

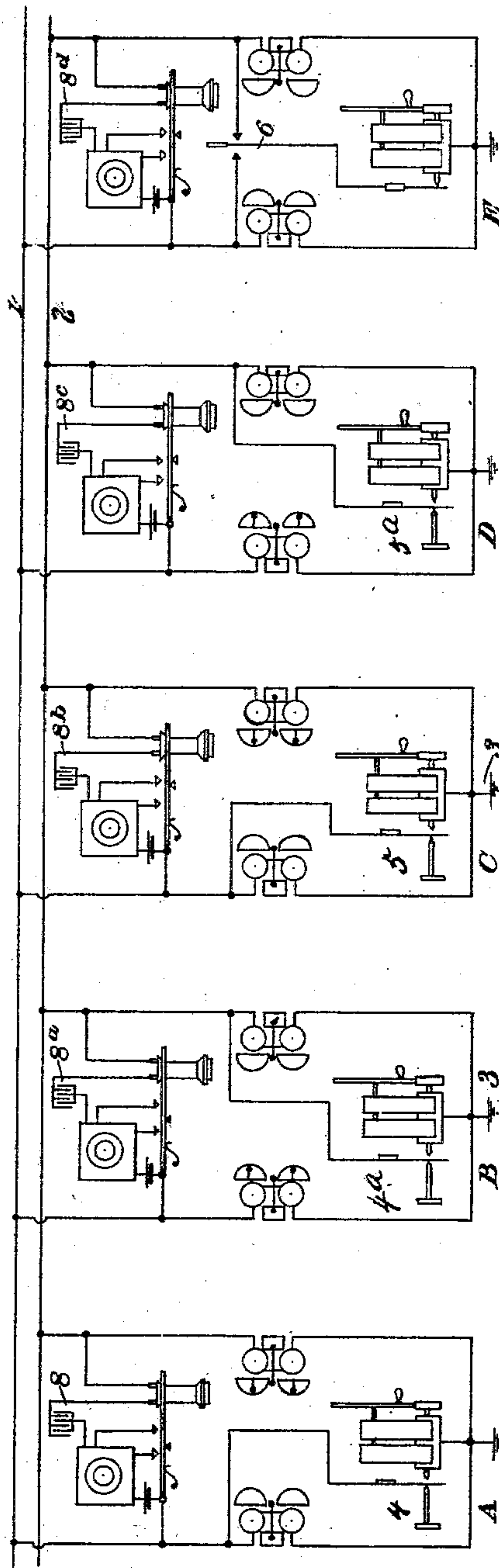
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Patented July 18, 1899.

R. J. HEWETT.
TELEPHONE SYSTEM.

(Application filed Apr. 8, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

ROBERT JOSEPHUS HEWETT, OF ST. LOUIS, MISSOURI.

TELEPHONE SYSTEM.

SPECIFICATION forming part of Letters Patent No. 629,163, dated July 18, 1899.

Application filed April 8, 1898. Serial No. 676,865. (No model.)

To all whom it may concern:

Be it known that I, ROBERT JOSEPHUS HEWETT, a citizen of the United States, and a resident of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Telephone Systems, of which the following is a specification.

The object of this invention is to provide for telephonic intercommunication between a plurality of subscribers connected to the same telephonic circuit and to permit call-signals and speech to be transmitted over the same pair of wires with a minimum amount of interference with the convenience of the several subscribers.

In carrying out my invention I provide a two-wire circuit forming a round metallic system for the transmission of speech and provide for two signal-circuits by means of a ground return or third wire and so organize the apparatus at the several stations that the two sides of the speech-transmitting circuit will be in a perfect electrical balance with respect to any disturbing effects of an inductive or other electrical character having its origin in the return for the signaling-circuit. At the several stations I connect the telephone outfits in parallel relation to the round metallic circuit and the signaling outfits in parallel relation to one or the other side of the round metallic circuit and the ground return, and to prevent dissipation of the energy of the signaling-generators I provide in the telephone branches a condenser of such capacity that it will permit transmission of the voice-currents, but will obstruct transmission of the signaling-currents, thereby permitting the latter to have a practically operative effect on the signal-receiving device of a station at a maximum distance from the calling-station. I utilize both wires running into a subscriber's station for the interposition of call-bells and make the bells of different tone, thereby indicating to a subscriber when a call is made which side of the line is in use. I provide a monitor-station at which an operator may be kept on duty and arrange the calling apparatus of the several subscribers so that part only of those connected with the system may be called directly and others may be called up only by communicating with

the monitor-station, thus facilitating a toll-service by which a record of certain calls may be preserved and the cost of the service to a subscriber equitably graded.

The several features of novelty of my invention will be hereinafter more fully described and will be definitely indicated in the claims appended to this specification.

The drawing shows a diagram of my system in which two call-bells are employed at each station, the signaling being restrictive, so that part only of the subscribers are directly accessible to one another, the others requiring the intermediation of the operator at the monitor-station, the two bells at each station being so arranged as to distinguish the nature of the call and serving to indicate to a subscriber whether or not the line is busy.

1 2 represent a metallic circuit, to which the several telephone-circuits at stations A B C D E are connected in parallel and which normally stand open at the automatic switch or the manual device by which a talking relation with the system is established at any station. The signaling apparatus may be of any suitable form, but is preferably a hand magneto-generator of ordinary construction and a polarized bell adapted to respond to its currents.

One terminal of the generator is connected with the earth and the other may be put in connection with one or the other side of the telephone-circuit 1 2 by an automatic or hand-controlled switch 4 4^a 5 5^a, adapted to be conveniently operated and by which the free terminal of the generator is connected with one of the subscribers' leads between his bell and the line-wires.

In my organization a full equipment of double bells is installed at each subscriber's station; but the two bells are of different tone, so that they may have a different signaling function, the purpose of which is either to call a subscriber or to indicate to him when he desires to make a call that the line is busy. A monitor-station is provided with a two-way signaling-switch 6, by which the subscribers whose bells are connected to different line-wires may be called up. The two bells in each station may be given different tones by any convenient method—as, for example, by

slitting one of them to give a dull tone or by primarily establishing such difference of tone or in any other way giving the signaling devices different characteristics. Stations A and C may call and be called over line 1 and stations B and D over wire 2, their calling outfits being connected, respectively, with these wires. When A calls, therefore, a bell in each station throughout the system will sound, but B or D will recognize from the dead tone of the call that he is not wanted and will, moreover, be apprised by the sounding of the dead-tone bell that the line is in use. In case A wants to call B he must first communicate with the monitor-station E, who by throwing his switch 6 into connection with wire 2 may ring B's service-call, thus putting him into communication with A. In any system of the character herein described it is desirable to prevent call-signals from interrupting telephonic conversation. The usual regulation is to require the subscriber to listen before ringing up. In this system the sending of call-signals while the telephone is in use not only interrupts the conversation, but also causes false signals to be sent to the other side of the circuit. The telephones being connected in parallel with relation to the line-wires ties both of them together as one double wire, and the generator-currents will traverse both sides in parallel and produce signals on both sides of the circuit when signals on one side only should be effected. I provide against this by including a condenser in the telephone branch of each subscriber's loop. The condenser is indicated at 8 8^a, &c. The condenser should be of such capacity as to freely transmit voice-currents, but to prevent the transmission of currents of sufficient volume to operate the bells.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. A telephone system comprising a metallic talking-circuit having a plurality of subscribers' telephone sets in multiple-arc relation between the line-wires, calling-generators in multiple-arc relation to one line-wire and earth at the several subscribers' stations, the connections for the generators at some stations being with one line-wire and at other stations with the other line-wire, bells at the subscribers' stations connected with each line-wire, said bells being of different tone, and a monitor-station having call receiving and transmitting apparatus responsive to either line-wire.

2. A telephone system comprising a metallic circuit connecting a plurality of subscribers and a monitor-station, two call-receiving devices of equal inductance at the several subscribers' stations connecting with the respective sides of the circuit and earth, said devices being of different calling character, and a transmitting device at the monitor-station adapted to connect with either side of the line.

3. A telephone system comprising a metallic circuit connecting a plurality of stations with a monitor-station and having its talking instruments in multiple arc to the two line-wires, two bells at each subscriber's station of different signaling qualities, and means at a monitor-station for operating either bell at all stations.

In testimony whereof I have hereunto subscribed my name this 4th day of April, A. D. 1898.

ROBERT JOSEPHUS HEWETT.

Witnesses:

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