April 7, 1959 R. J. GALLAGHER ET AL 2,881,254

POSTPAY PAYSTATION WITH COIN CONTROL CIRCUIT

Filed April 27, 1953

3 Sheets-Sheet 1

FIG. 3

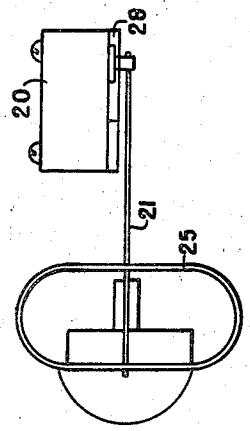


FIG. 2

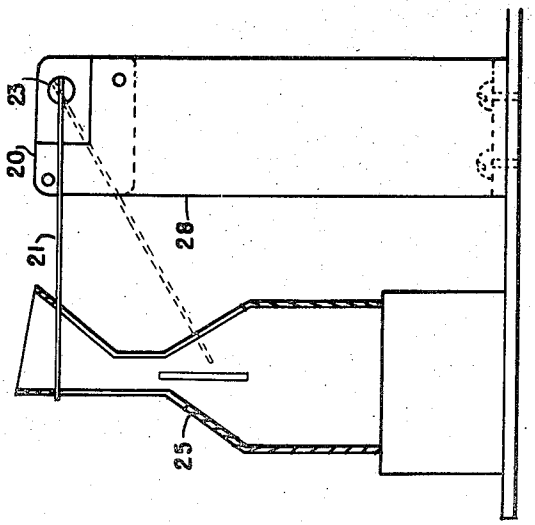


FIG. 1

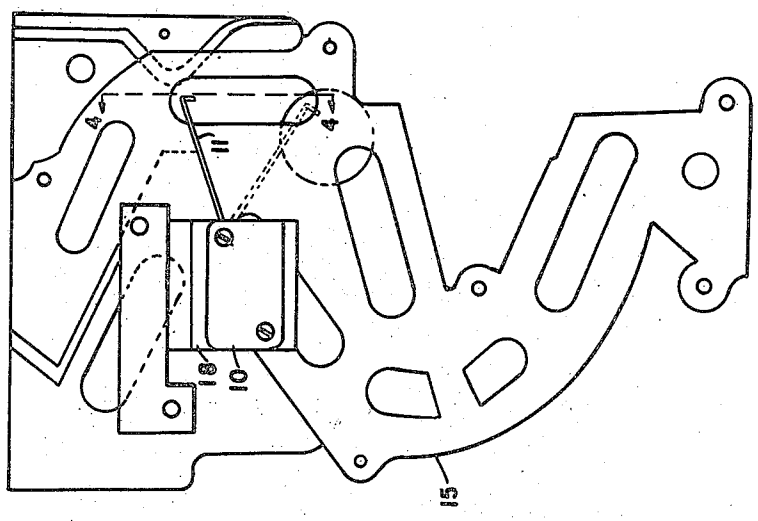
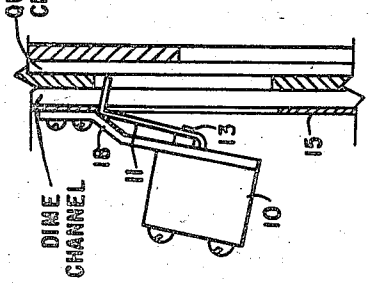


FIG. 4



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POSTPAY PAYSTATION WITH COIN CONTROL CIRCUIT

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3 Sheets-Sheet 2

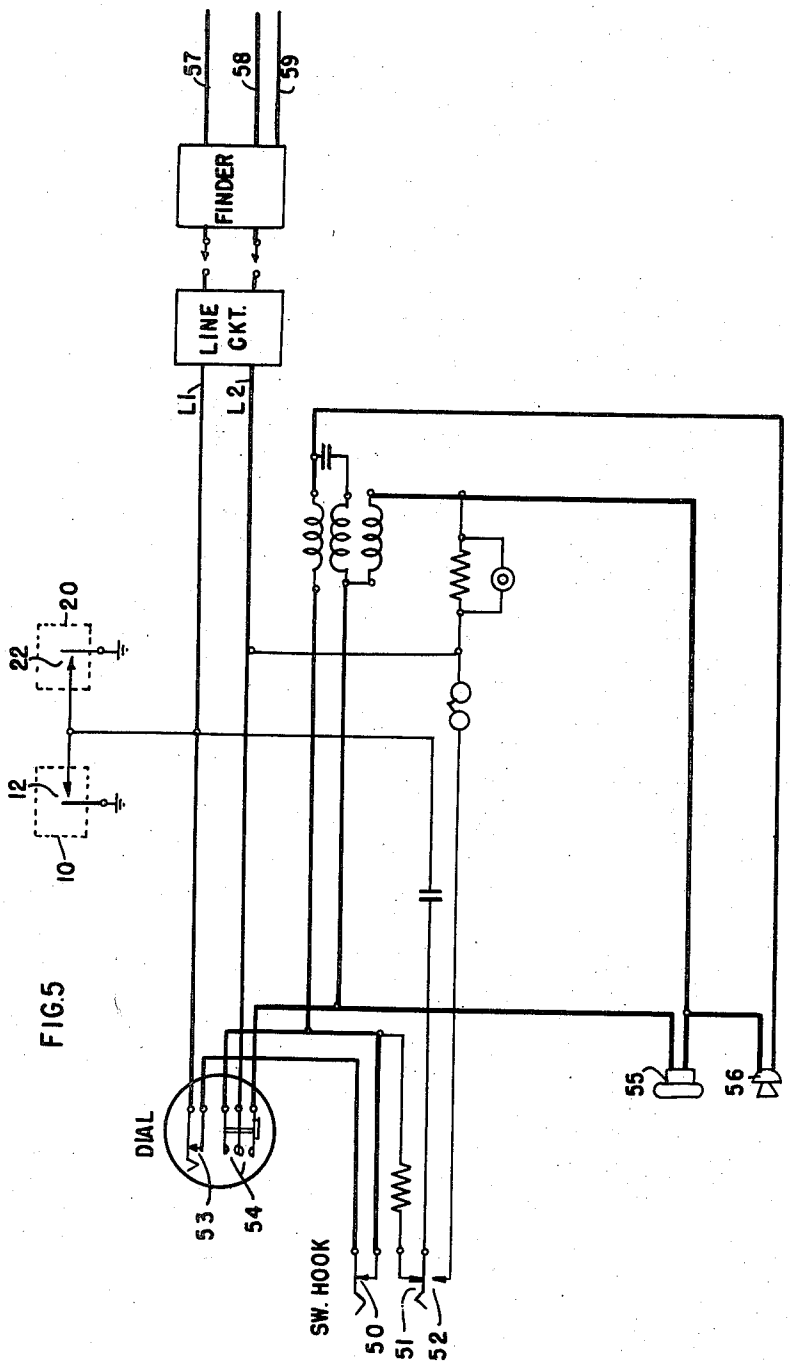

FIG.5

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POSTPAY PAYSTATION WITH COIN CONTROL CIRCUIT

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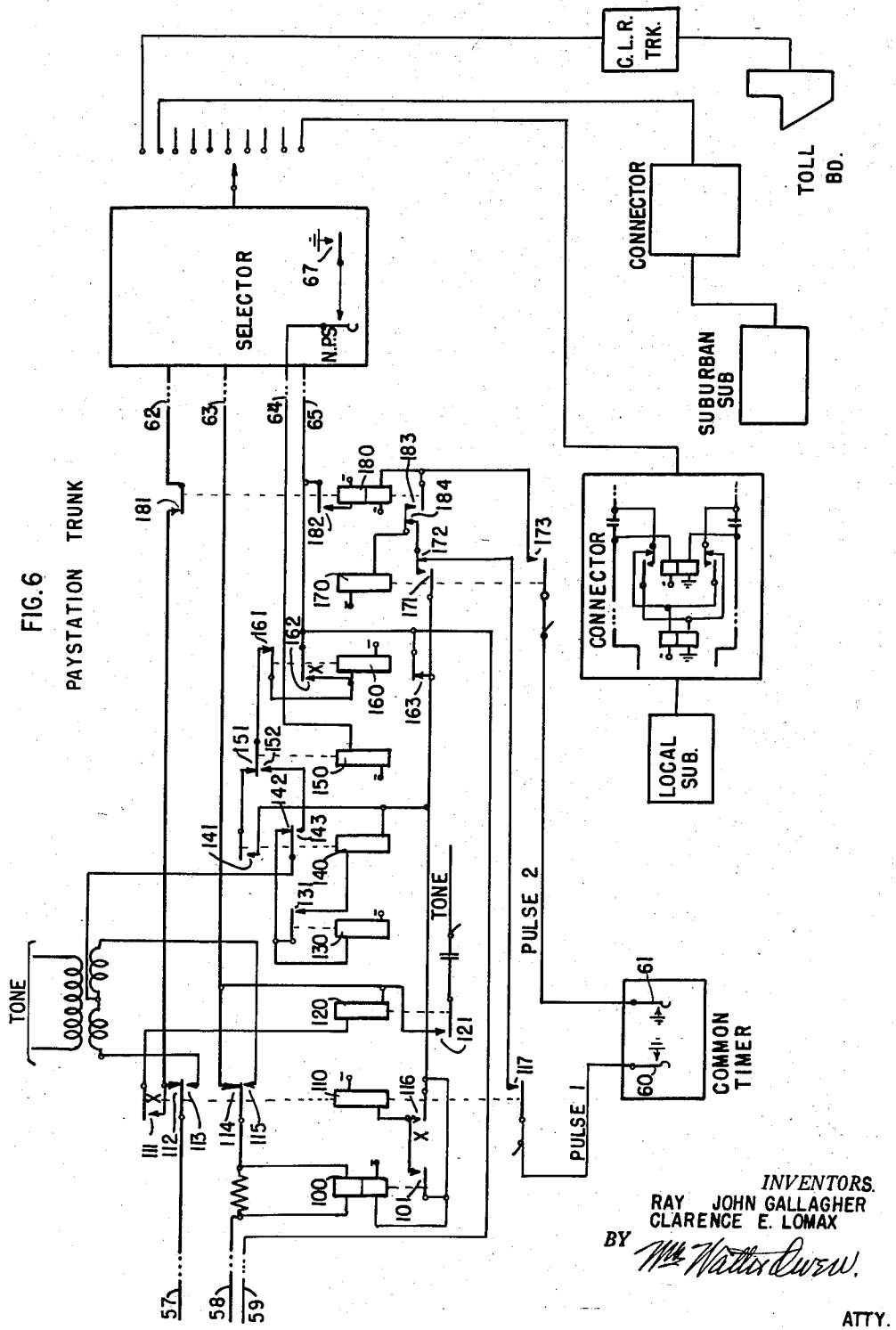

FIG. 6

PAYSTATION TRUNK

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POSTPAY PAYSTATION WITH COIN CONTROL CIRCUIT

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Application April 27, 1953, Serial No. 351,323

10 Claims. (Cl. 179—6.5)

The present invention relates in general to telephone paystations and more specifically to improved postpay telephone paystations having improved coin controlled circuits particularly adapted for use therewith.

The principle object of our invention is to provide an improved postpay coin actuated apparatus and a coin controlled circuit for use therewith, whereby the deposit of two coins of the same denomination, or single coins of a different denomination, is required before satisfactory talking connections can be established between calling and called stations.

Referring to U.S. Patent 1,383,472, issued July 5, 1921, to G. A. Long, it will be noted that this patent may be taken as one disclosure of a standard automatic paystation telephone showing the normal equipment therein and requiring the deposit of a coin of a certain denomination (such as five cents or a nickel) as the usual established fee charged for all local paystation calls. However, in view of changed present day economic conditions resulting in rising costs, many telephone companies have been forced to increase their fees for such local calls. Therefore, in view of these increased fees it has been adopted as somewhat of a standard procedure to modify such as the above-mentioned existing automatic paystation telephones by including additional coin controlled or actuated devices, mechanisms or apparatus at each paystation in order to accommodate the increased fees and still provide satisfactory service. This inclusion of equipment at each paystation has, of course, resulted in additional costs to the telephone companies.

The standard paystation telephones, such as referred to above, have individual thereto the conventional coin chutes, coin hoppers, coin triggers, polarized magnets, contact mechanisms associated with both the coin triggers and magnets, receivers, transmitters, coin signal transmitters and coin operated signals as the main elements. In order for these paystations to accommodate the previously mentioned increased fees they have been modified to additionally include the previously mentioned coin controlled devices, mechanisms or apparatus. When these modified paystations are used as postpay paystations, they operate briefly as follows: for a local call, the calling paystation dials the call number of the desired party to establish connections therebetween. Responsive to answering by the called party, reverse battery is transmitted back to the calling paystation. This reverse battery operates the polarized magnet at the calling paystation which in turn closes contacts to shunt the transmitter for preventing normal conversation until the required fee has been deposited. Previously, in the standard paystation a deposited single coin (nickel for local calls) would operate the coin trigger which in turn would open the contacts that were closed by the operated polarized magnet and thus remove the shunt from the transmitter to allow procedure of normal conversation. However, with the advent of the increase in fees for local calls and the addition of the coin controlled apparatus at the paystation,

operations are such that if the fee is a dime only, any initially deposited nickels are rejected and only deposited dimes (or quarters in some cases) are accepted to operate the coin trigger and remove the transmitter shunt for permission of normal conversation. If the required local fee is either two nickels or one dime, the operation of the coin controlled apparatus is such as to accept an initially deposited first nickel but requiring a subsequently deposited second nickel to remove the transmitter shunt. The coin controlled apparatus functions so as to accept an initially deposited dime to remove the transmitter shunt. With all of these operations it must be borne in mind that these modified types of paystation arrangements function on toll calls, wherein single nickels plus other coins are required as the deposit in payment of the toll fee.

It is a further object of our invention to provide a telephone paystation which may be used as a postpay paystation and in which the initial cost of each paystation telephone is substantially reduced, while still providing efficient, reliable and satisfactory service.

In accordance with the main feature of our invention, improved circuit means common to a plurality of paystations is provided, whereby certain equipment individual to each paystation telephone may be eliminated, thereby reducing the cost of each paystation.

A further feature of the invention relates to the provision of the above-mentioned improved common circuit means at a central office, whereby a plurality of paystations have access thereto.

Still another feature of the invention relates to the provision of means in the above-mentioned circuit means for determining the initial fee on paystation calls which is dependent upon the location of the called station as to the amount.

Another feature of the invention resides in the provision of means at each paystation telephone for transmitting series of different predetermined numbers of pulses, each series corresponding to a different denomination of a deposited coin.

A still further feature of the invention is the provision of means in the improved circuit means whereby each of the series of pulses are counted or totaled and conversation is permitted only when the total equals or surpasses the fee for the call that is established.

In its preferred form, such as disclosed in the present application, the object are accomplished as follows: The paystation similar to the one such as shown in the previously mentioned U.S. patent to Long has been modified so as to be used as a postpay paystation, the normal coin trap in the coin hopper and control linkage necessary thereto for coin collect and coin refund operations have been removed, since there are none of the conventional collect or refund operations in a postpay paystation. This postpay paystation has been further modified by removing the coin trigger, polarized magnet, contacts and the contact operating linkages from the trigger and magnet. A mounting bracket is secured to the paystation frame adjacent the coin hopper and mounted on this bracket is a rotary type contact closer of a type more commonly referred to hereinafter as a microswitch. The slot in the hopper that formerly accommodated the coin trigger is modified to accommodate the movement of the actuating arm of the microswitch from its normal position to its farthest extent of travel. A second mounting bracket is secured to the coin chute and mounted at an angle on this bracket is a second microswitch. The actuating arm of this second microswitch is so formed that its extreme end projects into the dime passageway. The second microswitch is mounted at an angle so that when the actuating arm is moved downward as the result of a deposited dime, the arm will clear the dime channel

just prior to the extreme extent of travel of the arm and allow the dime to continue on its way.

It will be noted at this time that each coin of all deposited acceptable denominations of coins will operate the first microswitch. Additionally, it will be noted that only deposited dimes will operate both microswitches.

While the illustrated form of the disclosure shows the arrangement such as described above, additional microswitches could similarly be arranged on the coin chute over the other coin channel (such as the quarter) so that a deposited quarter would possibly operate both microswitches. It will further be noted at this time that the microswitches such as used are merely spring contacts that are operated only momentarily to normally send a ground pulse over the line that is in use.

Therefore, as described in the above paragraphs, it is apparent that the initial cost (with respect to the former initial cost) of the postpay paystations containing our invention has been appreciably reduced by the removal of the aforementioned coin trigger, polarized magnet, contacts and contact operating linkages and then substituting the inexpensive microswitches and mounting brackets in the manner previously mentioned.

To work with our postpay paystation, an improved postpay paystation trunk circuit is provided at the central office, with this trunk circuit being accessible to a plurality of paystations. Means is provided in the trunk circuit and operated when battery is reversed, responsive to the answering of a call by a called party for preventing normal conversation between the calling and called party until a certain predetermined fee is deposited at the calling paystation.

Assuming in one instance that the call is local and the required fee on this type of call is five cents, or one nickel, the receipt of a minimum of one ground pulse is required from the calling paystation by the trunk circuit before the talking connection is established. The deposit of a nickel at the calling paystation will operate the aforementioned first microswitch for the transmission of the single pulse to the trunk circuit. A deposited quater or dime (even though the dime sends two pulses) would also serve to operate the trunk circuit to complete the talking connection in the event that the calling party had no nickels.

Assuming in another instance that the call is to an extended zone, or suburban area, and that the required fee on this type of call is ten cents, or one dime or two nickels, the receipt of a minimum of two grounded pulses is required from the calling paystation by the trunk circuit before the talking connection is established. The deposit of a dime at the calling paystation will operate both microswitches for the transmission of two pulses to the trunk circuit. In the event that no dimes are available, the deposit of a first nickel followed by the deposit of a second nickel will also send two pulses to the trunk circuit for the subsequent operations necessary to complete the talking connection.

Other objects and features of the invention will become apparent upon a further perusal of the specification and claims taken in conjunction with the accompanying drawings comprising Figs. 1–6, which show by means of the usual diagrams a sufficient amount of apparatus to enable the invention to be described and understood and in which:

Fig. 1 is a view of a conventional coin chute showing the microswitch mounted thereon and with its actuating arm projecting into the dime channel.

Fig. 2 shows a sectional side view of the coin hopper with another microswitch mounted adjacent thereto and having its actuating arm projecting into a slot near the top of the coin hopper.

Fig. 3 is a top view of Fig. 2.

Fig. 4 is a sectional side view taken from the right along the line 4—4 of Fig. 1 and showing the microswitch mounted at an angle on the coin chute.

Fig. 5 is a schematic representation of the circuit of a postpay telephone paystation including the microswitches.

Fig. 6 is a schematic representation of the postpay paystation trunk circuit designed to work in conjunction with the postpay paystation shown in Fig. 5.

The same reference numbers have been used to indicate the same or similar elements throughout the drawings.

A more detailed description of the invention follows.

Referring to the drawings and in particular to Figs. 5 and 6, it will be noted that the schematic disclosure embodying our invention shows the modified postpay paystation circuit of Fig. 5 as having access to the improved paystation trunk and selector of Fig. 6 by means of the usual line circuit and finder. The selector associated with the trunk routes the calls in a well-known manner to a local subscriber, a suburban subscriber or a toll operator, dependent on the type of call initiated by the paystation.

At this time, it will be appreciated that it is thought unnecessary to disclose in detail the selector and the equipment that it has access to, since all of the equipment may be assumed to be of the common and well-known type. Further, the common timer may be any constantly operating device pre-arranged to close springs **60** and **61** at certain definite intervals of time. It will also be appreciated that sufficient equipment is thought to be shown in the connector associated with the local subscriber, for reversing the talking battery in an established connection when the local subscriber answers. Similar battery reversing equipment is also included (but not shown) in the connector associated with the suburban subscriber. The microswitches **10** and **20** shown in Figs. 1 and 2 have been illustrated in dotted form in Fig. 5, with their respective contacts **12** and **22** associated therewith.

Assuming for this type of call that a person desires to initiate a call from the paystation in Fig. 5 to a local subscriber such as shown in Fig. 6 and that the established fee for a local call is five cents, or one nickel, the equipment will operate as described hereafter.

Upon removal of the paystation handset, the switch hook contacts **50** and **51** close (as shown), thereby completing a loop circuit for operating the line relay (not shown) in the line circuit in a well-known manner. Responsive to this operation the finder is started and hunts for and connects with the calling paystation, at which time the calling paystation receives dial tone also in a well-known manner. The call number of the local subscriber is dialled, whereby the selector operates in a well-known manner to establish the normal signalling connection with the local subscriber. Upon receipt of the signal of the incoming call, the local subscriber answers the call and the illustrated equipment of the associated connector is operated to reverse the talking battery supplied to the connection.

Before continuing with the present description, it is thought best to mention herein that relay **100** of the paystation trunk is a polarized relay of the well-known construction and operation. Therefore, when the finder connects with the calling paystation, the control conductor **59** leading from the finder is grounded (not shown) and a circuit is completed for energizing the lower winding of relay **100** over a path traced from ground in the finder, control conductor **59**, contacts **163** and through the lower winding of relay **100** to battery. The upper winding of relay **100** is included in the talking conductor circuit and is also energized, but since relay **100** is a polarized relay as previously mentioned, it will not operate until battery is reversed over its upper winding subsequent to the local subscriber answering the call.

When reverse battery is received at the paystation trunk, the current through the upper winding of relay **100** is reversed and at this time relay **100** operates and completes a circuit for relay **110** at contacts **101**. This

operating circuit for relay 110 may be traced from the previously mentioned ground applied to the control conductor 59 in the finder, contacts 163, contacts 101 and through the winding of relay 110 to battery. In operating, relay 110 closes its "X" contacts 111 and 116 first, which respectively place the winding of relay 120 across the conductors of the called line in an obvious manner and completes an obvious locking circuit for itself to the grounded control conductor 59. Relay 110 opens contacts 112 and 114, whereby the line conductors between the calling and called party are opened, thus preventing conversation at the present time. Relay 110 closes contacts 113 and 115, thus bridging the line conductors of the calling party across the lower winding of the tone induction coil. This also maintains the connection that has been established from the paystation to the paystation trunk during the subsequent operations. The closing of contacts 113 and 115 may cause relay 100 to restore, since the reverse battery is removed from the upper winding of relay 100, but this will have no effect since relay 110 will remain energized over its own locking circuit. A tone is sent to the calling party via the lower winding of the induction coil to indicate to the calling party that his call has been answered and to further indicate that he must deposit the required fee of one nickel in order to establish a talking connection with the desired local subscriber.

The bridging of the winding of relay 120 across the conductors outgoing to the called party, in addition to operating relay 120, also serves to maintain the established connection between the paystation trunk and the local subscriber. At contacts 121, relay 120 completes an obvious tone circuit over the line conductors to the called subscriber, thereby indicating to him that the call originated at a paystation and that he must wait until the calling party has deposited the required coins in order to remove the tone and establish the talking connection.

Assuming for the present that the calling party deposits a nickel, the deposited nickel will travel down the coin chute and into the coin hopper where it will strike the actuating arm 21 of microswitch 20. Due to the combined weight and inertia of the nickel, it will push arm 21 downward in order for the nickel to pass by and will rotate the arm about its pivot pin 23, thereby momentarily closing contacts 22 for sending a ground pulse out over line conductor L1. This ground pulse will energize relay 130 over a circuit traced from ground at microswitch contact 22, line conductor L1, line circuit and line finder, line conductor 57, contact 113, the lower left hand winding of the induction tone coil, center tap conductor, contact 142, and through the winding of relay 130 to battery. In operating contacts 131, relay 130 prepares an operating circuit for relay 140 in series with itself and effective at the instant that the ground pulse from microswitch contact 22 is removed from the line. This series-operating circuit for relay 140 and locking circuit for relay 130 may be traced from the previously mentioned ground on the control conductor 59, contacts 163, winding of relay 140, contacts 131 and through the winding of relay 130 to battery.

Upon operating when ground is removed from conductor L1, relay 140 completes a circuit for relay 160 at contacts 141. This circuit being traced from the previously mentioned grounded control conductor 59, contacts 163, 141, 151, 161 and through the winding of relay 160 to battery. The opening of contacts 142 by relay 140 opens the previously mentioned energizing circuit of relay 130 with no effect at this time. The closing of contacts 143 by relay 140 also has no effect on the trunk equipment during the present operation.

In operating, relay 160 closes its "X" contacts 162 first and thereby locks up to the aforementioned grounded control conductor 59. At contacts 161 relay 160 opens its previously mentioned energizing circuit, and at contacts 163 removes the holding ground from the locking circuits of relays 110, 120, 130, 140 and 170.

Before continuing further with the present description, it is thought best to describe the purpose and operation of the common timer and the relays 170 and 180 controlled thereby. Assuming there is a possibility that a paystation has initiated a call to a local, or suburban subscriber, that the called station has answered, and that the calling party has failed to deposit the required fee. This could result in relay 120 being bridged across the called line and holding up the entire connection indefinitely even though both parties have replaced their receivers, since ground would be sent to both the trunk circuit and the local connector by way of the selector control conductor such as 65 of the selector associated with the trunk circuit. Therefore, as soon as relay 110 closed contacts 117, a point in the energizing circuit for relay 170 was prepared. The energizing circuit for relay 170 is thereafter completed as soon as contact 60 in the common timer is closed. This circuit extends from ground at contact 60, pulse-1 conductor, contacts 117, 172, 184 and through the winding of relay 170 to battery.

In operating contacts 171, relay 170 completes its own obvious locking circuit to the grounded selector control conductor 65 and conductor 59 by way of contacts 163. At contacts 172 the energizing circuit of relay 170 is opened and at contacts 173 a point in the energizing circuit for relay 180 is prepared.

There is a considerable period of time after the closing of contact 60 in the common timer before contact 61 is closed, which then will complete the energizing circuit for relay 180. This period of time is considered more than sufficient to allow the calling party to deposit the required coins, however, if no coins are deposited (as stated), relay 170 will not be released due to the failure of relay 160 to energize and when contact 61 in the timer is closed, the energizing circuit for relay 180 is completed. This circuit extends from ground at contact 61, pulse-2 conductor, contacts 173 and through the winding of relay 180 to battery. In operating contacts 181 relay 180 opens the line conductor 62 which opens the circuit for bridging relay 120 and for the usual line relay of the connector. At contacts 182 relay 180 completes an obvious locking circuit to the grounded (not shown) control conductor 65 of the selector. At contacts 183 relay 180 maintains a momentary holding circuit for relay 170 during the time that timer contact 61 is closed, and at contacts 184 the former holding circuit of relay 170 is opened. Relay 170 will restore at the end of the ground pulse received from timer contact 61, at which time the previously mentioned energizing circuit of relay 180 is opened at contacts 173.

Upon restoring, relay 120 removes the tone from the called line and since contacts 181 of the line conductor 62 are open, the selector and its associated equipment are allowed to restore, whereupon the ground potential is removed from the control conductor 65 and relays 110 and 180 will thereafter restore, thereby allowing all the equipment previously in use to restore.

Returning to the present operational description, wherein the opening of contacts 163 by relay 160 opens the locking circuits of relays 110, 120, 130, 140 and 170. The release of relay 110 removes the lower winding of the tone induction coil from the line conductors leading to the calling paystation; removes bridging relay 120 from the line conductors of the called line and recompletes the talking connection for subsequent conversation. The release of relay 120 removes tone from the called line as an indication to the called subscriber that the required fee has been deposited and conversation may now commence. The release of relays 130, 140 and 170 positions the trunk circuit for future calls.

While conversation now takes place, it will be noted that the deposit of only one nickel was required to establish the talking connection with the desired local sub-

scriber. However, a dime or quarter would also suffice in the event that the calling party had no nickels, since the deposit of a quarter would also close microswitch contact **22** for the required single ground pulse and the deposit of a dime would close both microswitch contacts **12** and **22** and send two ground pulses, with only the first one being used.

At the end of conversation, all the equipment in use is restored to normal in a well-known manner responsive to the replacing of the receivers by both the calling and called parties.

Assuming for the next type of call that a person desires to initiate a call from the paystation in Fig. 5 to a suburban subscriber such as shown in Fig. 6 and that the established fee for such a call is ten cents, or one dime or two nickels, the equipment will operate as described hereafter.

The illustrated equipment operates the same as just described for the local call up to and including the point in which the call is answered by the suburban subscriber and battery reversal is sent back over the line for operating relay **100** and the subsequent operations of relays **110** and **120**, and in which the calling party is ready to deposit the required fee. At this time, one exception exists since all calls to suburban subscriber are sent over a special level, or levels of the selector, thus when the selector reaches the special level, normal post springs NPS close. Subsequently, when the switching relay (not shown) of the selector operates, contacts such as **67** close to complete an obvious circuit for relay **150** over the extra control conductor **64**. In operating contacts **151** and **152**, relay **150** alters the former energizing path and prepares a new point in the energizing circuit for relay **160**.

Assuming in one instance that the calling party deposits a dime, microswitch contact **12** is first momentarily closed and subsequently microswitch contact **22** is momentarily closed for sending two ground pulses to the associated paystation trunk. The receipt of the first ground pulse completes an energizing circuit for operating relay **130** over a previously traced path.

The operation of contacts **131** by relay **130** completes the previously described series operating circuit with itself and relay **140**. Relay **140** operates as previously described as soon as this first ground is removed, with the exception that the closing of contacts **143** now prepares an energizing circuit for the operation of relay **160** which is completed responsive to the receipt of the second ground pulse from the calling paystation. In operating contacts **163**, relay **160** opens the locking circuits of relays **110**, **120**, **130**, **140** and **170** as previously described.

Assuming in the next instance that the calling party deposits two nickels, the first deposited nickel will operate microswitch contact **22**, which results in operating relay **130** as previously described. The second deposited nickel will reoperate microswitch contact **22**, which results in operating relay **160** as previously described. Thus, it may be seen that the talking connection with the suburban subscriber may be completed responsive to the deposit of one dime or two nickels. However, any combination of deposited coins representing the transmission of a minimum of at least two ground pulses to the trunk circuit will result in the completion of the talking connection. It will be appreciated, that each ground pulse transmitted from the paystation represents the minimum deposit of a coin representing at least one nickel.

The equipment now operates in the same manner as previously described for the call to the local subscriber and at the end of conversation, the equipment is restored to normal and is conditioned to handle future calls.

Assuming that the party at the paystation desires to place a toll call, the number of the toll operator is dialled and the selector steps to the level providing access to the toll board, or the toll operator's position The operator thereat is signalled in a well-known manner and answers the call. However, answering by the operator does not send reverse battery back over the calling line, with the result that none of the paystation trunk equipment is taken into use and the talking circuit is not broken. The party at the calling paystation is therefore able to converse with the toll operator without depositing a coin. The toll operator then establishes the desired toll connection and after informing the calling party of the proper toll fee and ascertaining that it has been deposited, completes the talking connection. At the end of conversation the equipment is restored in a well-known manner.

Having described our invention and what is considered new and desired to have protected by Letters Patent will be pointed out in the appended claims.

What is claimed is:

1. In a postpay telephone paystation system, a paystation, central office equipment common to a plurality of said paystations, means individual to said paystation and operated when calling for establishing a signalling connection with a called subscriber over said central office equipment, means operated when said called subscriber answers said signal for reversing the battery potential applied to the talking conductors of said connection, a paystation trunk circuit in said central office equipment and included in said connection, switching means in said trunk, polarized means in said trunk circuit and operated upon receipt of said reverse battery, means including contacts operated by said polarized means for operating said switching means, a tone source, induction means coupled to said tone source, first contacts operated by said switching means for opening said talking conductors of said established connection, and second contacts operated by said switching means for connecting said induction means across said talking conductors of said connection to said calling paystation, whereby said opening of the talking conductors of said established connection prevents conversation between said calling paystation and said called subscriber, and said connection of said induction means applies said tone to said calling paystation conductors as an indication that said called subscriber has answered and that the necessary fee must thereafter be deposited within a certain predetermined time in order for conversation to be held.

2. A postpay telephone paystation system such as claimed in claim 1, including a bridging relay, third contacts also operated by said switching means for connecting said bridging relay across said talking conductors of said connection to said called subscriber, said bridging relay being energized by said connection and also maintaining the equipment between said central office and said called subscriber operated, another tone source, and contacts operated by said bridging relay for connecting said other tone to the talking conductors to said called subscriber as an indication that the incoming call has originated from a paystation.

3. A postpay telephone paystation system such as claimed in claim 2, including a timing device common to said trunk circuit, a first and a second timing relay in said trunk circuit, an energizing circuit for each said timing relay, first and second timer contacts arranged to be operated by said timing device and associated with said energizing circuit of said first and said second timing relays respectively, fourth contacts operated by said switching means for preparing a point in said energizing circuit of said first timing relay, said first timer contact subsequently operated by said timing device for completing said energizing circuit to operate said first timing relay, a contact operated by said first timing relay for preparing a point in said energizing circuit of said second timing relay, said second timer contact operated by said timing device a predetermined period of time after said operation of said first timer contact for completing said energizing circuit to operate said second timing relay only

in case said call has been abandoned and only in another case said calling paystation has not deposited the required fee before the lapse of said predetermined time period, and means including contacts operated by said second timing relay for initiating the restoring to normal of all said equipment in said connection in said first case and for initiating the restoring to normal of all said equipment in said connection between said central office and said called subscriber in said other case.

4. A postpay telephone paystation system such as claimed in claim 2, including a circuit closer at said calling paystation and operated by a deposited acceptable coin for momentarily transmitting a single ground pulse over the talking conductors of said connection to said trunk circuit, relay means in said trunk circuit operated in receipt of said pulse, release means in said trunk circuit, means including contacts operated by said relay means for operating said release means, and means operated by said release means for restoring said polarized means, said switching means, said bridging relay and said relay means to normal, whereby an effective talking connection between said calling paystation and said called subscriber is established.

5. A postpay telephone paystation system such as claimed in claim 2, including subscriber discriminating means in said trunk circuit, means in said central office equipment for operating said discriminating means in case said called subscriber is of a certain type, a contact operated by said discriminating means, a first and a second circuit closer at said calling paystation, said first circuit closer operated by a deposited coin of a certain denomination for momentarily transmitting a first ground pulse over the talking conductors of said connection to said trunk circuit, relay means in said trunk circuit operated in receipt of said first ground pulse, a contact operated by said relay means, said second circuit closer operated by said deposited coin of said same certain denomination subsequent to said operation of said first circuit closer for momentarily transmitting a second ground pulse over the talking conductors of said connection to said trunk circuit, release means in said trunk circuit operated in receipt of said second ground pulse by way of said operated discriminating means contact and said operated relay means contact, and means operated by said release means for restoring said polarized means, said switching means, said bridging relay and said relay means to normal, whereby an effective talking connection between said calling paystation and said called certain type subscriber is established.

6. The combination of a telephone paystation including a coin chute having a plurality of different denominational coin channels provided therein and a coin hopper associated therewith, with central office equipment common to a purality of said paystations, means individual to each said paystation for establishing a signaling connection from a calling one of said paystations to a called subscriber over said central office equipment, means associated with said called subscriber for reversing the battery potential applied to the talking conductors of said connection when said subscriber answers said signal, a polarized magnet included in said central office equipment and operated upon receipt of said reverse battery, a switching relay in said central office equipment, means including contacts operated by said polarized magnet for operating said switching relay, a first tone source, an induction coil coupled to said first tone source, a bridging relay, means operated by said switching relay for opening said talking conductors of said established connection, for connecting said bridging relay across said talking conductors of said connection to said called subscriber and for connecting said induction coil across said talking conductors of said connection to said calling paystation, said bridging relay energized by said connection and also maintaining the equipment from said central office to said called subscriber operated, said connection of said coil thereby applying said first tone to said calling paystation conductors as an indication that said called subscriber has answered and that the necessary fee must be deposited, a second tone source, means operated by said bridging relay for connecting the said second tone to the talking conductors to said called subscriber as an indication that a paystation is calling, a microswitch associated with said hopper and having a contact actuator arranged to project into said hopper, said actuator operated by a deposited coin corresponding to one of said plurality of different denominational coin channels, a contact associated with said microswitch and momentarily operated by said actuator for applying a pulse of ground potential over said connection to said central office equipment, relay means operated in receipt of said pulse, releasing means, means including contacts operated by said relay means for operating said releasing means, and means operated by said releasing means for restoring said polarized magnet, said switching relay, said bridging relay, and said relay means to normal, whereby an effective talking connection is thereafter established between said calling paystation and said called subscriber.

7. The combination of a telephone paystation including a coin chute having a plurality of different denominational coin channels provided therein and a coin hopper associated therewith, with central office equipment common to a plurality of said paystations, means individual to each said paystation for establishing a signalling connection from a calling one of said paystations to a called subscriber over said central office equipment, means associated with said called subscriber for reversing the battery potential applied to the talking conductors of said connection when said subscriber answers said signal, a polarized magnet included in said central office equipment and operated upon receipt of said reverse battery, a switching relay in said central office equipment, means including contacts operated by said polarized magnet for operating said switching relay, a first tone source, an induction coil coupled to said first tone source, a bridging relay, means operated by said switching relay for opening said talking conductors of said established connection, for connecting said bridging relay across said talking conductors of said connection to said called subscriber and for connecting said induction coil across said talking conductors for said connection to said paystation, said bridging relay energized by said connection and also maintaining the equipment from said central office to said called subscriber operated, said connection of said coil thereby applying said first tone to said calling paystation conductors as an indication that said called subscriber has answered and that the necessary fee must be deposited, a second tone source, means operated by said bridging relay for connecting said second tone to the talking conductors to said called subscriber as an indication that a paystation is calling, subscriber discriminating means, means in said central office equipment for operating said discriminating means in case the called subscriber is of a certain type, a contact operated by said discriminating means, a first microswitch associated with said coin chute and having a contact actuator arranged to project into a certain one of said coin channels, said first microswitch actuator operated by a deposited coin corresponding to said one certain channel, a contact associated with said first microswitch and momentarily operated by said first microswitch actuator for applying a pulse of ground potential over said connection to said central office equipment, relay means operated in receipt of said pulse, contacts operated by said relay means, another microswitch associated with said hopper and having a contact actuator arranged to project into said hopper, said other microswitch actuator operated by said deposited coin corresponding to said one certain channel subsequent to said operation of said first microswitch actuator, a contact associated with said other microswitch and momentarily operated by said other microswitch ac-

tuator for applying a second pulse of ground potential over said connection to said central office equipment, releasing means operated in receipt of said second pulse by way of said operated discriminating means contact and said operated relay means contact, and means operated by said releasing means for restoring said polarized magnet, said switching relay, said bridging relay, and said relay means to normal, whereby an effective talking connection is thereafter established between said calling paystation and said called certain subscriber.

8. In a postpay telephone paystation, means for establishing an outgoing connection with a desired subscriber by said paystation, a coin chute having a plurality of different denominational coin channels provided therein, a coin hopper associated with said chute, a first rotary microswitch associated with said hopper, means for mounting said first microswitch adjacent said hopper, a contact actuator arm rotatably attached at one end to said first microswitch for rotatable operation thereof, said other end of said actuator arm projecting into the upper end of an elongated vertical slot provided in said hopper and arranged to move downward and partially out of said slot when operatively engaged by a deposited coin, whereby said coin is allowed to continue onward through said hopper, a second rotary microswitch associated with said coin chute, means for mounting said second microswitch at an angle on said chute, a contact actuator arm rotatably attached at one end to said second microswitch for rotatable operation thereof, said other end of said actuator arm projecting into a certain one of said coin channels, said second microswitch being mounted at said angle on said chute for allowing said other end of its associated arm to rotate out of said one channel when operatively engaged by a deposited coin corresponding to said one channel, thereby allowing said coin to continue onward through said channel, a contact included in said first microswitch and momentarily closed by said first microswitch actuator arm when said arm is operated by any acceptable deposited coin for sending a coin controlling pulse outward over said outgoing connection, and a contact included in said second microswitch and momentarily closed by said second microswitch actuator arm only in case a coin corresponding to said certain one channel is deposited for sending a coin controlling pulse outward over said outgoing connection.

9. In a postpay telephone system, a postpay paystation, central office equipment common to a plurality of said paystations, a plurality of subscribers of different classes, means individual to said paystation and operated thereby when calling for establishing a signalling connection with a desired one of said subscribers over said central office equipment without the deposit of a coin, a paystation trunk circuit in said central office equipment and included in said connection, fee determining means in said trunk circuit operative prior to the establishment of said signalling connection and then only in case the call is to a particular one of said class of subscriber lines, means operated for reversing battery to said connection when said called subscriber answers said signal, a switching relay in said trunk circuit, polarized relay means in said trunk circuit operated upon receipt of said reverse battery, means including contacts operated by said polarized relay means for operating said switching relay, means operated by said switching relay for opening a point in the talking conductors of said established connection, thereby preventing conversation between said calling paystation and said called subscriber until a particular fee is deposited at said calling paystation, means in said paystation operated responsive to the deposit of said fee for transmitting a particular number of pulses over said connection to said trunk, means in said trunk circuit controlled by the operated or non-operated condition of said fee determining means and operated responsive to receipt of said pulses, for determining that said calling paystation has deposited the proper fee, and means controlled by said last-mentioned means subsequent to the deposit of said proper fee for restoring said polarized relay means, said switching relay and said determining means to normal, whereby said point in said talking conductors is closed and conversation is thereafter established between said calling paystation and said called subscriber.

10. In a postpay telephone system, a postpay paystation, central office equipment common to a plurality of said paystations, a plurality of different classes of subscribers, means individual to said paystation and operated thereby when calling for establishing a signalling connection with a desired one of said subscribers over said central office equipment without the deposit of a coin, a paystation trunk circuit in said central office equipment, subscriber discriminating means in said trunk circuit for discriminating between the said classes of subscribers, means in said central office equipment operated prior to the establishing of signalling connections for operating said subscriber discriminating means only in case said one called subscriber in said established connection is of a certain particular class, means associated with said one called certain class subscriber and operated thereby when answering said signal for reversing battery to said connection, a polarized relay in said trunk circuit operated upon receipt of said reverse battery, a switching relay in said trunk circuit, means including contacts operated by said polarized relay for operating said switching relay, means operated by said switching relay for opening a point in the talking conductors of said established connection, thereby preventing conversation between said calling paystation and said one called certain class subscriber until a particular fee is deposited at said calling paystation, means in said paystation operated responsive to the deposit of said fee for transmitting a particular number of pulses over said connection to said trunk, means in said trunk circuit under control of said operated subscriber discriminating means and operated responsive to receipt of said pulses for determining that said calling paystation has deposited the proper fee, and means controlled by said last mentioned means subsequent to the deposit of said proper fee for restoring said polarized relay, said switching relay and said determining means to normal, whereby said point in said talking conductors is closed and conversation is thereafter established between said calling paystation and said called subscriber.

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