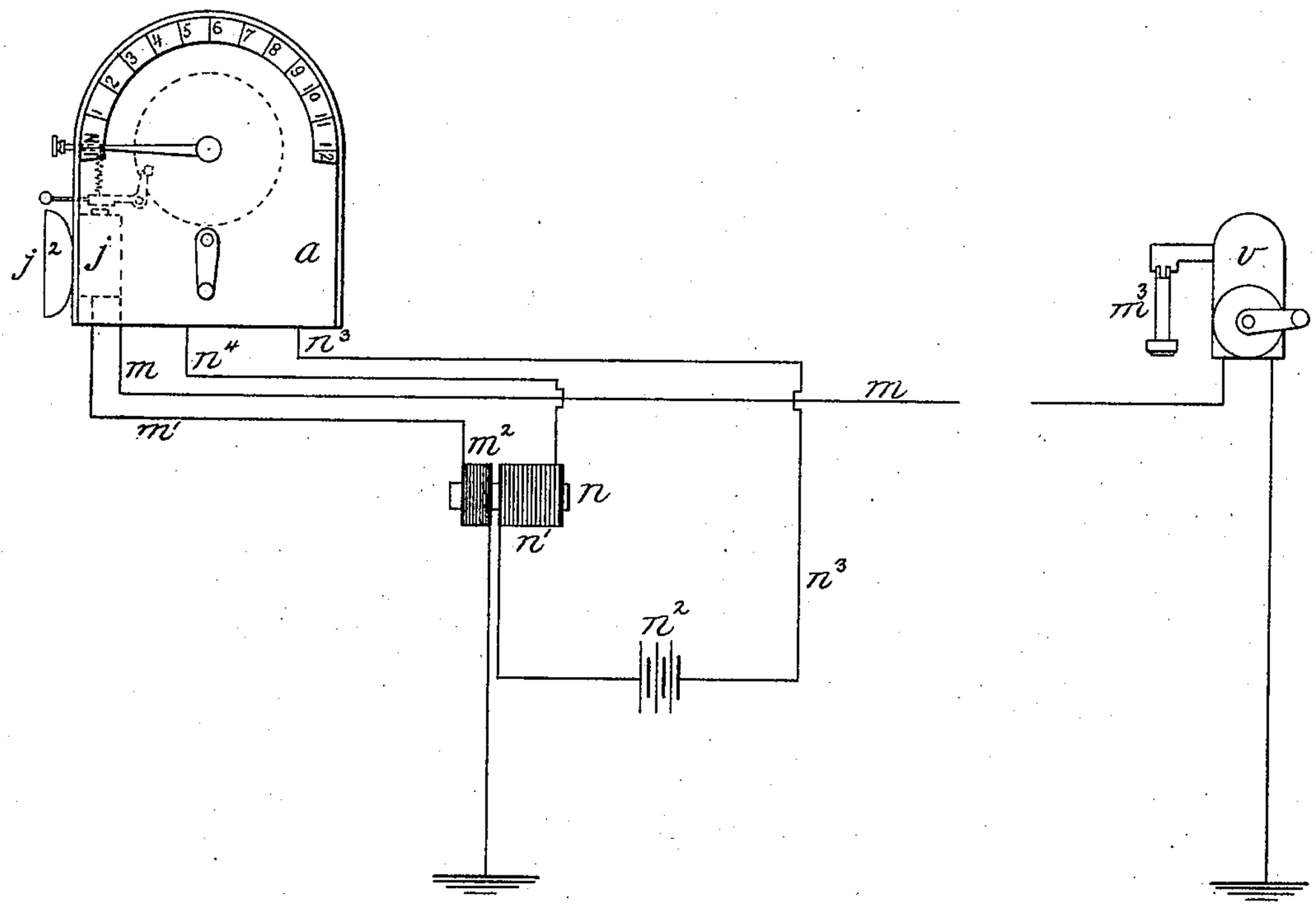
(No Model.)

A. G. HOLCOMBE.

METHOD OF PRODUCING ELECTRIC RESPONDING SIGNALS.

No. 321,110. Patented June 30, 1885.



Witnesses
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UNITED STATES PATENT OFFICE.

ALFRED G. HOLCOMBE, OF NEW YORK, N. Y., ASSIGNOR TO THE EQUITABLE ELECTRIC COMPANY, OF SAME PLACE.

METHOD OF PRODUCING ELECTRIC RESPONDING-SIGNALS.

SPECIFICATION forming part of Letters Patent No. 321,110, dated June 30, 1885.

Application filed February 24, 1885. (No model.) Patented in England August 27, 1884, No. 11,715.

To all whom it may concern:

Be it known that I, ALFRED G. HOLCOMBE, a citizen of the United States, and a resident of New York, county and State of New York, have invented a certain new and Improved Method of Producing Electric Responding-Signals, of which the following is a specification.

This application for Letters Patent for an improved method of reproducing responding-signals is a division of the subject-matter of the application bearing Serial No. 139,853, and filed August 7, 1884, for improvements in automatic responders for electric circuits.

This improvement in the art of communicating or signaling by electrical means consists of the application of an automatically-operated instrument arranged in a local circuit, and constructed to respond to a call from a distant station on the line circuit by causing in said line-circuit induced electric currents of definite determined impulses upon being released or set in motion by a current sent through the line-circuit from the calling-station.

The object of the invention is to facilitate electrical communication or signaling between distant points, so that, on calling up a distant station for the purpose of communicating therewith, or for the purpose of obtaining predetermined signals therefrom, immediately there is received in answer to the call a signal imparting the information as to whether the attendant of the called station is present, or, if absent, the time said called station will be served or any information, according to the purpose to which the responding-instrument is applied and the requirements of the case. These responding-signals are produced as induced electric currents in the line-circuit by an instrument adapted to automatically render any of a number of signals when free to operate; and a simple and effective manner of carrying out this idea is to include the responding-instrument in a circuit with a local battery and the primary coil of an inductorium, and to include in the line-circuit the secondary coil of the inductorium and a call apparatus or electro-magnetic device adapted to lock the responding-instrument to prevent it from being operated by its contained motor, and when the responding-instrument is released by means of a current sent over the line-circuit, to actuate the call apparatus or electro magnetic locking device. Currents or electrical impulses flow through the primary coil of the inductorium from the local battery, which currents or impulses may be of any desired strength, and induce in the secondary coil of the inductorium corresponding currents or electrical impulses of any desired electro-motive force to properly actuate the receiving-instrument at the calling-station.

The electro-magnetic device which controls the movement of the automatic responding-instrument may be of such construction as to ring a bell when operated, so as to notify an attendant at the called station, if any be there present, that the information the responder is set to give has been called for, so that he can reset it to render another signal or leave it to repeat the same signal, when this station is again called, as may be desirable.

It is unnecessary to here enter into the details of the construction and operation of my improved responding-instrument, the same being fully set forth in my previous application for Letters Patent above referred to, and any instrument adapted to automatically give definite signals when free to operate can be used in my improved return-signal system here described, as the operative signaling device, by being connected up with the local battery and primary coil of the inductorium—such, for instance, as the instruments described in Letters Patent No. 218,724, granted to William Fix on August 18, 1879, and No. 275,005, granted to F. B. Wood on April 3, 1883; but to describe my invention more particularly, and to show the arrangement of the devices included in the line and local circuits, I will now refer to the accompanying diagram drawing. The responding-instrument *a* has connected to its make and break signaling device the ends of the conductors n^3 n^4 in a manner which will be well understood. The other end of the conductor n^3 joins one of the terminals of the battery n^2, the other terminal of which is connected to one end of the primary coil n' of the inductorium n, the other end of said coil n' being joined to the conductor n^4, thus

completing the local circuit, which is an open circuit, except when closed by the contact-signaling device of the responder *a*. The line *m* includes the coil of the electro-magnetic controlling device *j*, from which it passes to the secondary coil m^2 of the inductorium by the conductor *m'* and to earth. At the other end of the line-circuit is located the electric generator *v* and receiving-instrument m^3, which is represented as a telephonic receiver; but it will be understood that any instrument adapted to receive or record signals can be used. The armature of the controlling device *j*, which is constructed to lock the mechanism of the responding-instrument *a*, may be provided with a hammer arranged to strike a bell, j^2, when its armature is actuated to release the responding mechanism. Upon a current being sent over the line *m* from the electric generator *v*, the armature of the controlling device or call apparatus *j* releases the signaling mechanism of the responder *a*, which, being operated by the contained motor, makes and breaks the local circuit in a certain prearranged manner, according to the responding-signal it is desired to send to the calling-station. These interrupted currents, passing through the primary coil *n'*, induce in the secondary coil m^2 corresponding electrical impulses, which pass over the line-circuit *m*, and actuate the receiving-instrument m^3.

Having now described the nature of my invention and means by which the principles involved may be practically applied, what I claim, and desire to secure by Letters Patent, is—

That improvement in the art of automatically returning predetermined signals from a called to a calling station electrically which consists in transmitting electrical impulses from the calling to the called station, causing said electrical impulses to set in motion a predetermined set of additional primary electrical impulses at the called station, which primary impulses set up a set of secondary electrical impulses, and causing said secondary impulses to be transmitted to the signaling-station, thereby communicating to the calling-operator the predetermined information it was desired to automatically transmit from the called or distant station.

In testimony whereof I have hereunto set my hand, at New York, county and State of New York, this 19th day of February, 1885.

ALFRED G. HOLCOMBE.

Witnesses:
H. D. WILLIAMS,
FLOYD CLARKSON.