(No Model.)

# H. B. COX.

## ELECTRICAL REPEATING BELL.

No. 372,657. Patented Nov. 8, 1887.

Fig. 1.

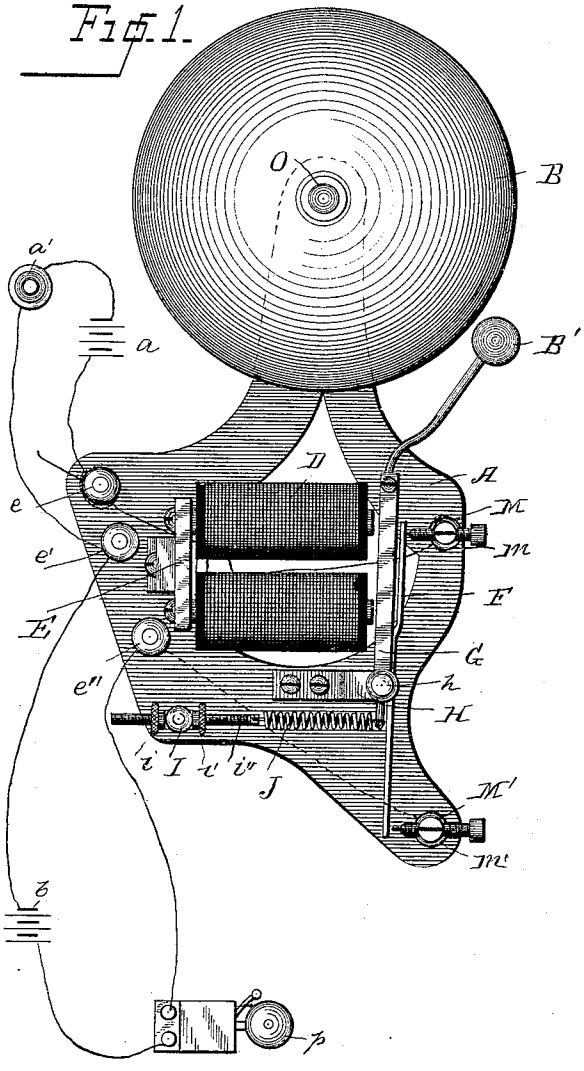
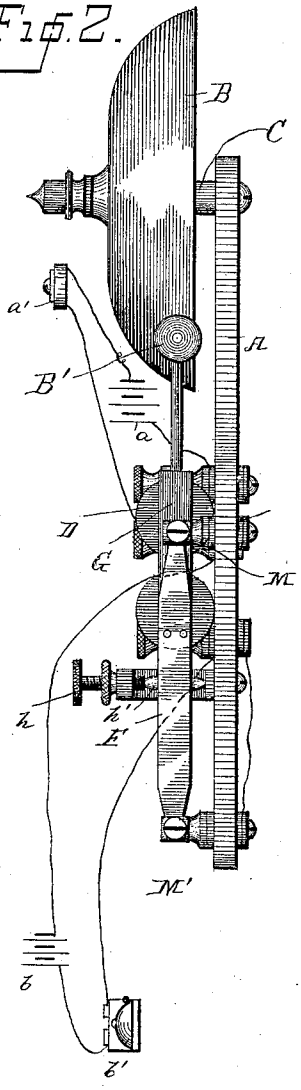



Fig. 2.




Witnesses
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# UNITED STATES PATENT OFFICE.

HARRY B. COX, OF CINCINNATI, OHIO.

## ELECTRICAL REPEATING-BELL.

SPECIFICATION forming part of Letters Patent No. 372,657, dated November 8, 1887.

Application filed March 11, 1887. Serial No. 230,521. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY B. COX, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Electrical Repeating-Bells; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 the letters of reference marked thereon, which form part of this specification.

My invention relates to improvements in electric repeating or return signal-bells; and it consists of an electro-magnetic gong having the armature operate double circuit-breakers, one of which is in position when the armature is at rest and the other when the electro-magnets attract the armature; and it also consists in the employment and arrangement of batteries, wires, and bells, or some proper indicator, the object of my improvements being to give a return-signal at a transmitting-point where a circuit-changer has been operated to indicate that the bell placed at a distance has sounded the signal correctly, and I accomplish the above by the means and mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of a repeating signal-bell and its connecting-wires, batteries, and distant signal-bell. Fig. 2 is a side elevation of the same.

Similar letters of reference indicate like parts throughout the views.

In the drawings, A represents a frame made of any suitable metal or material, and in form made preferably as shown. The frame is for the purpose of supporting the bell or indicator B, which is preferably secured by a post, C, to the upwardly-extending portion of the frame A.

On the left-hand side of the frame I secure a standard, E, in which are secured and supported the electro-magnets D, and below the magnets D and secured to the frame is a standard, H, having its upper portion bent at right angles for the reception of a regulating thumb-screw, *h*. Between the ends of said screw and lower portion of the standard is pivoted a pivotal rod, *h'*, to which is secured an armature, G. This armature is in metallic contact through H with the frame, to the upper end of which is adjustably secured a clapper, B', and to its lower extending end is attached a tension spring, J, secured to a screw-threaded rod, *i''*, by means of screw-threaded thumb-pieces *i i'*. At a suitable point on the side of the armature I secure a circuit-breaker, F, which is adapted to come in contact with the contact-points *m m'*, secured in the binding-posts M M', insulated from the base-plate. I also secure to the left-hand portion of the frame the binding-post *e*, *e'*, and *e''*, *e* and *e''* being insulated and *e'* being in metallic contact with the base-plate.

At any suitable distance from the tell-tale bell or indicator I place a battery, *a*, connected by a wire to the insulated post *e*, and from said battery is a wire connected to a push-button, *a'*, secured in any suitable place, and a wire connects said button to the post *e'*. A wire also connects said post to a battery, *b*, which is also in circuit with a repeating-bell, *p*, and post *e''*, and from thence the circuit passes to the post carrying the back-stop. To complete the circuit a wire passes from the circuit-breaker M to the magnets, and from thence to the binding-post.

The bell *p* is located at the same station as the circuit-closer *a'*, so that when the latter is operated, if the circuit is intact, a return-signal will be given by the repeater. The use of the repeating-bell is of course not limited to this specific use, and the signal may be repeated in any desired circuit by connecting the latter with the proper binding-posts. When the circuit-closer *a'* is operated, the current proceeds from the positive pole of battery to binding-post *e*, through magnet D to back-stop M, thence to the armature and base-plate, to binding-post *e'*, through circuit-closer to negative pole of battery. When the repeater-armature is drawn forward a spring on the end thereof is brought against M', closing the repeating-circuit from positive pole of battery *b* through bell *p*, binding-post *e''*, post M', armature, base-plate, post *e'* to negative pole of battery *b*.

By the above simple arrangement it will be clearly understood that the second circuit-breaker will not be operative until the first has

been, and by the arrangements of the batteries, wires, and bell, or some proper indicator the first or repeating bell will show in a second on the tell-tale bell or indicator whether the first or repeating bell has been correctly sounded; or, as shown, my construction may be employed to repeat its signal to another bell or indicator.

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

1. In a repeating-bell, the combination of an electro-magnet, a pivoted armature therefor, said armature carrying the bell-hammer, contact-springs on the armature at each side of the pivot, contacts secured to a base-plate for engaging the springs on the front and back stroke of the armature, respectively, said contacts being the terminals of a signaling and a repeating circuit, and a retracting-spring for holding the armature normally away from the magnet and in engagement with the signaling-circuit contact, whereby the bell will be operated by a closure of one circuit, and a repeating-circuit will be opened and closed by its operation.

2. In a repeating-bell, the combination of a metallic base-plate, an electro-magnet and its armature secured thereto, the latter in electric connection with the base-plate, contacts carried by the armature, insulated back-stops engaged by said contacts as the armature vibrates, one in the magnet-circuit, the other in a repeating-circuit, and electric connections between the base-plates and both circuits, whereby when the magnet-circuit is closed the bell is operated and its strokes transmitted through the repeating-circuit.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

H. B. COX.

Witnesses:
ENOCH L. STRICKER,
ALFRED HILL.