

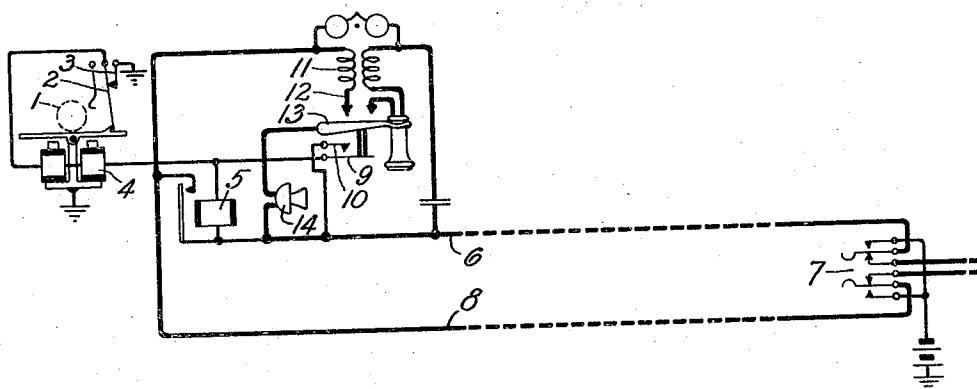
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O. CESAREO

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TELEPHONE SYSTEM

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## UNITED STATES PATENT OFFICE

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## TELEPHONE SYSTEM

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This invention relates to telephone systems and particularly to substation circuits involving registration or the collection and return of coins.

5 In accordance with this invention a means responsive to registration current is provided to connect the line wires in multiple to the registration magnet whereby a line loop of greatly increased resistance over that  
10 ordinarily used may now be employed. Specifically this means may be in the form of a sensitive relay which upon energization will connect the two line wires together at the substation.

15 Another feature of the invention is a means to render this relay ineffective during use of the substation for talking purposes.

20 The drawing consists of a single sheet containing a circuit diagram illustrating the present invention. A substation circuit connected to a loop circuit extending to a central office is shown with only the connection of a register key indicated at that point.

25 At the substation when a coin 1 is deposited it causes a contact 2 to mechanically lock to a grounded contact 3 under control of the armature of a register magnet 4. Other equivalent arrangements such as a  
30 manually controlled register may be used.

When the contacts 2 and 3 have been closed together the magnet 4 is connected through the winding of relay 5 to conductor 6 only. If under these conditions the operator at the central office should operate the register key 7 she will thereby connect battery to conductor 6 and this will result in the energization of relay 5. Since this arrangement is designed for use on long  
40 lines insufficient current will flow over conductor 6 to also energize the magnet 4. However, upon the energization of relay 5, conductor 8 will be connected in parallel with conductor 6 at both ends of the loop and consequently the resistance will be lowered to cause the energization of magnet 4.

45 While the receiver is off the hook contacts 9 and 10 will be closed and consequently relay 5 will be short-circuited. If key 7 is  
50 operated at this time battery will be con-

nected over the upper contacts of key 7, conductor 6, contacts 9 and 10 to the winding of magnet 4 and in parallel therewith over the lower contacts of key 7, conductor 8, winding 11 of the induction coil, contact 12, hookswitch 13, and transmitter 14 to the winding of magnet 4.

Thus registration current is connected to the winding of magnet 4 over line conductors 6 and 8 either with or without the receiver on its hook.

What is claimed is:

1. In a telephone substation set, line terminals, a register magnet, and a relay responsive to current over one of said terminals for connecting said terminals in parallel to said register magnet.

2. In a telephone substation set, line terminals, a hookswitch, a register magnet, a relay, means controlled by said hookswitch in one position for short-circuiting said relay and for connecting said terminals in parallel to said register magnet, and means controlled by said hookswitch in another position for rendering said relay responsive to current over one of said terminals, said relay upon response connecting said terminals in parallel to said register magnet.

In witness whereof, I hereunto subscribe my name this 25th day of September, 1929:  
ORFEO CESAREO.

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