

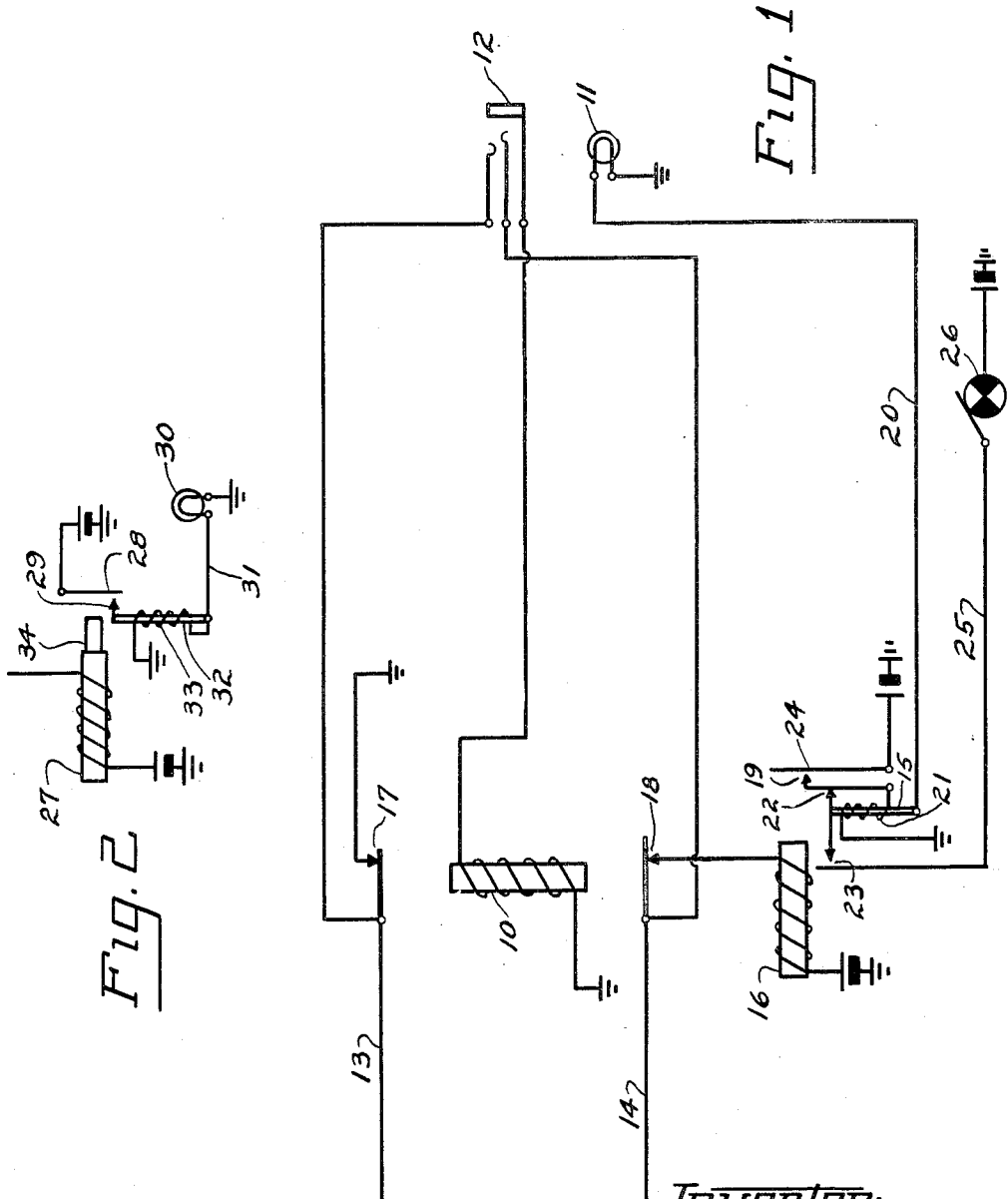
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TELEPHONE SYSTEM

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TELEPHONE SYSTEM

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6 Claims. (Cl. 179—51)

This invention relates to telephone systems, and more particularly to that part of a telephone circuit which controls the line lamp signal to notify the operator that a subscriber wishes to make a call.

During the busy or peak traffic hours a large number of lamp signals appear before each operator, and with the usual switchboard there is no means by which the operator can ascertain which signal appears first. Thus one subscriber may wait for service while a number of others who have called later are being answered.

An object of my invention is to provide a means for enabling the operator to answer calls more nearly in the order in which they are placed.

A feature of my invention is the provision of means by which a call signal which has been waiting for a predetermined period of time is caused to flash, notifying the operator that it should receive attention before those call signals which have been waiting a shorter time.

Further features will be more fully pointed out in the ensuing specification and claims.

On switchboards using my invention, when a subscriber lifts his receiver off the hook, closing the line circuit, the line lamp signal appears before the operator in the usual manner. After a predetermined length of time the line lamp begins to flash off and on, notifying the operator that the call has been waiting, and should be answered before those which have come in later, and are not flashing.

It is believed that the invention will be best understood from a detailed explanation of its operation, taken in conjunction with the accompanying drawing which forms a part of the specification, and in which

Fig. 1 is a line lamp circuit embodying the features of my invention; and

Fig. 2 is an optional arrangement of the flashing apparatus.

Referring now to the drawing, 10 is the usual cut-off relay of a telephone circuit, 11 is the line lamp, 12 is the line jack, 13 and 14 designate the subscriber's line, 15 is a bimetal warp switch operated by line relay 16 and 26 is a battery circuit interrupter.

When a subscriber lifts his receiver preparatory to making a call, the line relay 16 is operated in the usual manner through a circuit traced from ground through contact 17 of cut-off relay 10, line 13, the customary subscriber's set (not shown), line 14, contact 18 to battery through the winding of line relay 16. The operation of

line relay 16 closes contact 19, closing a circuit from ground through line lamp 11, conductor 20, the body of warp switch 15, and contact 19 to battery. The closing of contact 19 also supplies current from ground through the heater winding 21 around warp switch 15 to battery.

Switch 15 is a bimetal warp switch, and is adjusted to snap over and break contact 22 and make contact 23 when it reaches a predetermined temperature, or after current has been flowing through the winding 21 and line lamp 11 for a predetermined length of time. The opening of contact 22 removes battery from the line lamp circuit, causing it to be extinguished. Armature 24 is adjusted to follow switch 15, holding contact 19 closed, keeping closed the path for current through heater winding 21.

The closure of contact 23 closes a circuit from ground, through line lamp 11, conductor 20, the body of switch 15, conductor 25 and circuit interrupter 26 to battery. Interrupter 26 may be common to a number of circuits, and may be any suitable current interrupter. It alternately opens and closes the line lamp circuit, causing line lamp 10 to flash on and off, notifying the operator that this particular call has been waiting for more than a predetermined length of time, and should be answered before any calls designated by line lamps which are burning steadily.

In Fig. 2 I have shown an optional circuit arrangement for accomplishing the same result. In this embodiment of my invention, the line relay 27 operates in the same manner as that shown in Fig. 1. Armature 28 closes contact 29, lighting line lamp 30 through a circuit traced from ground through line lamp 30, conductor 31, the body of warp switch 32 to battery through contact 29 and armature 28. A circuit is also closed from ground through heater winding 33, the body of switch 32, contact 29 and armature 28 to battery. After a predetermined time, when heater winding 33 has heated the warp switch sufficiently to cause it to operate, it snaps back, opening contact 29.

A stop 34 may be provided to prevent armature 28 following the warp switch. When switch 32 operates to break contact 29, the circuits for line lamp 30 and heater winding 33 are broken, causing the line lamp to be extinguished and permitting switch 32 to cool. When switch 32 has cooled sufficiently it returns to its normal position, closing contact 29 and again setting up the line lamp and heater winding circuits. This action is repeated, alternately lighting and extinguishing

the line lamp until the call is answered in the usual manner.

The bimetal warp switches may be operated in conjunction with the usual line relay, as additional contacts, and without interfering with its usual functions.

While I have illustrated and described a preferred embodiment of my invention, it is to be understood that changes and modifications will readily suggest themselves to those skilled in the art, and I therefore desire to be limited only by the spirit and scope of the appended claims.

Having described my invention, what I claim as new and desire to secure by United States Letters Patent is:

1. A telephone system including a line lamp, a line relay for lighting said line lamp, and a bimetal warp switch arranged to flash said line lamp alternately off and on after being initially lighted.

2. A telephone system including a line lamp, a line relay for lighting said line lamp, and a bimetal warp switch arranged to alternately flash said line lamp on and off after said line relay has been operated for a predetermined length of time.

3. In a telephone system, a line lamp, a line

relay, a direct circuit for said line lamp, a second circuit for said line lamp, an interrupter in said second circuit, and means controlled by said line relay to transfer said line lamp from said first circuit to said second circuit.

4. In a telephone system, a line lamp, a direct circuit for said line lamp, a second circuit for said line lamp, an interrupter in said second circuit, and means automatically operative after a predetermined period of time for transferring said line lamp from said direct circuit to said interrupter circuit.

5. In a telephone system, a line lamp, a line relay, a direct circuit for said line lamp, a second circuit for said line lamp, an interrupter in said second circuit and a bimetal warp switch associated with said line relay arranged to transfer said line lamp from said direct circuit to said interrupter circuit.

6. In a telephone system, a line lamp, a direct circuit for said line lamp, a second circuit for said line lamp, an interrupter in said second circuit, and a bimetal warp switch operative after a predetermined period of time to transfer said line lamp from said direct circuit to said interrupter circuit.

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