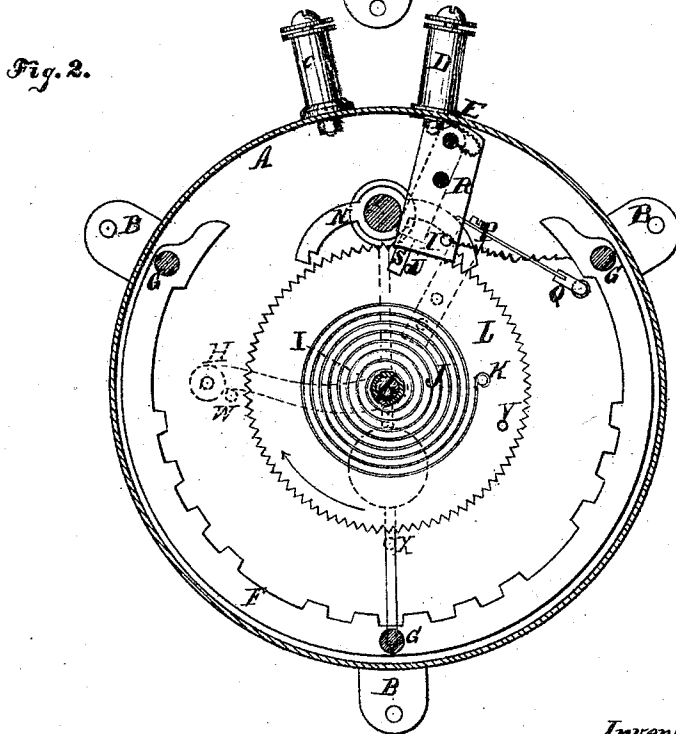
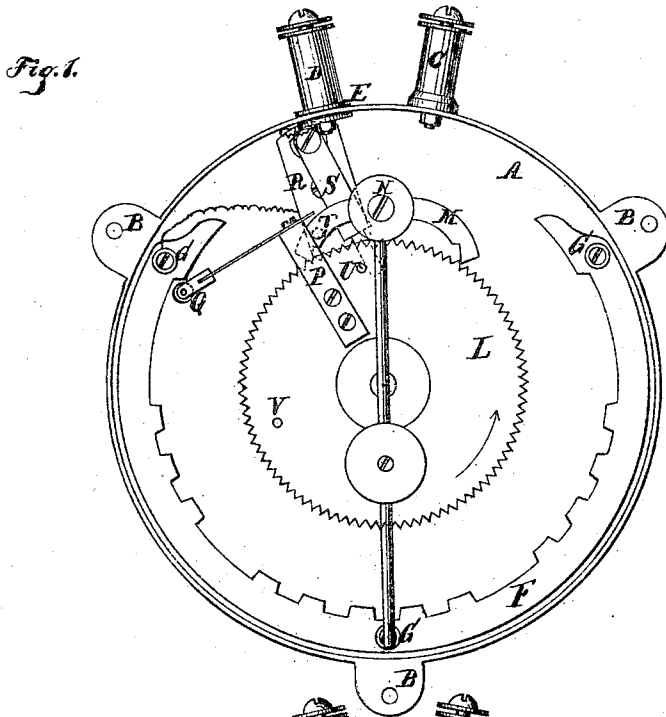


J. B. EDSON.  
 FIRE-ALARM SIGNAL-BOX.

No. 172,404.

Patented Jan. 18, 1876



Witnesses.  
 E. F. Kastenhuber  
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# UNITED STATES PATENT OFFICE.

JARVIS B. EDSON, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN FIRE-ALARM SIGNAL-BOXES.

Specification forming part of Letters Patent No. 172,404, dated January 18, 1876; application filed September 20, 1875.

*To all whom it may concern:*

Be it known that I, JARVIS B. EDSON, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Telegraph Signal-Boxes, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

My invention consists in the combination, in an automatic signal instrument, of a reciprocal circuit-closing arm with a stationary breaking-surface piece situated outside of the path of the said circuit-closing arm whereby the signals are rendered clear and distinct; also in the combination of a switch with a reciprocating-signal-box, so that by the act of preparing for giving a signal the switch is closed, and when the signal is given the switch is opened.

To obtain an automatic signal box or instrument capable of sending any special signal, number, or combinations of numbers through a wire by means of electric current, so that the same shall be intelligibly recorded, as on a Morse or other common form of register, or so that the same shall be made audible, as by the use of the "sounder," many devices have been made use of to open and close the circuit properly, and generally these have had for their motive-power either the weight or the spring, as commonly applied in mechanics. When the spring has been used it has been employed to revolve a "break-wheel" continually in one direction, and said break-wheel has necessarily been made much less in diameter than the instrument to which it belongs, so as to admit of the contact-piece or circuit-closer on its periphery and other parts appertaining thereto.

In the above cases the notches or parts of insulation comprising the combination have to be made close together, and so small as frequently to admit of the circuit-closer passing from one to another of the combinations in less time than is required for the magnets to respond and properly record the signals in full. To lessen this difficulty, as well as to provide a simple and cheap signal instrument capable of sending any conventional number, or combination of the same, as signals over a wire to any suitable receiver, recording instrument,

or sounder, are among the objects of this invention.

In the drawing, Figure 1 represents a rear view, when the back-plate of the case has been taken off. Fig. 2 is a front view, the face-plate of the case having been removed.

Like letters represents like parts.

A is any suitable box or case, containing the mechanism, having proper lugs or projections from the sides, as at B, for securing the same in place. C is a binding-post, forming part of the case and one anode; D, an insulated binding-post, and forming the other anode. E, the insulation for post D; F, breaking-surface causing the signal, and corresponding with the same in number and arrangement of the notches, and also having one long projection before the signal for the purpose of closing the circuit and releasing or starting the register just before the signal is to be made. G are insulated posts for supporting the breaking-piece F free from contact with case; H, crank on outside for operating the instrument in giving a signal; I, arbor to which actuating spring and crank H are connected; J, actuating or main spring; K, screw for fastening other end of spring J to wheel L. L is a toothed reciprocating retard-wheel, which, in combination with the anchor or verge M, regulates the speed of the mechanism; N, post for verge M and center of oscillation of the same; O, rod and weight forming part of verge M, and designed to be adjustable for regulating speed of same; P, piece attached to wheel L for carrying the circuit-closing roller Q; R, rubber or other insulated base for switch S, which is connected to post D; T, point of switch shown open, and connected by insulated wire to breaking-surface part F; U, stop-pin, for throwing switch out or opening the same; V, pin for closing or throwing in; W, stop-pin for crank H, at rest; X, stop-pin for crank H when wound.

Having thus described the various parts, I will now proceed to describe their operation.

The instrument here described is an open-circuit one, and designed to be operated by either using a return wire or using the earth for the same, and one wire.

The signal instrument A having been placed in circuit with battery, as above, and con-

nected to any ordinary register (self-starting) or sounder, is ready for use, and by turning the crank H to the right as far as it will go, the switch S will be thrown in, when, if the crank H is let go by the operator, it begins to return to its original position against the stop-pin W. Just after starting, the circuit-closer Q comes in contact with the breaking-piece F for an instant, closing the circuit and starting the recording-machine, and directly thereafter the circuit-closer comes in contact with each of the points or combinations of the piece F until finally the crank H rests at the stop W, having just previously, by means of the pin U, thrown open the switch S, which had previously been closed by the stop-pin V.

In the apparatus represented by the drawing the signal produced by the above operation on the register would be composed of, first, a dash, followed first by four, then by five, and, finally, by three, dots, thus: — . . . . . . . . . ., making the signal 453.

I do not confine myself to securing the reciprocating retard-wheel L to the arbor I, to which the crank is attached, as, by making use of the ratchet and click commonly applied in clocks, and placing the same securely on the arbor, the retard-wheel L may be left loose, with the advantage that, when the crank H is turned so as to wind up the spring J, the

wheel L will not be revolved, nor will it be as slow or as laborious to operate the instrument as when constructed strictly as shown in the drawing.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in an electric signal, of a casing, A, a reciprocal circuit-closing arm, a retarding-wheel, L, a spring for operating the same, and a stationary breaking-surface fixed within the case outside of the path of the circuit-closing arm, substantially as shown and described, for the object specified.

2. The combination, in an automatic signal instrument, of a case, A, a reciprocal circuit-closing arm, a stationary breaking-surface fixed within the case outside of the path of the circuit-closing arm, and an automatic switch, the whole constructed substantially as described, whereby the act of preparing to give a signal will close the switch, and the signal having been given the switch will be opened, as set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 23d day of August, 1875.

JARVIS B. EDSON. [L. S.]

Witnesses:

W. HAUFF,  
JNO. D. PATTEN.