

Nov. 2, 1926.

F. E. DRISCOLE

1,605,653

ELECTRICALLY ACTUATED SOUND PRODUCING DEVICE

Filed March 24, 1922

2 Sheets-Sheet 1

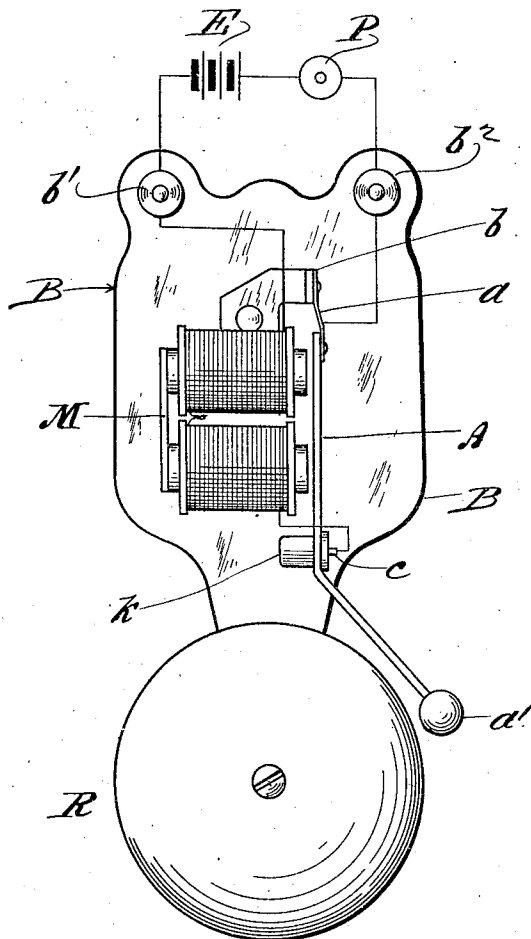
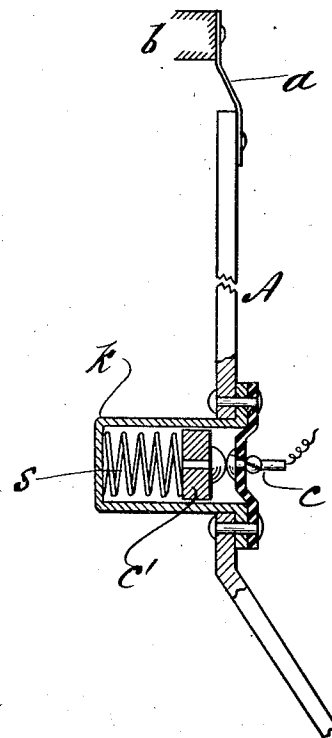


Fig. 1.

Fig. 2.



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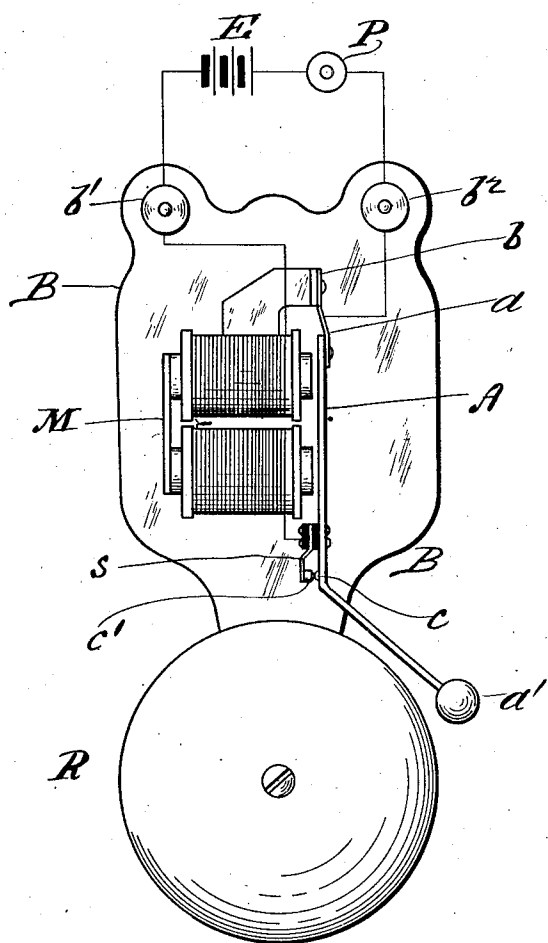


Fig. 3.

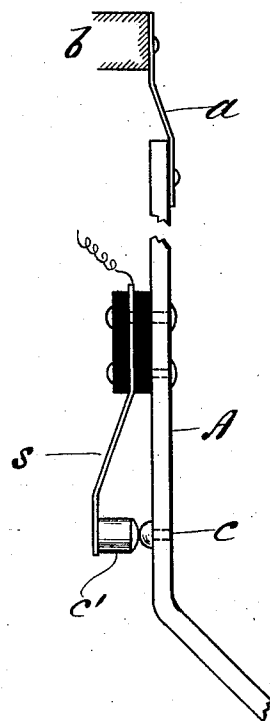


Fig. 4.

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UNITED STATES PATENT OFFICE.

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ELECTRICALLY-ACTUATED SOUND-PRODUCING DEVICE.

Application filed March 24, 1922. Serial No. 546,327.

While designed primarily for use in conjunction with electro-magnetic bells and analogous sounding devices, the essential features of my invention may be utilized in connection with induction coils and electrical appliances generally.

In the accompanying drawings:

Fig. 1 is a front elevation of an electric bell and connections, more or less diagrammatic and symbolic, illustrating a practical embodiment of the essential features of my invention;

Fig. 2 is a sectional detail, upon an enlarged scale, of the armature and conjunctive parts shown in Fig. 1.

I herein show and describe my invention for convenience of exemplification, as embodied in an electro-magnetic bell of standard type with the understanding that I do not confine myself thereto, since the essential features thereof may be utilized in conjunction with other and analogous intermittent electric current-control devices, appertaining to the art.

M, represents an electro-magnet of the type usually employed in electrically actuated sounding devices of the class herein designated, mounted on a base plate B, on which the bell, or equivalent resonator R, is also supported. A, is the armature pendently mounted on a resilient suspender *a*, such for instance as a flat metallic spring of suitable elasticity, secured to a bracket *b*, which is integral with the base plate B. The armature A, is provided with the usual striker arm and hammer *a'*, for vibratory contact with the resonator R.

b', *b''*, are binding posts on the base plate B, electrically connected with a battery or other suitable source of electricity E, and with a push button or any other desired form of electrical circuit closing device P. The binding post *b'*, is also electrically connected with the coils of the magnet M, said coils in turn being electrically connected in the arrangement shown in Figs. 1 and 2, with a contact *c*, rigidly mounted on the armature A, but insulated therefrom; the other binding post *b''*, being electrically connected with said armature A, upon which latter the relatively movable resiliently-mounted contact *c'*, is also positioned.

The closing of the circuit at P, energizes the magnet M, causing it to attract the armature A, resulting in a blow of the hammer

a', against the resonator R. When the hammer *a*, thus impinges against the resonator R, or the work thrust of the armature otherwise terminates, the momentum, acquired by the resiliently mounted contact *c'*, during said work stroke is sufficient to carry it out of engagement with the fixed contact *c*, thereby instantaneously breaking and opening the electric circuit for a period sufficient to deenergize the magnet M, and hence releasing the armature A, and allowing the latter to be retracted by its resilient suspender support *a*. The spring *s*, which forms the elastic resilient support for the relatively movable contact *c'*, however, immediately (in a practical sense) re-establishes said contact *c'*, in electrical connection with the fixed contact *c*, thereby again completing the electrical circuit, re-energizing the magnet M, and resulting in another operative cycle, so that the latter will be repeated continuously so long as the push button or switch P, is closed.

It will be seen in this connection that the gist of my invention consists in the provision of the resiliently mounted contact *c'*, whereby the current is instantaneously interrupted temporarily as soon as the hammer *a*, contacts with the resonator R, to be forthwith closed by the action of the spring *s*,—the interval of break or discontinuity of electric circuit being practically or relatively infinitesimal, although sufficient to release the armature A, preparatory to the next succeeding stroke. Thus successive strokes of the armature are attained with a minimum of interval therebetween, and with a minimum requirement and expenditure of electrical energy, the device being rendered supersensitive in this respect in that the electric circuit is opened by the impact of the hammer *a'*, against the resonator R, whereas in the prior state of the art sufficient magnetic force had to be provided to complete the hammer stroke after the break or opening of the circuit.

Hence my device for opening the circuit only at the completion of the armature stroke requires less initial current for successful operation, and all need of adjustment to compensate for weakening thereof is practically eliminated because there is no interval between the breaking of the electrical circuit and the impact of the hammer, or arrest of stroke of the armature as above set

forth. Furthermore, my device is positive in effecting the immediate reclosure of the electric circuit, thereby obviating loss of time in repetition of stroke, and hence more reliable and effective for ordinary purposes and conditions of use.

Where circumstances and conditions of use render the isolation and protection of the contacts c , c' , especially desirable, as where the sounding device is to be installed in situations exposed to the action of the elements, or to gaseous or oxidizing fumes or emanations, in which case I enclose said contacts c , c' , in a box or casing k , as shown more particularly in Fig. 2, by reference to which it will be seen that said casing k , forms an integral part of the armature with which it and the resiliently mounted contact c' , are in electrical connection, whereas the relatively fixed contact c , while also mounted on said armature A , is insulated therefrom. By this means both contacts c , c' , are pro-

tected against possible corrosion and impairment of function, as well as from contact with extraneous matter or objects, incidentally, also, rendering the device self-contained and fool proof in this respect.

What I claim as my invention and desire to secure by Letters Patent is:—

A device of the character described comprising a movably-mounted member, a casing inserted through an opening in said member and having a flange at one end bearing against and secured to said member, an insulating cover to the open end of the casing and secured to said flanges and member, a fixed contact carried by said cover within the casing, a movable contact within the casing, a slidable member carrying the last-named contact, and a spring interposed between the slidable member and the closed end of said casing.

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