(Model.)

2 Sheets—Sheet 1.

A. S. HIBBARD.

Individual Attachment for Electric Bells.

No. 236,431. **Patented Jan. 11, 1881.**

Fig. 1.

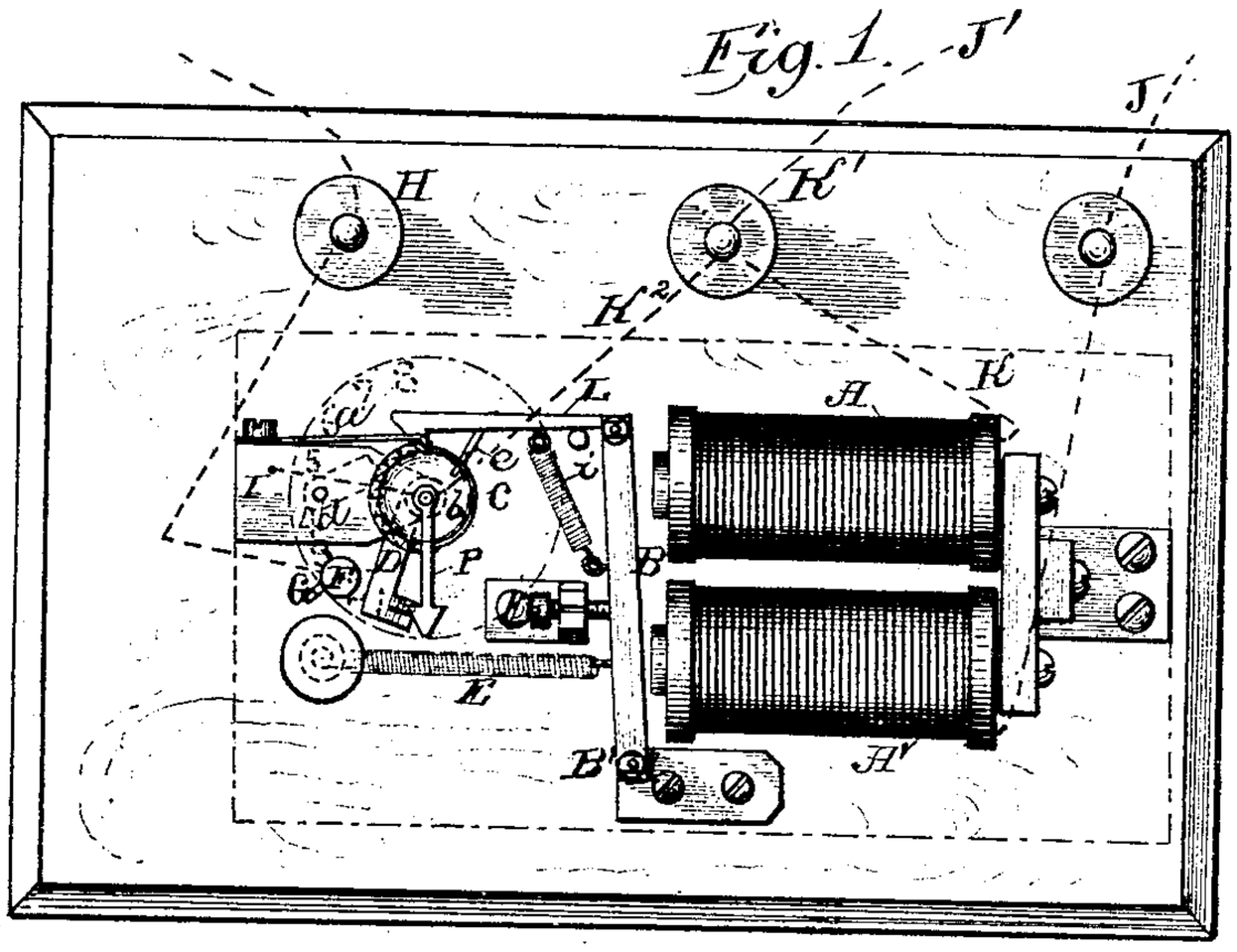


Fig. 2.

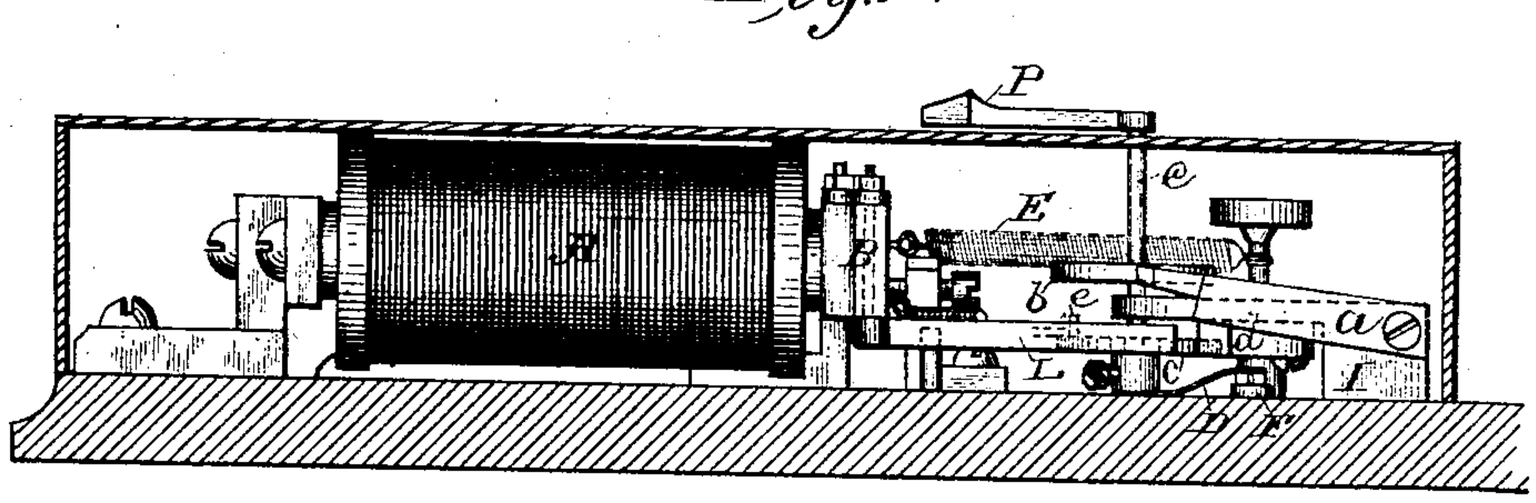


Fig. 3.

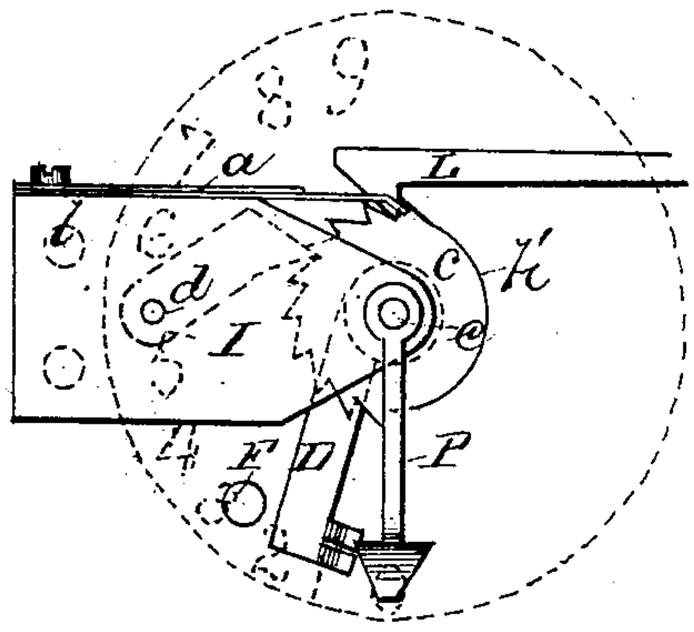
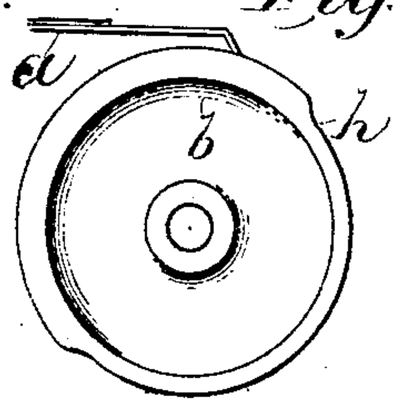


Fig. 4.



Witnesses:

E. J. Ulsmus del.

Charles F. Hunter

Inventor:

Augustus S. Hibbard

by Stanley & Stout

Attorney

(Model.) 2 Sheets—Sheet 2.

A. S. HIBBARD.

Individual Attachment for Electric Bells.

No. 236,431. **Patented Jan. 11, 1881.**

Fig. 5.

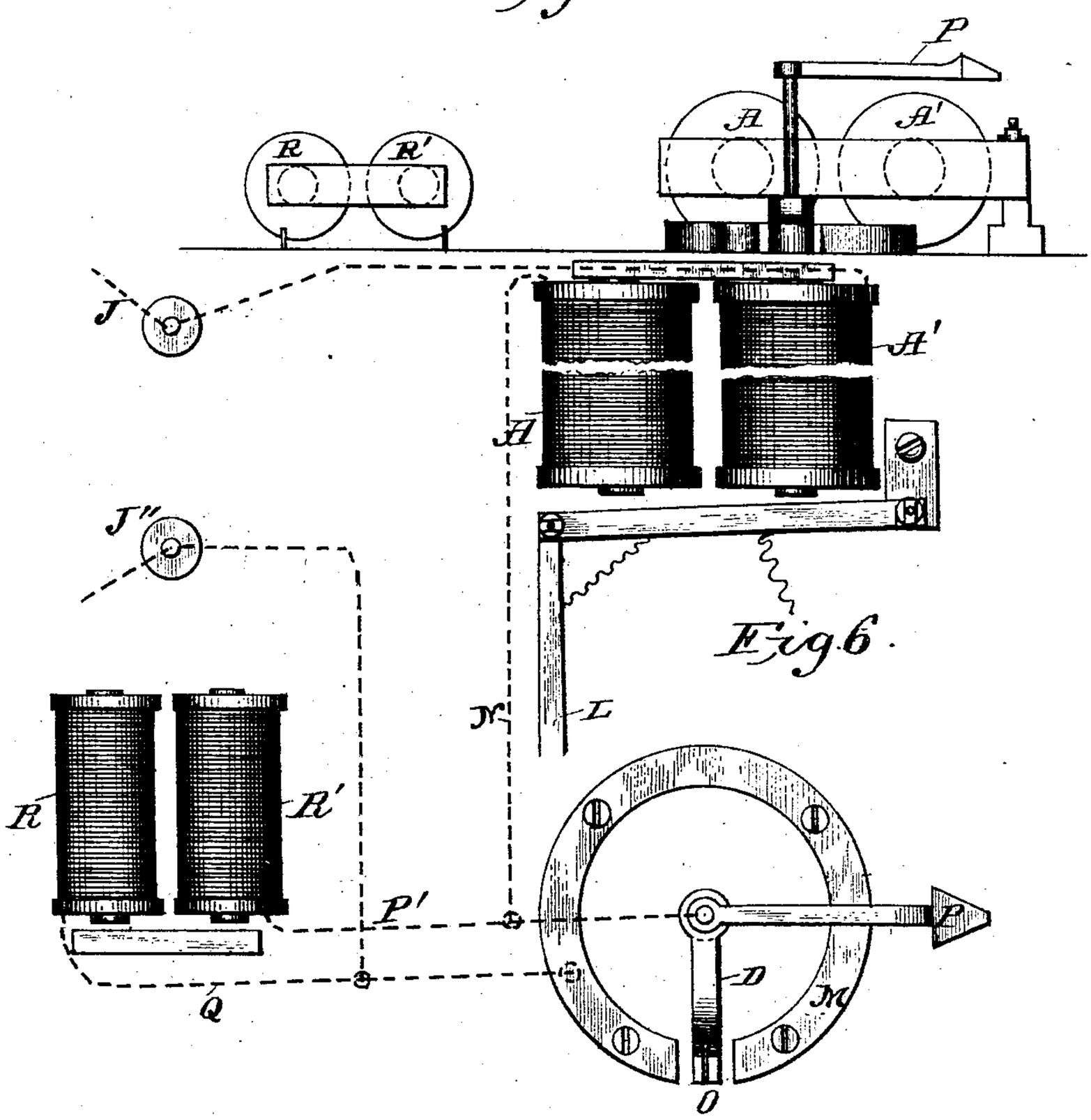


Fig. 6.

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UNITED STATES PATENT OFFICE.

ANGUS S. HIBBARD, OF MILWAUKEE, WISCONSIN.

INDIVIDUAL ATTACHMENT FOR ELECTRIC BELLS.

SPECIFICATION forming part of Letters Patent No. 236,431, dated January 11, 1881.

Application filed September 3, 1880. (Model.)

To all whom it may concern:

Be it known that I, ANGUS S. HIBBARD, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Individual Attachments for Electric Bells; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to individual attachments for electric bells, and will be fully described hereinafter.

In the drawings, Figure 1 is a front view of my invention; Fig. 2, a top view; Figs. 3 and 4, details; and Figs. 5 and 6, a top and side view, respectively, showing a modification of my device with the jigging mechanism omitted.

A A′ are two arms of an electro-magnet, connected to the central office by line J and beyond by line J′. B is an armature, hinged at B′, and having a pawl, L, pivoted to its upper end, spring *i* serving to hold the pawl L down upon a wheel, C, provided on one-half of its periphery with ratchet-teeth. The shaft on which the wheel C is keyed also carries an arm, D, usually of platinum, which is adjustable about the shaft, and is held in adjustment by a set-screw passed through its bearing, and this shaft also carries an eccentric, *b*, and an indicator, P, weighted at its free end, a dial-plate having been placed about the shaft between the eccentric and indicator. Arm D is adjustable on shaft C, so that it may be brought into contact with the button F by any stated number of jigs of the wheel C, a pawl, *d*, serving to prevent a return of the wheel during the intermediate position of the pawl L. A spring, E, serves to draw the armature away from the magnet when the current is broken.

Operation: The central office, in order to ring the bell at any desired station on the line, will open and close its battery-circuit, each pulsation jigging the wheel one tooth and moving the arm D a distance equal to that between two figures on the dial-plate until the required number is reached by the indicator and the arm D presses upon button F. This will complete the circuit from the central office through wire J, electro-magnet A A′ to post K′, thence by wire K^2, through arm D, button F, and line H, to a magneto or battery bell, as may be desired, and thence to ground, and in this position of the arm the arms of all other boxes in the circuit but that in the central office and this subscriber are off the button, for the adjustment of the arm D is such that in a series of boxes along the line only one will be in circuit with the magnets at any one time, and which of them is shown by the position of the indicator on the dial-plate. For instance, take box No. 2. At the beginning of the operation the indicator is at zero. Central-office operator wants to ring up No. 2. He breaks circuit once, and, removing his finger from the button, allows the circuit to close again, so that the armature closes upon the magnet and causes the pawl to jig the ratchet-wheel C one tooth to carry the indicator from 0 to 1, breaks and closes once more, and indicator is at 2. Now arm D is upon the button F, and the operator knows that the arm in No. 2 is in a like position, while that in No. 1 is below its button, and those in 3, 4, 5, &c., are above and beyond it. He is therefore closed on No. 2's magnets, and no other, and, turning on his magneto-generator, rings the No. 2 bell, notifying No. 2 that he is wanted. To restore all the indicators to zero, the operator at central office jigs the ratchet-wheel around by battery-strokes until the indicators on all the dials are at 8, or nearly perpendicular, when, by one more stroke, he carries the indicator beyond the dead-center, to be carried, by its weighted end, to zero, the eccentric wheel permitting it to do so without friction, as its thickest part is presented to the spring *a* only when the teeth of wheel C are in position for engagement with pawl L, the office of the eccentric wheel and spring *a* being to steady wheel C and prevent it from jigging more than one tooth at a time.

In this form of my device the line is practically grounded at each station through the magneto-bell at the will of the operator. When in its normal position the wire is, of course, grounded at its farther end only.

When the indicator is at zero one movement of the ratchet will close No. 1, two No. 2, as before stated.

To set a box so as to close from No. 1 to a higher number, the set-screw which binds the arm D to shaft *c* must be loosened and the

arm adjusted in an opposite direction to that in which the wheel turns. For instance, to set the arm for 8 the operator jigs the indicator to 8, and, loosening the bearing of arm D, carries it down to the button. He now tightens up, and by one more jig throws the indicator beyond the perpendicular, when it falls to unison and carries the arm eight points away from the button.

The subscriber desiring to call the central office will do so by pressing a button on the call-box, which will break the circuit of the battery-current on the line and ring a bell in the central office.

My device may be variously modified without departing from the spirit of my invention.

In the modification shown in Figs. 5 and 6 the indicator P and arm D are operated as before described. The normal position of arm D is, however, such in this modification that it is always in contact with brass strip M, so that when the indicator is at zero or at any other than some one particular or designated point, as hereinafter described, the circuit will be as follows: from central office, by wire J, through magnets A A′, by wire N to arm D, thence through strip M to post J^2, and thence through line to ground. When, however, the arm D is at the point O, between the two ends of the strip M, the current is stopped in arm D, and therefore takes the course through wire P′, magneto-bell R R′, and by wire Q to post J^2, or to ground at end of line. It will thus be seen that the magneto-bell R R′ is always in circuit and is not grounded at each station, but that it is shunted and cut off by the course N D M, at the pleasure of the operator, by the government of arm D, as hereinbefore described. It will also be seen that the arm D may be adjusted to the proper position with relation to the indicator and dial to accomplish this cutting in of the magneto-bell at any desired station, substantially as described in operation of the device shown in Figs. 1 to 4, inclusive.

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

1. The combination, in an individual attachment for electric bells, of the magnet, hinged armature, pawl L, spring E, ratchet, eccentric, spring *a*, and arm D with button F and connecting lines, as set forth.

2. The combination, in an individual attachment for electric bells, of the magnets, hinged armature, pawl L, ratchet-wheel, eccentric and springs, pawl *d*, arm D, button F, indicator and dial, and connecting lines, as set forth.

3. The combination of the ratchet-wheel and arm with the indicator, having weighted end for bringing the instrument to unison after the last tooth of the ratchet has passed the pawl L, as described.

In testimony that I claim the foregoing I have hereunto set my hand this 20th day of August, 1880.

ANGUS S. HIBBARD.

Witnesses:

S. S. STOUT,

GUS. LIPMAN.