuated to sound a call—say No. 1—a circuit is formed through said button, its connecting-wire f' , and spring-terminal t , and through the hub H, wire t' , magnet I, and to the battery through the wire t'' , as before described. The passage of the electrical current through the magnet I will energize said magnet and attract the armature K, which will raise the pin or projection i' of said armature from the notch i in the edge of the disk, when said disk will be revolved by the spring-actuated mechanism before described. As the disk revolves, the lip v on its under face will raise in succession the spring-terminals t from contact with the central hub H, and when it shall have raised the terminal t corresponding with the circuit-closer from which the call is sent, as shown in Fig. 5, the

current will be cut off from the magnet, when the armature by the force of its spring s will drop down and its pin i' will engage with the uppermost notch i in the edge of the disk D, thereby arresting the revolution of said disk, the arrangement of parts being such that the numeral or character on the disk adjacent to the notch in which the pin of the armature falls will correspond with or indicate the point from which the call is sent and such numeral or character will show through the opening P in the face of the cabinet W. When the lip v of the disk D lifts the spring-terminal t , through which the current is passing, from contact with the hub H, said current is switched into the disk through said lip and passes through the sleeve D' of said disk into the metallic base A, from which it is conveyed through the electric call-bell N and back to the battery by the wires $n n'$, when said bell will sound and will continue to ring as long as the circuit remains closed at any of the push-buttons or circuit-closers. It is evident that in the course of its use the spring C that drives the mechanism to revolve the disk will become unwound and at such time the device will become inoperative if provision be not made for indicating when the spring requires winding. To accomplish this a post r of insulating material is provided with a metallic screw r' , which is in continuous electrical connection with the battery through the wires $f o$. (See Figs. 3 and 6.) By this arrangement when the spring C has nearly spent its force it will have so expanded as to come in contact with the inner end of the screw r' , thereby forming a circuit through said spring, the base A, and wire n to the bell, which will sound as long as the spring C remains in contact with the screw r' , indicating that said spring requires winding, which is accomplished by a downward pull on the cord d , as before described. It will also be evident that there may be employed as many circuit-closers, spring-contacts t , and corresponding numerals on the disk, the size of the disk being increased to accommodate the greater number of characters, and that the circuit-closers or push-buttons may be located in various compartments of a building or in different buildings, as desired.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an electrical annunciator, the metal base having mounted thereon the base of insulating material, the latter base having a metal hub forming a good electrical conductor, combined with a series of spring-metal contacts, their free ends pressing against said metal hub, their opposite ends being coupled each to a wire within an electrical circuit and having a corresponding push-button, the revolving indicating-agent having numerals thereon and an indenture opposite each numeral, the conducting lip projecting from the

back face of the disk or revolving agent, means for rotating said agent, and the electro-magnet in said electric circuit, the armature thereof having means of engagement with the indentures of the revolving agent, substantially as specified.

2. In an electrical annunciator, the combination of the metal base, the annunciator mechanism mounted thereon and alone supported thereby, the conducting-ring insulated from said base and located in an electrical circuit having one or more branches communicating with said ring, a motor-driven indicating-disk mounted on a sleeve insulated from the conducting-ring but in electrical connection with said metal base, an electric bell located in a branch circuit of which the disk, sleeve, and metal base form a part, said disk having on its back face a conducting-lip that breaks the contact between the circuit-wires and the conducting-ring and diverts the current from said ring through the disk, sleeve, and base to the bell, as set forth.

3. In an electrical annunciator, the combination of the base carrying a metal hub insulated therefrom, a series of spring-contacts pressing said hub, a revoluble indicating-disk having a conducting-lip extending from its back face adapted to engage said contacts, indentures in its perimeter and characters on its outer face, an electric circuit communicating with the spring-contacts, and in which is located an electro-magnet having a detent-armature that engages in the indentures of said disk, a branch circuit having an electric bell, and the revoluble disk located therein, whereby the current is diverted from said hub through the indicating-disk to ring the bell and arrest said disk, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

NELSON M. WATSON.

Witnesses:

E. S. WHEELER,
R. B. WHEELER.