

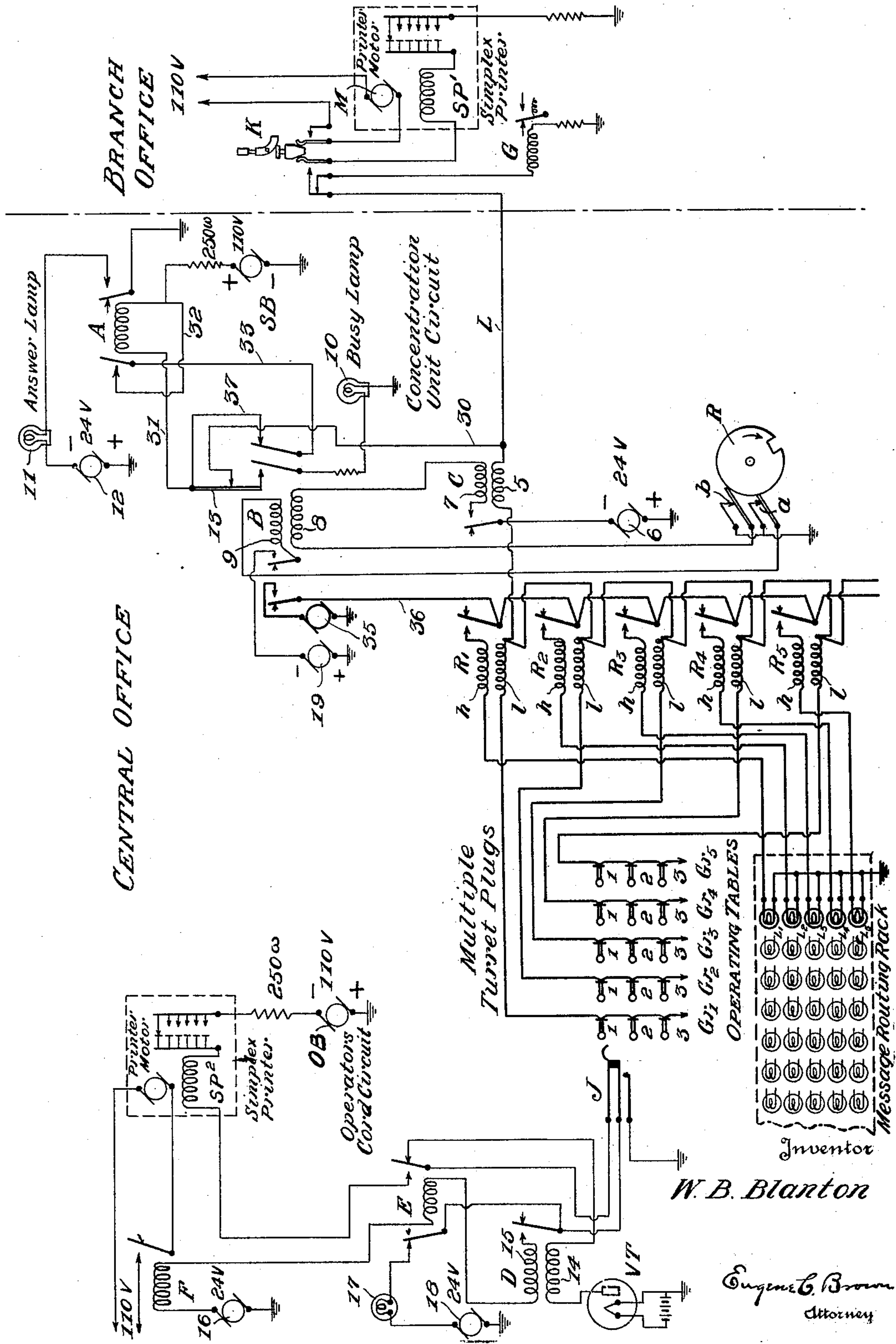
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MESSAGE DISTRIBUTING SYSTEM FOR SIMPLEX PRINTER CONCENTRATION UNITS

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MESSAGE DISTRIBUTING SYSTEM FOR SIMPLEX PRINTER CONCENTRATION UNITS

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This invention relates to the handling of traffic at a concentration or central station where a large number of subscribers' lines are terminated before a small number of operators and is an improvement upon the arrangement disclosed in Patent 1,804,327 dated May 5, 1931. Satisfactory service requires that each message shall be expedited to its destination. To insure the maintenance of a satisfactory speed of service, the telegraph companies generally specify a time limit within which each message must be retransmitted after it is received at a central office. In a telegraph system, full rate traffic must be given precedence over reduced rate traffic, such as day letters and night letters. In order to meet these requirements at a concentration center, messages for a branch office, the line of which is idle, are taken to an idle operator for immediate transmission, while messages for an office, the line of which is busy, are taken to the operator then working that circuit. The operator can then determine in what order the messages shall be transmitted to the branch office by noting the class of each message.

The object of this invention is to facilitate the distribution of messages at a central station or concentration unit, which are destined for transmission on lines that are busy or in operation, by providing an indication which designates the particular group of operators in which the desired operator is located.

My invention will be understood from the following description in connection with the accompanying drawing in which, for the sake of convenience, the circuit arrangement is illustrated for only one branch office and only one simplex printer is shown at the central office.

The operator's cord circuit and its associated equipment in the central office and also that at the branch office are identical with the corresponding parts in said Patent 1,804,327. The equipment at each branch station comprises a simplex printer SP', a key switch K and a signal relay G. The branch office is connected by line L to the central office. With the key K in the position illustrated, the line L is grounded through the signal relay G;

while in the depressed position of the key, the relay G is disconnected and the line is grounded through the simplex printer SP' and the energized circuit of the printer operating motor M is completed.

At the central office, the line L is connected through the line winding 5 of relay C to the multiple turret plugs 1, 2, 3, etc. rigidly located in front of the respective operators. A circuit is normally closed over each line from the central office to the branch offices from the signal battery or generator SB through the winding of line relay A, over conductor 31, spring contact arm 13 and upper contact of relay B, conductor 30, line L, contacts of key switch K and winding of relay G to ground. When the operator at the branch office sends a call by first shifting the key K to connect the printer and to start the printer motor and then depressing any key on the printer, thereby momentarily opening the line, the relay A will be deenergized and will remain in that condition because of a short circuit which is completed around its winding through the conductor 32 and its left hand back contact and armature, conductor 33, back contact and right hand outer armature of relay B and conductors 37 and 31. The right hand armature of line relay A closes a circuit through the answer lamp 11. While only one answer lamp 11 is shown, it should be understood that there are a sufficient number of answer lamps 11 (connected in parallel) associated with this line so that at least one answer lamp 11 is visible to each concentrator operator. The lighting of these lamps indicates to any idle operator that this call may be answered by attaching her printer cord circuit to the corresponding line plug at her position.

The operator's cord circuit comprises the circuit arrangement interconnecting the jack J with relays D, E and F and with the simplex printer SP'. The tip contact in the jack J is connected to the right-hand tongue of relay E, and the back contact cooperating with this tongue is connected through winding 14 of relay D to the plate element of a two-electrode vacuum tube VT; the filament of the tube being grounded. One of the extra contacts on jack J is connected to ground,

and the other cooperating extra contact is connected to the tongue of relay D. Winding 15 of relay D and the windings of relays E and F are connected in series in a circuit extending from the contact of relay D to ground, including a source of current 16. The left-hand tongue of relay E is connected to the tongue of relay D, and the back contact cooperating with said tongue of relay E is connected through a busy lamp 17, and a source of current 18, to ground. The contact of relay F is included in the motor operating circuit of simplex printer SP². The operating circuit for this printer extends from the front contact of the right-hand tongue of relay E through the printer to the source of operating current OB.

To facilitate the distribution of messages destined for transmission on lines which are busy, the operating tables of a concentrator unit are divided into distribution groups. The number of tables included in a distribution group is not definite but depends, of course, upon the particular conditions, floor space and total number of tables in each particular concentration unit, it being desirable, however, that all the tables in any one distribution group shall face upon the same aisle.

All outgoing messages, including those received in the central office over printer circuits, multiplex, telephone, pneumatic tube, etc., which are destined for retransmission over the circuits terminating in a particular concentrator, are forwarded in a suitable manner such as mechanical conveyor system, to the message distributing center for the concentrator at which there is located a message routing rack having a compartment for each branch office line. One or more routing clerks stationed at the rear of the rack remove the messages from the conveyor drop and sort them into the proper compartments according to the destination of the messages.

On the front of the message routing rack a vertical row of lamps, which includes one lamp for each distribution group in the concentrator, is provided underneath each compartment and its associated designation card. For purposes of illustration I have shown the operating tables divided into five groups and consequently each compartment of the message routing rack is provided with five lamps under each compartment, one for each of the five distribution groups.

When the messages for a particular branch office are placed in the compartment of the message routing rack assigned to this branch office, a delivery girl, by noting which lamp is lighted, is able to take these messages to the table group in which the operator is located who is working this line, if the line to this branch office is busy at this instant. Then by noting to which line each of the operators in this group have their plug J attached, the

delivery girl can immediately find the operator who is working the branch office for which these messages are intended. Thus the group position finder very clearly facilitates the distribution of outgoing business over a concentrator by decreasing to a small number the operators who must be looked over by the delivery girl when she is seeking an operator working on a particular line.

My group position finding arrangement embodies a series of relays corresponding to the number of groups of operating tables interposed in multiple between each branch line and the multiplied turret plugs corresponding to that line, each of said relays being provided with a holding coil in circuit with an indicating lamp.

The operation of the group position finder will be understood from the following example:—

Assume that a call has been received from the branch office illustrated as indicated by the lighting of the answer lamp 11. Assume further that one of the central office operators stationed at an operating position in table group No. 3 answers this call. When she attaches her jack J to one of the turret plugs in table group No. 3 (Gr₃), the line current will pass through coil 5 of relay C and through the line coil 1 of group finder relay R₃ and through the turret plug to the operator's cord circuit, thereby connecting her simplex printer SP² to the branch line in the manner described. Relays B, C, D, E and F operate in the manner described in said Patent 1,804,327.

The operation of group relay R₃ closes a holding circuit from generator 35 through the outer left-hand armature and contact of relay B, conductor 36, armature contact and holding winding h of relay R₃ and group indicator lamp L₃ to ground. This circuit will be maintained as long as the line is held. At the end of the exchange of business, when the operator removes her jack J, the relay B is deenergized, thus opening the holding circuit 36 which deenergizes group relay R₃ and extinguishes the lamp L₃.

I have illustrated my group position finder arrangement as applied to the particular concentration unit circuit shown in Patent 1,804,327 but it will be evident that it may be readily adapted to other types of concentrator circuits. It will also be evident that various changes and modifications may be made without departing from my invention.

I claim:

1. In an intercommunication system embodying a central office and a plurality of branch offices, a line from each branch office terminating in multiplied jacks or plugs at a number of turrets or operators' positions, said turrets being arranged in groups, means operated by the line current for indicating in which group the answering operator is located, and means for maintaining the opera-

tion of said indicating means while the line is held.

2. In an intercommunication system embodying a central office and a plurality of branch offices, a line from each branch office terminating in multiplied jacks or plugs at a number of turrets or operators' positions, said turrets being arranged in groups, a plurality of relays corresponding to the number of said groups interposed between the line and the multiplied jacks or plugs in the respective groups.

3. In an intercommunication system embodying a central office and a plurality of branch offices, a line from each branch office terminating in multiplied jacks or plugs at a number of turrets or operators' positions, said turrets being arranged in groups, a plurality of relays corresponding to the number of said groups, each relay being provided with an actuating winding and a holding winding, said actuating windings being interposed between the line and the multiplied jacks or plugs in the respective groups, and a holding circuit including an indicating lamp being connected to the armature and holding winding of each relay.

4. In an intercommunication system embodying a central office and a plurality of branch offices, a line from each branch office terminating in multiplied jacks or plugs at a number of turret or operators' positions, said turrets being arranged in groups, a routing rack having compartments corresponding to each branch office, adapted to receive messages destined to said respective offices, a series of indicating signals corresponding in number to said groups associated with each compartment, and means actuated by the seizure of a line for operating the signal corresponding to the group in which the seizing operator is located.

In testimony whereof, I affix my signature.
WILLIAM B. BLANTON.