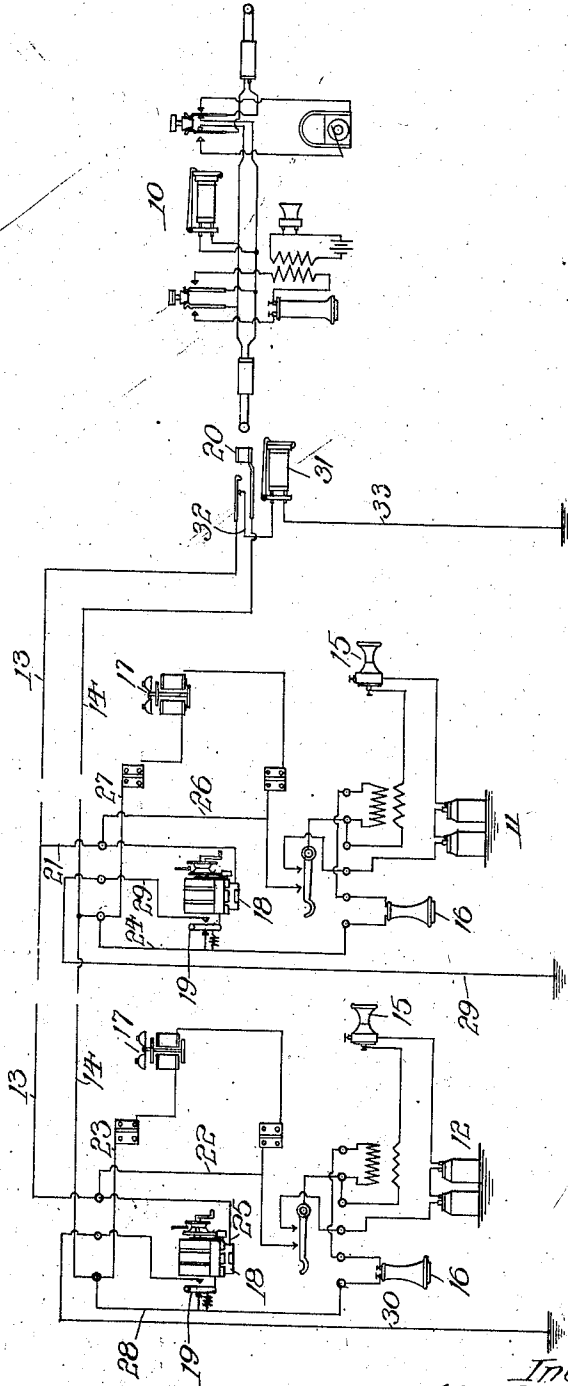


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L. W. CARROLL.
TELEPHONE SYSTEM.
APPLICATION FILED MAR. 24, 1903.



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TELEPHONE SYSTEM.

No. 814,830.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, LOUIS W. CARROLL, a citizen of the United States, and a resident of Anamosa, county of Jones, and State of Iowa, have invented certain new and useful Improvements in Telephone Systems, of which the following is a specification and which are illustrated in the accompanying drawing, forming a part thereof.

The invention relates to what are commonly known as "party-line" systems, wherein a plurality of telephones are bridged into the same circuit, and particularly to the signaling devices used in connection therewith.

It has for its object the provision of means for an exchange of signals among the several telephones of the circuit without signaling to the central exchange, means also being provided for cutting any of the telephones off from its companions on the same circuit and connecting it for signaling purposes with the central exchange.

In systems of this kind it frequently happens that the users of the several telephones of the line have occasion to have considerable business with each other, and when, as has heretofore been the practice, a call from one of these telephones to another also calls the central exchange unnecessary service is required of the operator at the exchange. If the local business of a party-line is very considerable, so that these useless calls upon the central exchange become numerous, the operator naturally becomes indifferent to them, so that when a signal is really intended for her it may have to be repeated several times to secure a response. A further objection to a party-line is the publicity of the conversation unless a selective signaling device be employed.

A further object of the present invention is to provide means for calling the central exchange from any of the telephones of the circuit without signaling to the companion instruments.

These several objects are attained in the mechanism and system of wiring, as hereinafter described and as conventionally shown in the accompanying drawing.

The illustration represents at 10 a central exchange, and at 11 12 two telephones of a party-circuit in which the line-wires are

shown at 13 14. While but two telephones are represented, it will be understood, of course, that the invention is applicable to systems in which a larger number are employed.

The telephones represented are of the usual type and need not be described in detail. Each is provided with a transmitter 15, a receiver 16, a call-bell 17, and a magneto-generator for signaling purposes, (shown at 18.)

By means of a spring-closed switch 19 the generator of each telephone is normally bridged into the line-circuit—that of the telephone 11 through the wires 21 and 24 and of the telephone 12 through the wires 25 and 28. The line-circuit is normally open at the exchange end, being provided with a jack-socket for receiving the circuit-closing plug.

A call-signal from the telephone 11 is transmitted through the wires 21, 13, and 22 to the call-bell 17 of the telephone 12, the circuit being completed through the wire 23 to the line-wire 14, and thence through the wire 24 back to the generator 18 of the telephone 11. The circuit 13 14 being open at the central exchange, no signal is given there.

A signal emanating from the generator 18 of the telephone 12 is communicated to the bell 17 of the telephone 11 through the wire 25, the line-wire 13, the wires 21 and 26, returning through the wire 27, the line-wire 14, and the wire 28. As before, no signal is given at the central exchange, because of the open line-circuit at that point.

In order to signal to the central exchange from either of the telephones, the switch 19 is thrown in opposition to its spring, so as to cut the generator off from the wire 24 or 28 and connect it into the ground-wire 29 or 30. If now the magneto-generator of either telephone—say 12—be operated, the circuit is led through the wire 25, the line-wire 13, the wire 32 leading therefrom to the drop-signal device 31 at the central exchange, and thence to the ground-wire 33, the return being through the ground-wire 30. This circuit does not lead to the telephone 11. Similarly, the central exchange may be called from the telephone 11 by first throwing its switch 19 and then operating the generator 18, the circuit being led through the wire 21 and line-wire 13 to the drop-signal 31 and returning through the ground-wires 33 and 29.

I claim as my invention—

1. In a telephone system, in combination, a central or exchange station, a metallic circuit leading therefrom and being normally open at said station, a plurality of telephones bridged into the circuit, each telephone having an annunciator and a signaling-generator, a normally open grounded connection for each signaling-generator, and an annunciator at the central or exchange station located in a grounded connection of one side of the metallic circuit.

2. In a telephone system, in combination, a central or exchange station, a metallic circuit leading therefrom and being normally open at said station, a plurality of telephones bridged into the circuit, each telephone having an annunciator and a signaling-generator, a grounded connection for each signaling-generator, a switch connecting the return side of the generator alternately with the grounded connection and with the metallic circuit, and an annunciator at the central or exchange station located in a grounded connection of one side of the metallic circuit.

3. In a telephone system, in combination, a central station, a plurality of substations, a metallic circuit normally closed between substations and normally open at the central station, an annunciator at the central station, a grounded connection from one branch of the metallic circuit through the annunciator, and means for grounding the circuit at each substation independently of the telephone instrument.

4. In a telephone system, in combination, a central station and a plurality of substations, a metallic circuit connecting all of such stations, a grounded branch of the circuit at the central station containing an annunciator, a dynamo signaling device in the circuit, and means for grounding one terminal of the dynamo.

5. In a telephone system, in combination, a central station, a metallic circuit normally open at the central station, a plurality of substations on the circuit, a grounded branch of the circuit at the central station, an annunciator in such branch, a signaling device normally in the metallic circuit at each substation, and means independent of the telephone instrument for grounding one terminal of the signaling device.

6. In a telephone system, in combination, a central station, a metallic circuit normally open at the central station, a normally closed ground for one branch of such circuit at the central station, a plurality of substations each bridged into the metallic circuit, a signaling device in the local circuit of each substation, and means in connection with each signaling device for grounding the terminal thereof which is not connected with the normally grounded branch of the metallic circuit.

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