

No. 751,788.

PATENTED FEB. 9, 1904.

J. M. GOLDING.
ELECTRICAL SIGNAL APPARATUS.

APPLICATION FILED JULY 15, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1

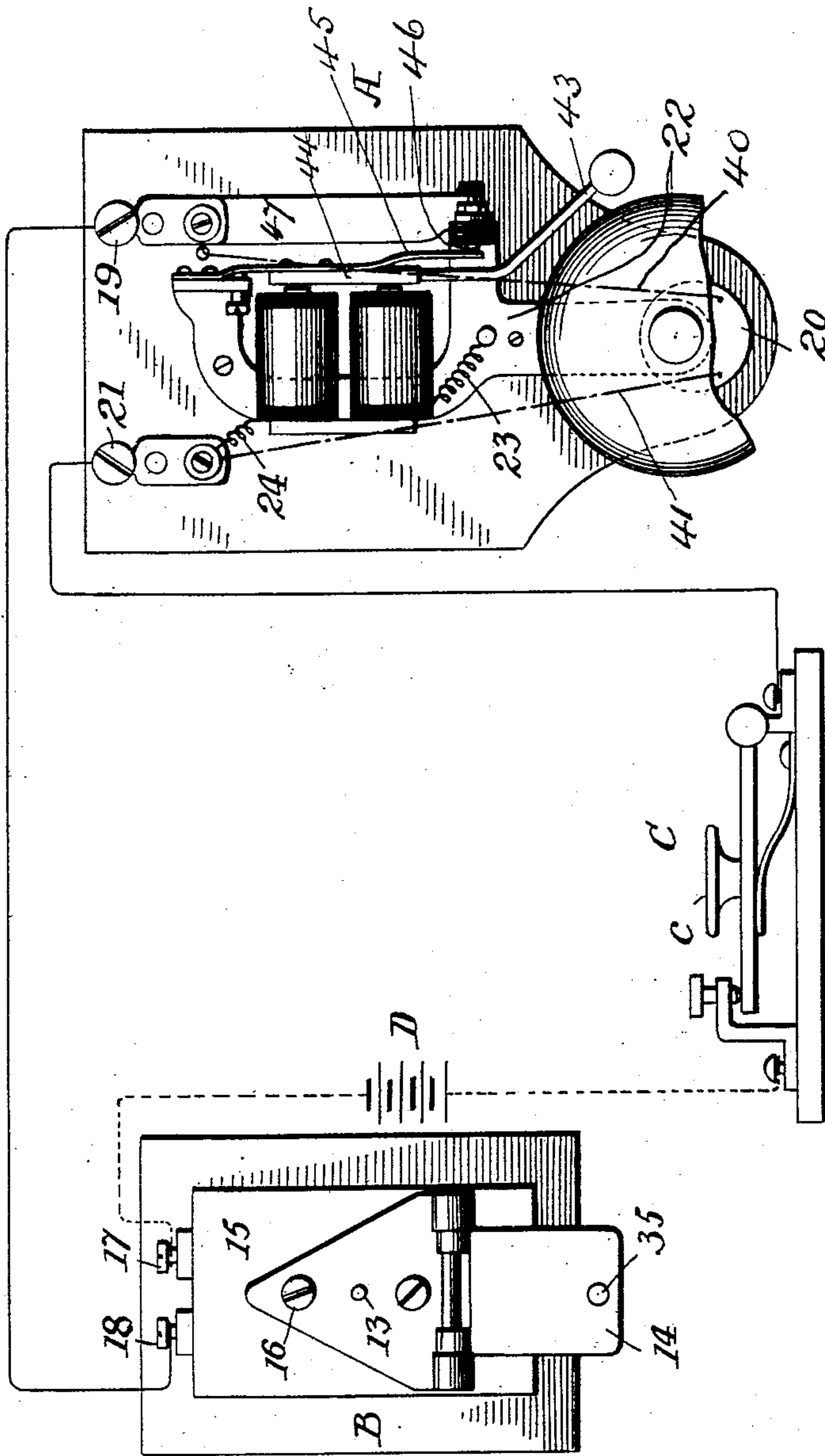
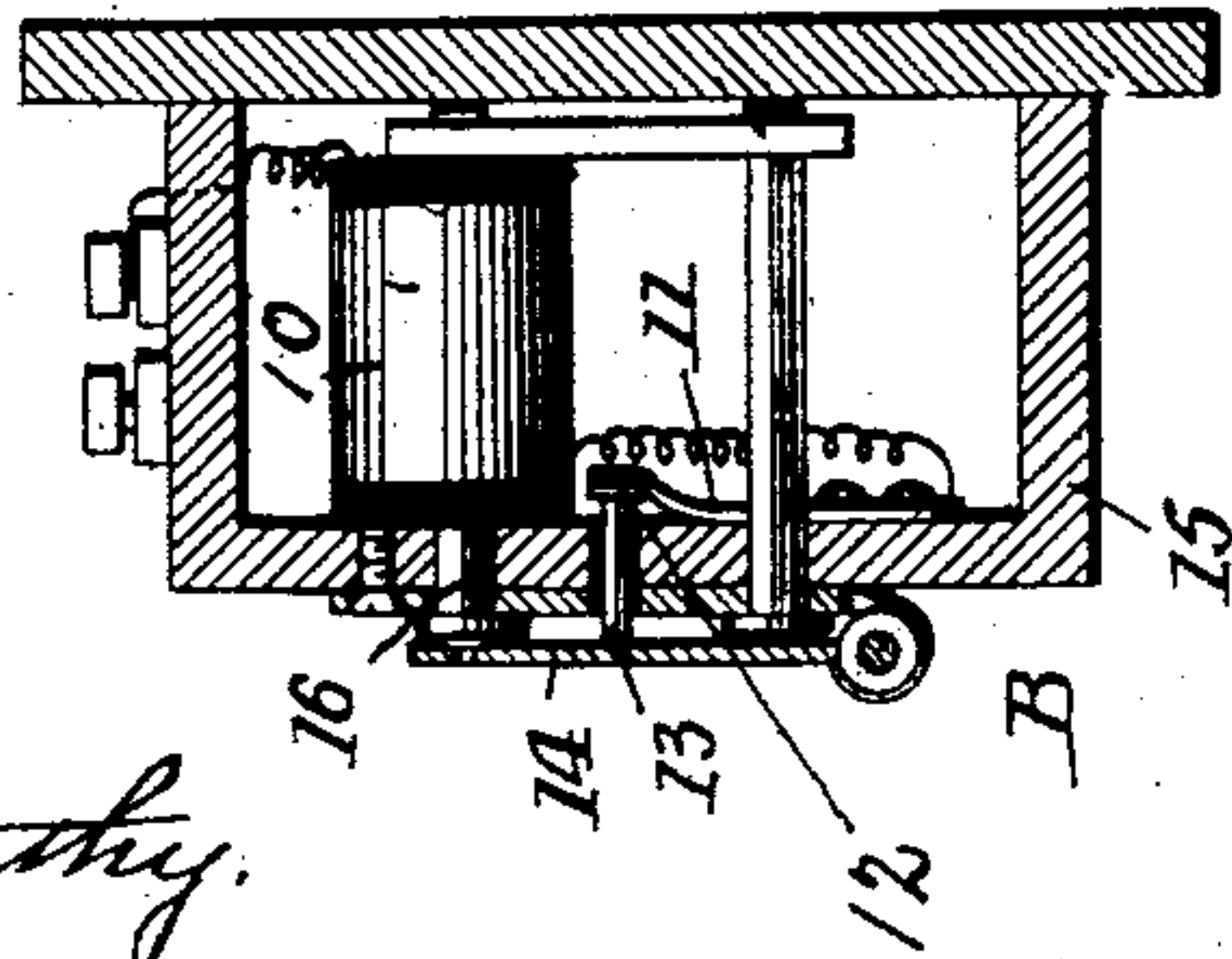


Fig. 2.



Witnesses

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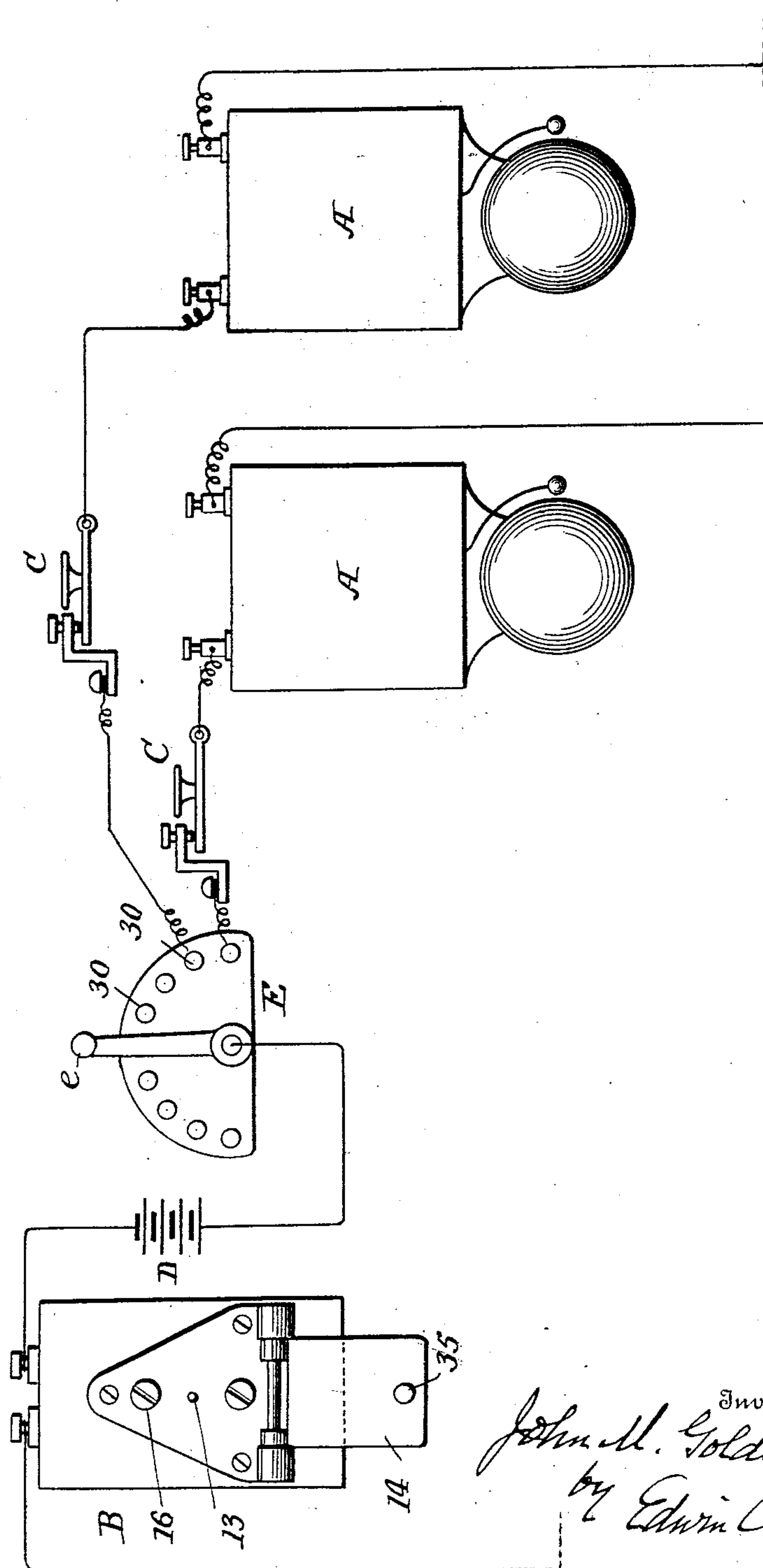
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2 SHEETS—SHEET 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN MAX GOLDING, OF WASHINGTON, DISTRICT OF COLUMBIA.

ELECTRICAL SIGNAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 751,788, dated February 9, 1904.

Application filed July 15, 1903. Serial No. 165,619. (No model.)

To all whom it may concern:

Be it known that I, JOHN MAX GOLDING, a citizen of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Electrical Signal Apparatus, of which the following is a specification.

This invention relates to electrical signal apparatus; and the principal object of the invention is to provide means whereby a person desiring to signal another at a distant point may close an electric circuit including the signal at the distant point and the closing of which circuit will simultaneously lock an indicator in a certain position, which it will maintain until the circuit is broken at the distant point, when the indicator will be released and be free to assume another position to indicate to the sender of the signal that such signal has been received.

The invention will be fully described hereinafter, reference being had to the accompanying drawings, in which—

Figure 1 is a view of an apparatus embodying my invention for signaling between two points only. Fig. 2 is a sectional view of a combined circuit-closer and indicator. Fig. 3 is a view similar to Fig. 1 of an apparatus for sending signals from one point to a number of other points.

A is an electric bell; B, a circuit-closing and indicating device; C, a circuit-breaker, and D a battery.

The combined circuit-closing and indicating device comprises, essentially, an electromagnet 10, a fixed contact 11, a movable contact 12, which in this case is a spring connected at one end to a casing 15, with its other end normally out of engagement with the contact 11, but adapted to engage it, as hereinafter described. The device further comprises a pin 13, connected to contact 12, and a movable indicating-arm 14, which in the present case is shown as being hinged at one end to a casing 15, which incloses and supports the magnet. The core 16 of the magnet extends through the casing in position to be engaged by the arm 14, and the pin 13 also extends through the casing to be engaged by said arm. When the arm 14 is hanging down, as shown

in Fig. 1, the contacts 11 and 12 will be separated and the circuit through the magnet be broken. When, however, the arm 14 is moved up into the position shown in Fig. 2, it will engage the pin 13 and push it inwardly, thereby bringing the contact 12 into engagement with the contact 11 to close the circuit and energize the magnet, and the core of the magnet being engaged by the arm will hold the latter up as long as the circuit remains closed.

The circuit is from the battery D to a binding-post 17 on the case 15 and from this post through the magnet and contacts 11 and 12 to another binding-post 18 on the case 15, thence to a binding-post 19 on the bell-support wire 40, resistance 20 below the bell, wire 41, binding-post 21 on the bell-support, and thence through the circuit-breaker C to the battery. The bell-magnets are supported on a metal frame 22, secured to the bell-support and insulated from the resistance 20. The windings of the bell-magnets are connected at one end 23 to the metal frame 22 and at the other end 24 to the binding-post 21.

The bell-hammer 43 is connected to an armature 44, supported by a spring 45 in position to be attracted by the cores of the bell-magnets, and the spring in turn is supported by and electrically connected to the frame 22 and normally engages a contact 46, carried by a metal strip 47, connected to the binding-post 19, and the contact 46 and strip 47 are insulated from the frame 22. The bell-magnets are therefore in a shunt-circuit as follows: from the binding-post 19 to strip 47, contact 46, spring 45, metal frame 22, wire 23, through the bell-magnets to wire 24 and binding-post 21. The making and breaking of the bell-circuit to effect the ringing of the bell is caused by the movement of the spring 45 to and from the contact 46. The resistance 20 may be located in the circuit for the magnet 10 otherwise than shown and is necessary to insure a constant current of sufficient strength through the magnet 10 to hold the arm 14.

When the circuit is closed through the contacts 11 and 12 and also through the circuit-breaker C, the bell will ring constantly and the arm 14 will be held up by the core 16 of the magnet 10. When the person for whom

the signal is intended breaks the circuit at C, the magnet 10 will be deenergized and its core will release the arm 14, which will thereupon fall to the position shown in Fig. 1, and the contacts 11 and 12 will become disengaged and break the circuit at this point.

When the sender of the signal sees the arm 14 has dropped, he will know that the signal has been received. As soon as pressure is removed from the button *c* of the circuit-breaker C the latter will automatically close the circuit again at this point.

In Fig. 3 I have shown a switchboard E, having a series of contacts 30 insulated from each other and with each of which the lever *e* may make contact. One pole of the battery D is connected to the lever *e* and the other to one of the binding-posts on the circuit-closer and indicator B. From each contact-point a connection is made through a circuit-breaker C to a bell A, and the latter is also connected to earth. The circuit-closer and indicator is also connected to earth.

In the drawings I have shown only two of the contact-points connected to bells, but of course it is merely a matter of duplication to connect all of them. The bells connected to the respective contacts may be in different rooms in one building or they may be at widely-separated points—for instance, one may be at a police-station, another at a fire-engine station, another at a messenger-station, and so on. By properly adjusting the switch-lever and closing the circuit with the arm 14 the signal will be made at the desired place, and when the circuit-breaker at that place is operated the arm will be released, thus indicating that the signal has been duly received and will be responded to.

The arm 14 may be of metal or it may be of any other material provided with a metal part 35 to engage the core of the magnet 10. Other details of construction may also be changed, and I do not, therefore, limit my invention to the precise construction and arrangement of parts shown.

Having described my invention, I claim

1. In an electric signal apparatus, the combination with an electric circuit including a battery, a resistance, a circuit-breaker, and an electromagnet, of a shunt-circuit including a bell in parallel with said electric circuit, a circuit-closer adjacent to said magnet, and an indicator movable to operate the circuit-closer and engage the core of the magnet and which latter will attract and hold said indicator to maintain the circuit closed and ring the bell until the said circuit-breaker is operated, substantially as set forth.

2. In an electric signal apparatus, the combination with a normally open electric circuit including a battery, a signal, a circuit-breaker and an electromagnet, of a casing inclosing said magnet and through which the core of the magnet extends, a circuit-closer within the casing having a push-pin extending through the casing, and an indicating-arm hinged to the casing and movable to engage the said pin and core, substantially as and for the purpose specified.

3. The combination with a switchboard having a plurality of contacts and a switch-lever to engage either of said contacts, of signals each in circuit with its respective contact, a circuit-breaker in each of the signal-circuits, a normally open electric circuit including a battery and a magnet connected to the switch-lever and electrically connectible to all of the signals, a circuit-closer adjacent to the magnet, and an indicator movable to operate the circuit-closer and engage the core of the magnet to be held by the latter until a circuit-breaker in one of the signal-circuits is operated, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN MAX GOLDING.

Witnesses:

EDWIN CRUSE,
A. B. DENHAM.