

W. W. BENNETT.
TELEPHONE SYSTEM.

(Application filed Feb. 2, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

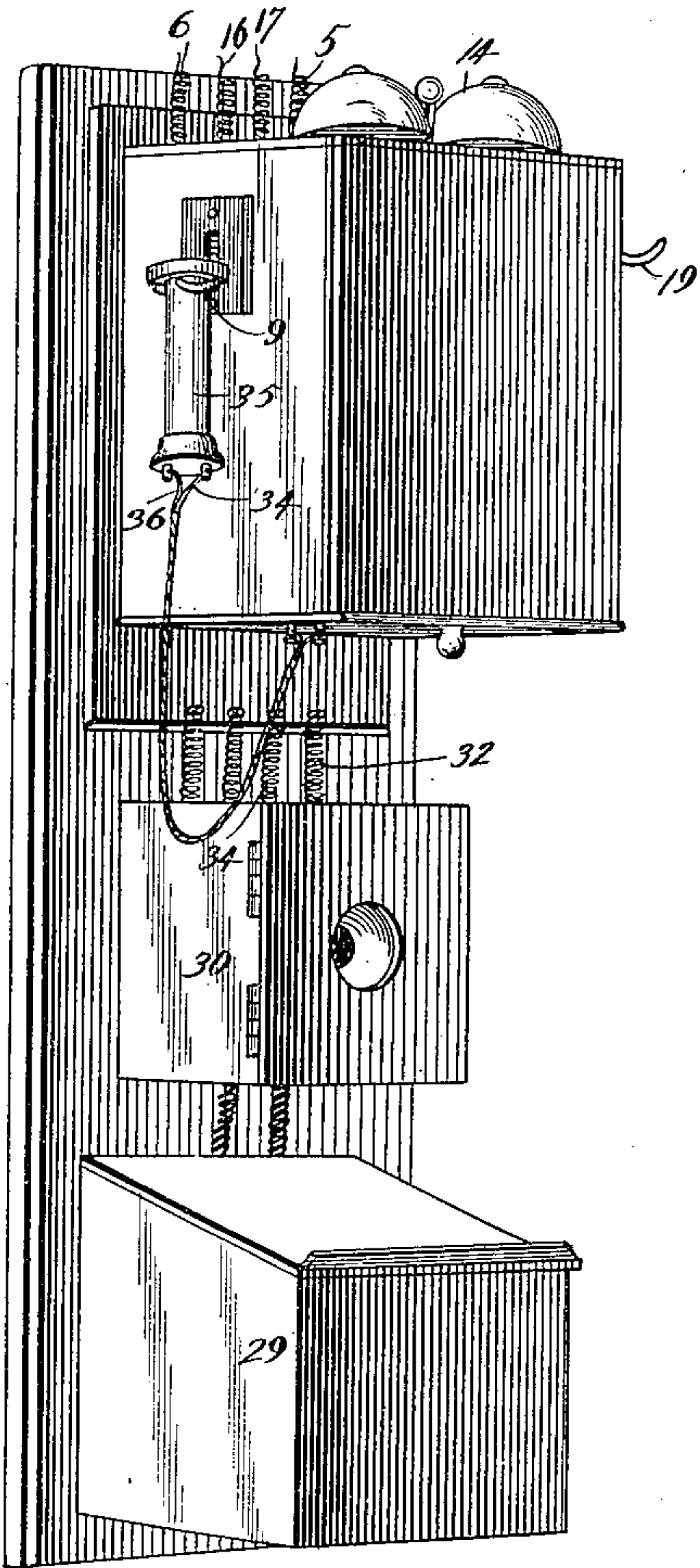
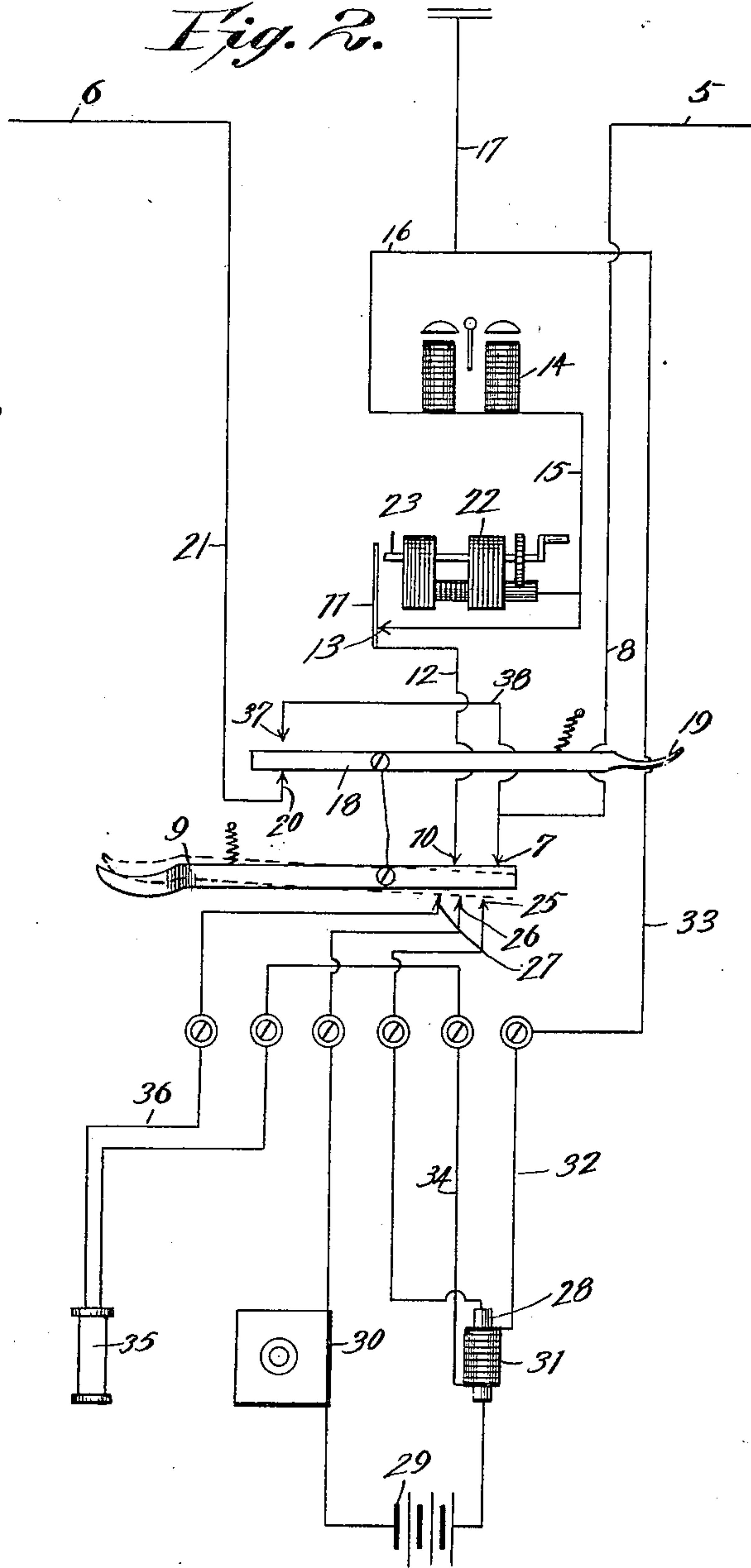


Fig. 2.



Witnesses

L. H. Walker

Georg. Chandler.

William W. Bennett, Inventor

By His Attorneys,

C. A. Snow & Co.

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2 Sheets—Sheet 2.

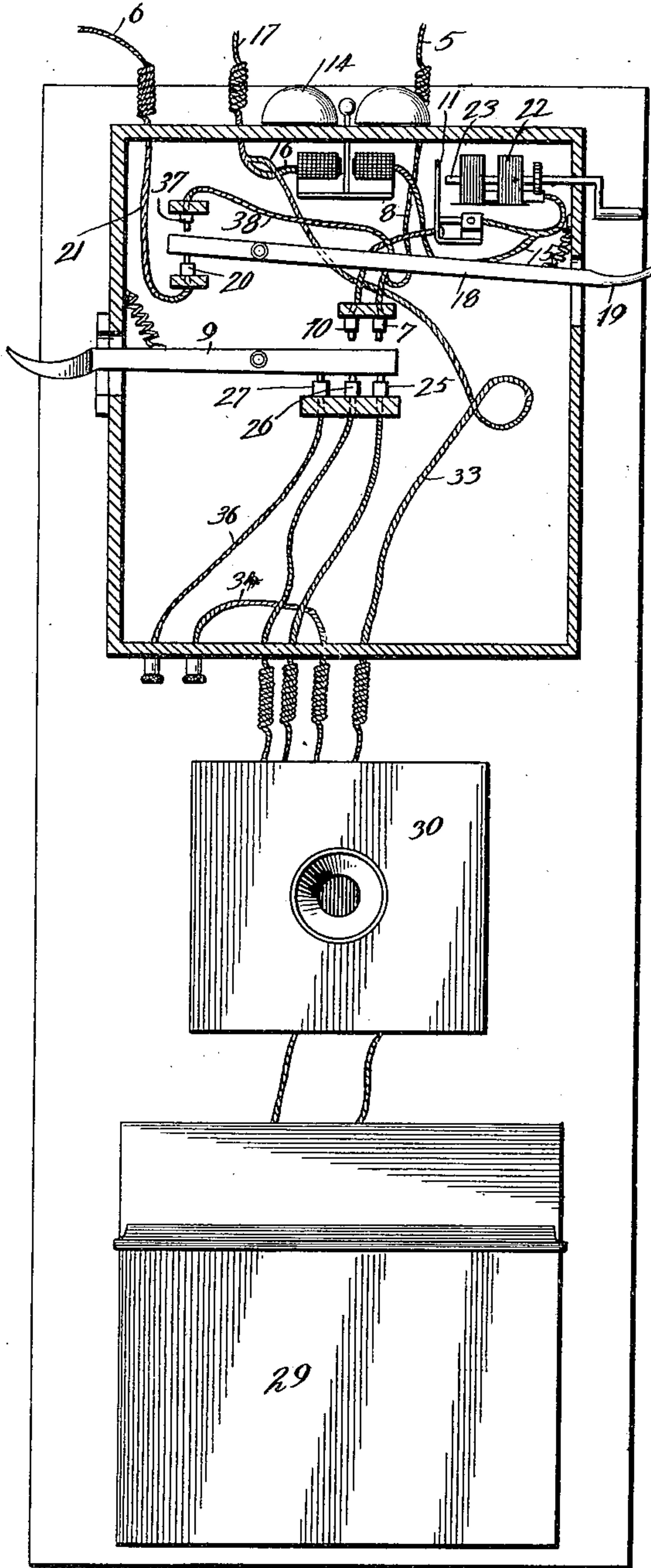


Fig. 3.

Witnesses

W. Walker.

Geoff. Chandler.

William W. Bennett Inventor

By his Attorneys,

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UNITED STATES PATENT OFFICE.

WILLIAM W. BENNETT, OF MESQUITE, TEXAS.

TELEPHONE SYSTEM.

SPECIFICATION forming part of Letters Patent No. 663,412, dated December 11, 1900.

Application filed February 2, 1900. Serial No. 3,702. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. BENNETT, a citizen of the United States, residing at Mesquite, in the county of Dallas and State of Texas, have invented a new and useful Telephone System, of which the following is specification.

This invention relates to telephone systems; and it has for one object to provide such an arrangement of the instrument and wiring as will permit a subscriber to converse with a second subscriber at either side of his own instrument, the talking-circuit being grounded at the time, so as to cut out the line at that side of the instrument which is not in use.

A further object of the invention is to provide an arrangement of switches and wiring through the medium of which a single receiver and transmitter will be employed for talking at either side of the subscriber's instrument and in which, furthermore, the parts will normally lie in such positions as to permit the subscriber to be rung up from either side.

In the drawings forming a portion of this specification, and in which similar numerals of reference designate like and corresponding parts in the several views, Figure 1 is a perspective view showing a complete instrument equipped in accordance with the present invention. Fig. 2 is a diagrammatic view showing the instrument and the local wiring at a subscriber's station and showing the connections with the line at each side and with the ground. Fig. 3 is a front elevation of the complete instrument with the magneto-box in section and showing the switches and other instruments therein in elevation and in diagram.

Referring now to the drawings, and more particularly to Fig. 2 thereof, 5 represents what may be called the "north" line, and 6 the "south" line, of a line-circuit. With the terminal of the line 5 is connected a contact-piece 7 through the medium of a wire 8, this contact-piece being adapted for contact by the receiver-hook 9 when the receiver is in place. A second contact-piece 10 is adapted for contact by the receiver-hook simultaneously with the contact-piece 7, and this contact-piece 10 is connected with a spring 11

through the medium of a wire 12, this spring 11 lying normally against a contact 13, which is grounded through a call-bell 14, said contact 13 being connected with the call-bell by means of a wire 15 and the call-bell being connected with the ground through the wires 16 and 17, as illustrated. Thus with the receiver in place upon the hook 9 a call may be sent in over the line 5 and through the bell 14 to the ground. A finger-lever 18 is pivoted to the hook or hook-lever 9 and has one end 19 extended exteriorly of the magneto-box, as shown in Fig. 3, to be depressed with the finger under conditions to be presently explained. The opposite end of this finger-lever 18 rests normally against a contact 20, which is connected directly with the line 6 through a wire 21, and this finger-lever 18 is in electrical connection with the hook-lever 9. Thus if a call be sent in over the wire 6 the current will pass through wire 21 to contact 20, thence to lever 18, to lever 9, to contact 10, through wire 12 to spring 11, to contact 13, and thence through wire 15, bell 14, and wires 16 and 17 to the ground. A portion of the current will also pass from lever 9 to contact 7 and thence through wire 8 to line 5. The different subscribers have different calls, so that while all of the bells will be operated each subscriber will know when he is called.

It is of course necessary that means be provided for ringing up the instruments on both lines 5 and 6, and for this purpose a magneto 22 of usual construction has one terminal connected with the wire 15 between the contact 13 and the bell 14, while the other terminal of the magneto, which is represented by the extremity of the reciprocatory crank-shaft 23, is adapted for engagement with the spring 11 to make contact therewith to move the spring from the contact 13. A glance at the illustration of Fig. 2 will therefore show that when the crank-shaft 23 is thus operated to break the circuit between the spring 11 and contact 13 if the magneto then be operated the current from said magneto will divide at the lever 9 and will ring up both lines 5 and 6. At the opposite side from the lever 9 and from the contacts 7 and 10 are arranged additional contacts 25, 26, and 27, of which the contact 25 is in direct circuit with one terminal of the

primary winding 28 of an induction-coil, the opposite terminal of said primary winding being connected with the contact 26 through a battery 29 and a transmitter 30. One terminal of the secondary winding 31 of the induction-coil is connected with the ground through wires 32, 33, and 17, while the opposite terminal of the secondary winding is connected with the contact 27 through wire 34 and receiver 35 and a wire 36, it being understood, of course, that the lever 9 engages contacts 25, 26, and 27 when the receiver is removed from the hook of the lever. A contact 37 is disposed adjacent the lever 18 opposite to the contact 20 for engagement by said lever when moved from the contact 20, this contact 37 being connected with the contact 7 through a wire 38. With this arrangement, supposing a subscriber wishes to talk with another subscriber or with central on the line 5, he rings him up by pressing the crank-shaft 23 inwardly and rotating it the proper number of times to give the desired signal in the usual manner. The return call from the instrument on line 5 will operate the bell 14 in the manner above described. The subscriber then takes down the receiver 35 from the hook 9, at which time the hook moves to the dotted-line position and in engagement with the contacts 25, 26, and 27. The subscriber then draws the finger-piece 19 downwardly, so as to throw the opposite end of the lever 18 against the contact 37. If the transmitter then be operated, the circuit will be as follows: from the transmitter to contact 26, to lever 9, to contact 27, to primary winding 28, to battery 29, to the transmitter. The induced circuit will be from winding 31 to wire 34, to receiver 35, through wire 36, to contact 27, through lever 9, to lever 18, to contact 37, through wire 38, and wire 8 to the line 5, the return being through the ground to wire 17, to wire 33, to wire 32, and secondary winding. It will thus be seen that with the lever 18 in contact with the contact-piece 37 the talking-circuit will include the wire or line 5, while the wire or line 6 will be entirely cut out. If the lever 18 be permitted to lie in its normal position, (illustrated in Fig. 2,) the transmitter-circuit will, of course, be the same; but the induced circuit from the secondary winding 31 will be through wire 34, receiver 35, and wire 36 to the contact 27 and lever 9 and thence through lever 18 to contact 20 and through wire 21 to line 6, the return circuit being through the ground and thence through wires 17, 33, and 32 to the secondary winding 31.

It will be seen that with the present arrangement the talking-circuit does not in either instance include the magneto or the call-bell, and while the shaft 23 is shown out of contact with the spring 11 it will of course be understood that this is not necessary, as the current will of course follow the path of

the least resistance and will consequently go round the magneto when the subscriber is called up. Furthermore, it will be seen that in the present system a single receiver is employed for both lines 5 and 6 and that the line which is not in use is effectively cut from the talking-circuit.

While the present invention is shown as embodied in an instrument of the usual construction it is of course understood that such details of the invention may be varied as desired and that modifications may be made without departing from the spirit of the invention.

What is claimed is—

1. In a telephone system, the combination with a single receiver, one terminal of which is connected with the return, and the opposite terminal of which is adapted for connection with the receiver-switch, of separate line-wires each having a contact for engagement by the receiver-switch and a separate switch adapted to connect the line-wires alternately with their respective contacts.
2. In a telephone system, the combination with separate line-wires, and a signal in circuit with the return, of a receiver having one terminal connected with the return, a receiver-switch adapted for connection with the second terminal of the receiver, line-contacts for engagement by the receiver-switch to hold the line-wires in circuit with the return when the receiver-switch is in its inoperative position with respect to the receiver-circuit, and a second switch adapted to connect the lines alternately with their respective line-contacts.
3. A telephone system comprising a receiver-switch, contacts adapted for engagement by said switch, a line-wire connected with one of said contacts, a ground connection with the second contact through a signal, said switch being adapted to engage the contacts when the receiver is in place, a second series of contacts adapted for engagement by the receiver-switch when the receiver is disengaged therefrom, a primary induction-circuit including two of said contacts, a secondary induction-circuit having one terminal grounded beyond the signal, and its opposite terminal connected with one terminal of the receiver, a connection between the second terminal of the receiver and a third contact of the second series of the receiver-switch, a finger-lever in circuit with the receiver-switch, separate contacts adapted for alternate engagement by the finger-lever, and separate line-wires connected with said contacts.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM W. BENNETT.

Witnesses:

W. O'CALLAGHAN,
B. F. CULLOM.