W. HADDEN.

Electric Signaling Instruments.

No. 219,937. **Patented Sept. 23, 1879.**

Fig: 1

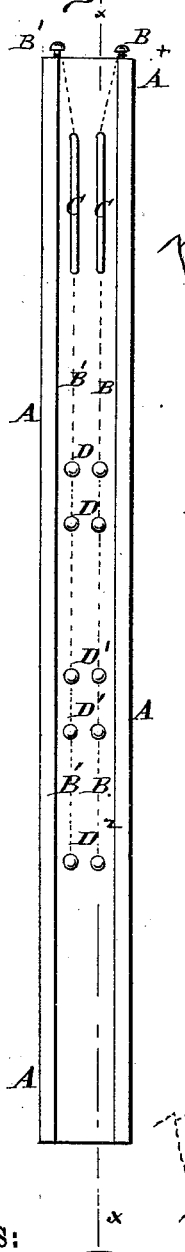

Fig: 2.

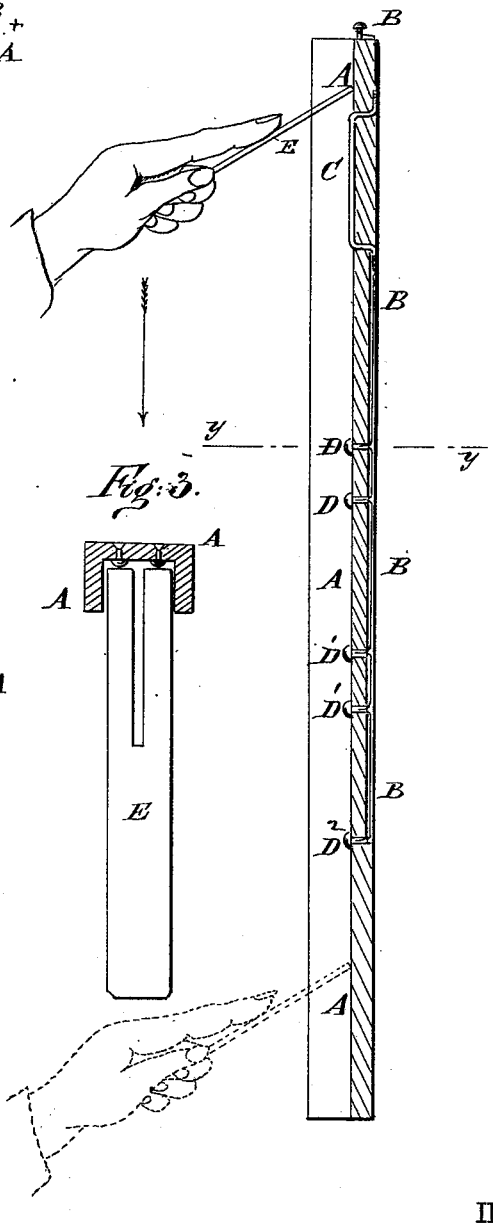

Fig: 3.

WITNESSES:

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IMPROVEMENT IN ELECTRIC SIGNALING-INSTRUMENTS.

Specification forming part of Letters Patent No. **219,937**, dated September 23, 1879; application filed March 11, 1879.

To all whom it may concern:

Be it known that I, WILLIAM HADDEN, of the city, county, and State of New York, have invented a new and Improved Electric Signal-Instrument; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front view. Fig. 2 is a longitudinal section through line *x x*, showing the manner of using the signaling device. Fig. 3 is a cross-section through line *y y* of Fig. 2.

My invention consists of an improved signaling device for making and breaking an electric circuit a prescribed number of times to indicate a locality, a want, or any other thing.

In most signaling devices a clock mechanism or other motor is used to cause a movement of the parts which make and break the circuit, and such complication usually attends such arrangement as to involve always more or less liability to derangement, which may result in the permanent closing of the circuit and the throwing of all of the other like instruments out of working condition.

My invention is designed to reduce this liability to derangement, and to simplify the cost, construction, and use of such signaling devices; and to this end it consists in a plain non-conducting trough having in its groove or channel paired contact-points arranged in groups of arbitrary numbers, the contacts all on one side being connected with one end of the line-wire, and those on the other being connected with the other end of the line-wire, in combination with a separable metallic connecting-plate having its end slitted, and adapted to fit in the channel of the trough, so that when moved down over the contacts it makes and breaks the electrical circuit in accordance with the number of the contacts, and in the order of their grouping, to give either a written or alarm signal, as may be required at the receiving-point, all as hereinafter fully described.

In the drawings, A represents a non-conducting trough, along the back of which extend two conducting-wires, B B′, connected with the two ends of the line-wire or the two poles of the batteries. These wires are normally entirely disconnected, but have exposed in the bottom of the trough the elongated contact-surfaces C C and the contact-point D D^1 D^2.

E is a metal circuit-closer, which is an entirely separate and distinct piece, having a bifurcated end, whose branches are adapted to slide in the channel of the trough and ride over the contact-points.

In making use of the device, the circuit-closing plate E is taken in the hand and applied to the top of the trough, as shown in Fig. 2, and steadily moved in this position down to the bottom of the trough over the contact-points. If the record is to be received on a roll of paper which is moved by a clock mechanism, the circuit-closer is applied above the contact-surfaces C, which are elongated to give a longer time for the initial closing of the circuit, in order that the magnet at the receiving end may have time to disengage the detent of the mechanism which controls the movement of the paper.

If a bell-signal is all that is required, the circuit-closer E may be applied below the contact-surfaces, and be moved only over the contact-point D D^1 D^2. These contact-points may be arranged in groups of any size or number; but, as shown, there are three groups of two pairs at D, two pairs at D^1, and one at D^2, making the record 221, when such pairs of points are successively closed by the downward stroke of the plate E.

Now, in defining my invention with greater distinctness, I would state that the separable character of the plate E permits any degree of pressure to be applied by hand, insuring a rubbing action and a certain electrical contact. On the other hand, when not in use it is entirely disconnected from the contact-points, and can never from accidental causes or the derangement of parts obstruct the signals of other instruments by permanently opening or closing the line. These distinctions, together with the simple construction and trifling cost, make the device very far superior to signaling devices in which the moving parts are permanently organized in a single instrument and are not separable.

Now, I do not claim, broadly, a device for

making and breaking contacts in which a series of conducting and non-conducting spaces are traversed by a conducting-stylus, as I am aware that this has been employed as a means for recording an alphabet. I do not know, however, that a split or bifurcated circuit-closing plate, E, has been used in connection with a non-conducting trough having in its channel two series of contact-points, between which the circuit is closed by the slitted plate. The merit of this slitted plate is that each branch springs down independently upon its row of contacts, and always closes the circuit through any pair of contact-points by the passage of the current through the handle or unslitted portion, it being obvious that if the plate were not slitted one contact-point might project more than its mate, and the plate in riding over the highest would fail to touch the lower one, and the circuit would not be closed.

By making the non-conducting frame A in the form of a trough the sills of the latter guide the prongs or branches of the circuit-closer, and do not allow them to pass laterally off of said contacts.

Having thus described my invention, what I claim as new is—

A signaling device consisting of a non-conducting trough, A, having wires B B′, connected with two corresponding series of exposed contact-points in the bottom of the trough, in combination with a separate metallic circuit-closer, E, having branched ends, substantially as shown and described.

WM. HADDEN.

Witnesses:
JAMES T. GRAHAM,
C. SEDGWICK.