

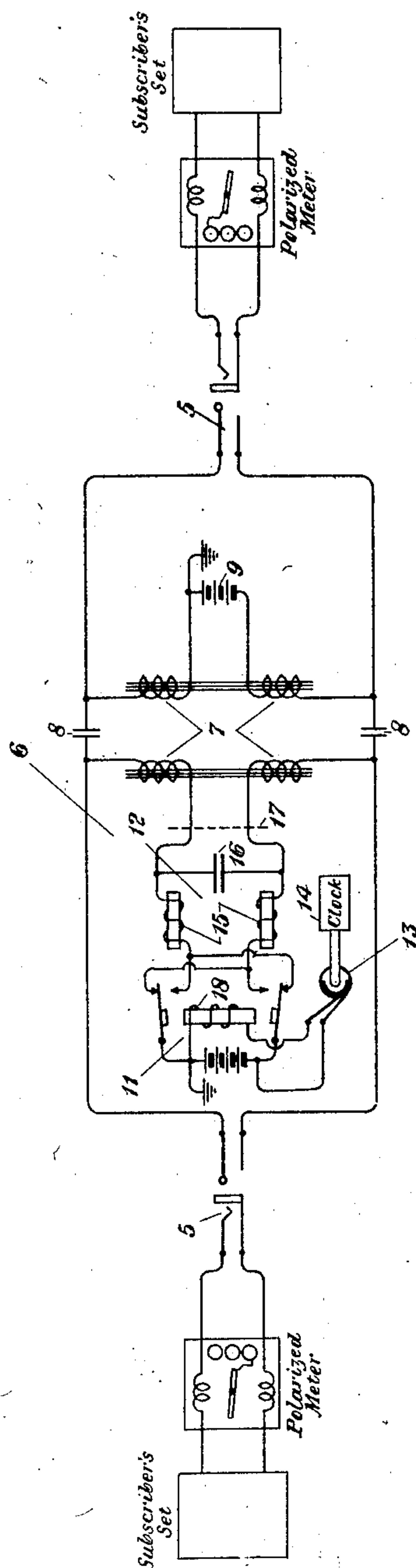
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MEASURING SYSTEM

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MEASURING SYSTEM.

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This invention relates to telephone systems in which it is desired to meter the service by recording the length of time the subscriber's telephone is in use.

5 In such systems, it has been proposed to operate a metering device periodically by reversing the polarity of the source of energy used for the talking connection. It is the object of the present invention to provide a
10 simple and inexpensive mechanism for reversing the current in such a system, and to this end to provide a simple reversing switch and filter elements for preventing the
15 line from picking up noise due to the comparatively sudden make and break of the reversing switch.

The drawing illustrates diagrammatically a circuit illustrating the invention.

20 In the drawing, two subscribers' stations are illustrated,—one at the left and one at the right of the figure, as illustrated therein, with a subscriber's loop extending to the central office and terminating in the jack
5. Each subscriber's loop contains a polarized meter which may be located on the sub-
25 scriber's premises and which will respond to reversals of current on the subscriber's loop. A cord circuit of the central station is indicated at 6 and is here shown as the impedance feed type. A cord circuit of the re-
30 peating coil feed type may be used if desired. In the cord circuit shown, battery is supplied through impedance coils 7, with capacities 8 connected across their terminals.
35 On one side, the cord circuit is connected to the battery 9. On the other side, the cord circuit is connected to the battery through the reversing switch 11 and the filtering device
40 12. The switch may be of any desired and known form of simple reversing switch and is here illustrated as operated by a magnet
45 18 whose circuit is intermittently closed and opened by a commutator 13 operated by any convenient device such as the clock mechanism 14. The commutator may be arranged
50 to alternately open and close the circuit of the magnet 18 at any desired intervals, as, for example, every fifteen seconds. Between the reversing switch and the conductors of the cord circuit are connected choke coils 15

in series with the leads and a large capacity
16 connected across the leads. A more elaborate filtering arrangement may be provided, if desired, but these elements constitute in
55 effect a low-pass filter which serves to prevent all frequencies above a limit of say 40 cycles per second, which are incident to the sudden opening and closing of the reversing
60 switch, from getting on to the talking conductors of the connection. The capacity 16 may conveniently be of the electrolytic type giving a large capacity in a small compass.

As above pointed out, the reversing mechanism is shown on one side of the cord
65 circuit only, since, in general, it is desirable to charge the call to the calling subscriber only. It will be obvious, however, that the same mechanism could be applied on both
70 sides of the cord circuit, if desired. The reversing switch and filter elements, which are shown to the left of the dotted line 16, may be common to all of the cords of a given
75 exchange, or to a group of cords, or, of course, if desired, may be supplied for each cord separately.

While I have illustrated the invention in connection with a typical cord circuit used in manual operation, it will be evident that
80 the invention is equally applicable to machine switching apparatus.

What is claimed is:

1. In a telephone system, a central office, subscribers' stations adapted to be connected thereto, polarized metering apparatus located at the subscribers' stations, connecting
85 circuits and a source of direct current energy at the central office, a switch for reversing the connections of said current source to one end of the connecting circuits at regular
90 intervals at a frequency below audibility, choke coils located in the leads between said reversing switch and said connecting circuits, and a capacity connected across said
95 leads adjacent said choke coils.

2. In a telephone system, a central office, subscribers' stations adapted to be connected thereto, connecting circuits at said central
100 office, polarized metering apparatus adapted to register the period of use of the subscrib-

ers' stations, a source of direct current energy, a switch for reversing the connections of said source to one end of the connecting circuits at intervals of a frequency below audibility, and devices connected between said reversing switch and said connecting circuits for preventing disturbances due to said re-

versing switch from reaching said connecting circuits.

In testimony whereof, I have signed my name to this specification this 4th day of August 1927.

HENRY M. BASCOM.