UNITED STATES PATENT OFFICE.

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COIN-CONTROLLED TELEPHONE APPARATUS.

985,616.


To all whom it may concern:

Be it known that I, DAVID PRATT MEADE, a citizen of the United States, residing at White Post, in the county of Clarke and State of Virginia, have invented certain new and useful Improvements in Coin-Controlled Telephone Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in coin-controlled apparatus for telephones and the object in view is to produce a simple and efficient mechanism of this nature so arranged that coins may be returned to a person dropping the same in the slot of the instrument 'n the event of not getting the person desired to be reached by the telephone, the coin serving as a means of completing the circuit when the receiver is taken from its hanger.

The invention consists further in an apparatus of this nature so arranged as a toll system for talking with different foreign points requiring the depositing of coins of different denominations before the circuit may be closed for talking at different toll stations.

Another feature of the invention consists in the provision of means whereby, after a coin has been deposited in a slot of the instrument, the circuit may be closed when central is called by taking the receiver from its hanger and the coin may be returned to the person depositing it in the event of additional coins being placed within one of the other slots of the instrument for foreign toll.

Still another object of the invention resides in the provision of means whereby a person may be called up from central office without the dropping in of a coin to close the circuit.

The invention comprises various other details of construction and combinations and arrangements of parts which will be hereinafter fully described and then specifically defined in the appended claims.

I illustrate my invention in the accompanying drawings, in which:

Figure 1 is a perspective view of a desk telephone showing my apparatus as applied thereto. Fig. 2 is a sectional view vertically through the casing shown in Fig. 1 and illustrating the mechanism contained therein. Fig. 3 is a diagrammatic view showing the various circuits. Fig. 4 is a detail perspective view of a contact point for supporting and dumping a coin. Fig. 5 is a vertical sectional view on line 3-3 of Fig. 2. Fig. 6 is a detail perspective view of a lifting coin hopper, and Fig. 7 is a sectional view on line 7-7 of Fig. 2.

Reference now being had to the details of the drawings by letter, A designates a desk telephone of the usual construction and having a receiver B and a hanger B' therefor. Pivotedly connected to the hanger is a link B" which is pivoted at B' to the end of the curved arm B' of the angle lever B" which in turn is pivotally connected at B' with the curved end of the bar B' which has a longitudinal movement through an aperture C in the casing C'. Rods C' project from said casing and have rings C at their ends which round the cylindrical upright portion of the telephone, forming means for holding the casing and telephone together. Said casing is provided with a series of coin slots, designated by letters D, D', D", D'', D"', and D" respectively, adapted for the reception of coins of different denominations, which are necessary to pay toll for foreign calls.

Mounted within the casing C', as shown clearly in Fig. 2 of the drawings, is a rock shaft E having a series of coin receiving plates E', one of which is shown in Fig. 4 of the drawings and each of which has a hollow boss E" for the reception of the shaft E. A suitable insulation E' being interposed between the boss and the shaft E. A wire E' is connected with each of said bosses and each slot has contact points F which are electrically connected by means of the wires F" and each pair of contact points F has 10 and connected thereto a wire F', the two wires F" and E' being connected to the coin-controlled circuits, as illustrated in Fig. 3 of the drawings.

Referring to Fig. 5 of the drawings will be seen a rock shaft B" mounted in the bear-
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15 raised to the position shown in dotted lines: in Fig. 2, in readiness to cause the shaft E to be seen, a solenoid R having a core R mounted to the position shown in dotted lines in Fig. 2 by means of a spring b'. Fixed to the shaft E is a finger b against which the lower widened end b' of the member b is adapted to contact when the receiver is taken from its hanger, the usual spring, which is not shown, is connected to the hanger serving to throw the latter to its highest position as the receiver is taken therefrom, and, through the connections described, cause the member b' to be raised to the position shown in dotted lines in Fig. 2 in readiness to cause the shaft E to be rocked when the receiver is returned to its hanger and the latter drawn down by the weight of the receiver.

Mounted in the lower portion of the receptacle is a coin box G adapted to receive the coins which pay for the use of the telephone. Each does not reverse. Referring to Fig. 6 of the drawings will be seen a tilting hopper H, having two compartments H' and H" with inclined bottoms and mounted upon a bearing in the fixed arm J. A pivot armature, designated by letter K, has an integral angle-shank portion K' mounted upon a shaft K, the end of which is journaled in the bearing K' and a sleeve K" is journaled upon the horizontally disposed portion K" of the arm of the armature, and K' designates a crank arm fixed to the shank portion K" of the armature. K' is a link pivotally connecting the crank arm K with a pivotal pin K projecting from the tilting hopper H. Pivotally connected to the armature K is a link L which in turn is pivotally connected at L' to the crank arm L' which is fixed to the rock shaft L, having a wedge-shaped deflecting member L fixed thereto and which is mounted over the central part between the compartments H' and H" of the hopper H. Mounted within the casing A are the two solenoids, designated respectively by letters N and O, the former of which has a winding of wire N connected with the talking circuit and also with the shank portion Q of the armature Q', which shank portion Q' is mounted upon a pivotal pin Q'. The upper projecting end of the armature Q' has preferably a knife edge and is adapted to contact with the terminal Q when said armature Q' is drawn into contact with the solenoid O as the latter is energized. The wires O', forming the winding about the solenoid O, are connected to the line wires connected to central and affording means whereby, when central desires to call the party, a current may be caused to pass through the wires O' to energize the solenoid O. The shank portion Q of the armature Q' takes the receiver portion connected thereto a link Q' which is connected to a crank arm Q" fixed to the shaft E, as shown clearly in Fig. 2 of the drawings, affording means whereby, as the solenoid O is energized and its armature Q' drawn in contact therewith, the shank Q" may be rocked.

Referring to Fig. 4 of the drawings will be seen a solenoid R having a core R mounted to have a longitudinal movement upon the bar R" supported on its ends in suitable bearings fastened to the opposite walls of the casing, and R' designates a wire forming the winding of the solenoid R which is connected to the bar R". The wire with the shank portion Q of the armature Q' and forms a part of the circuit shown in diagrammatic view Fig. 3. Secured to and insulated from the core R' are the bracket members R', shown clearly in Fig. 7 of the drawings, and each of said bracket members carries a shoe T adapted to contact with one or another of the terminals, designated in the diagrammatic view by letter T. A cable V is fastened at one end to the casing and passes underneath a pulley V' carried by a crank arm V" fixed to the shaft E and thence about a pulley V" and has its other end connected to the core R' and serves as means of returning the core to its normal position when the shaft E is rocked.

In operation, when it is desired to call central, a nickel is dropped in the slot D and falls upon the tilting plate E' and tilts against one or another of the contact points F, thus closing the circuit. As the receiver is taken from the hanger, the member b' will assume the position shown in dotted lines in Fig. 2 of the drawings, in which position the outer end of said member b' will rest upon the finger b'. When the receiver is hung up and the hanger drawn down to the position shown in Fig. 4, the free end of the member b' will push down upon the finger b' and cause the shaft E to rock and the coin will be dumped into the coin receptacle G. The rock shaft is returned to its normal position by means of the adjustable counterbalance weight b'.

In the event of central desiring to call upon a particular phone equipped with my appa-
ratus, it may be done by energizing the solenoid O and the armature Q' will be drawn in contact with the core of the solenoid O and the circuit will be through the solenoid

5 N, wire S, through the pivot of the armature Q' and through the terminal Q' and return wire to the talking circuit, this being accomplished without the necessity of utilization of a coin to close a circuit.

10 When it is desired to utilize the apparatus in paying toll for foreign calls, the nickel is dropped in the slot D in the usual manner to close the circuit, the receiver taken from the hanger and central called up.

The central operator in adjusting the apparatus to connect up with a foreign toll office will cause the shoe T to be moved with the core R' of the solenoid R so that the particular pair of shoes will bridge over any two pair of contact points as X, X in Fig. 3, which would designate a toll of $1.00. The apparatus being thus adjusted, the circuit would be as follows:—The fifty cent coin should be dropped in the slot D and

20 twenty-five cent coin in slots D' and D'. This being done, the proper circuits would be closed to enable a person to talk with the foreign-toll office. In the event of the apparatus being adjusted for toll and there being a nickel previously dropped in slot D in order to close the first circuit to call up central and it is desired to return the nickel to the person calling, the operator will cause an increased current to pass through the winding of the solenoid N to energize the same sufficiently to draw the armature K in contact therewith which, through the mechanism shown, will cause the guiding member L to be swung to the position shown in dotted lines in Fig. 2. When the parts are adjusted in these positions and the operator places the receiver upon the hanger, the shaft E will be rocked in the manner before described and cause the coin to be dumped into the compartment H of the hoper H and fall into the receptacle G' from which it may be withdrawn. As the nickel strikes the lower inclined edge of the compartment H', it will cause the hopper to tilt and,

30 through the connections shown in Fig. 6, the deflecting member I' will be returned to its normal position.

From the foregoing, it will be noted that, by the provision of the apparatus shown and described, a simple and efficient means is afforded whereby a person not succeeding in getting the person at the other end of the line to answer and having to drop a nickel for the purpose of making it possible to close the circuit and call up central may have the nickel thus deposited returned without going into the coin receptacle G and means is afforded whereby central may call a person having a phone equipped with the apparatus without the necessity of a nickel for closing the circuit. Another advantage which will be apparent for the apparatus shown is that means is provided whereby the apparatus is adapted for toll calls, making it necessary to drop in the particular number of coins for paying for the toll before the circuit may be closed to adapt the line for long distance conversation.

What I claim to be new is:

1. A coin-operated telephone apparatus comprising a telephone, a slotted casing, a rock shaft therein, projections upon said rock shaft and insulated therefrom, contact points above said projections and against which latter and the points a coin is adapted to contact to close the circuit, means actuated by the telephone receiver hanger for rocking the shaft to dump the coin from said projection and break the circuit, a tilting hopper, and means for guiding a coin in said hopper.

2. A coin-operated telephone apparatus comprising a telephone, a slotted casing, a rock shaft therein, projections upon said rock shaft and insulated therefrom, contact points above said projections and against which latter and the points a coin is adapted to contact to close the circuit, means actuated by the telephone receiver hanger for rocking the shaft to dump the coin from said projection and break the circuit, a tilting hopper having a plurality of compartments adapted to cause a coin to be delivered from the hopper in different directions, and means for causing the coin to pass into one or the other of the compartments.

3. A coin-operated telephone apparatus comprising a telephone, a slotted casing, a rock shaft therein, projections upon said rock shaft and insulated therefrom, contact points above said projections and against which latter and the points a coin is adapted to contact to close the circuit, means actuated by the telephone receiver hanger for rocking the shaft to dump the coin from said projection and break the circuit, a tilting hopper having a plurality of compartments adapted to cause a coin to be delivered from the hopper in different directions, and electrically operated means for causing the coin to fall into one compartment or the other.

4. A coin-operated telephone apparatus comprising a telephone, a slotted casing, a rock shaft therein, projections upon said rock shaft and insulated therefrom, contact points above said projections and against which latter and the points a coin is adapted to contact to close the circuit, means actuated by the telephone receiver hanger for rocking the shaft to dump the coin from said projection and break the circuit, a tilting hopper having a plurality of compartments adapted to cause a coin to be delivered from the hopper in different directions, and
a swinging deflecting member mounted over the hopper and adapted to cause a coin to pass into one or another of the compartments in the hopper.

5. A coin-operated telephone apparatus comprising a telephone, a slotted casing, a rocking shaft therein, projections upon said rocking shaft and insulated therefrom, contact points above said projections and against which latter and the points a coin is adapted to contact to close the circuit, means actuated by the telephone receiver hanger for rocking the shaft to dump the coin from said projection and break the circuit, a deflecting member having a plurality of compartments adapted to cause a coin to be delivered from the hopper in different directions, a rocking shaft mounted over the hopper, a deflecting member fixed to said shaft, and means for rocking the shaft to cause the deflecting member to cause a coin to fall into one or another of the compartments in the hopper.

6. A coin-operated telephone apparatus comprising a telephone, a slotted casing, a rocking shaft therein, projections upon said rocking shaft and insulated therefrom, contact points above said projections and against which latter and the points a coin is adapted to contact to close the circuit, means actuated by the telephone receiver hanger for rocking the shaft to dump the coin from said projection and break the circuit, a deflecting member having a plurality of compartments adapted to cause a coin to be delivered from the hopper in different directions, a rocking shaft mounted over the hopper, a deflecting member fixed to said shaft, and means for rocking the shaft to cause the deflecting member to cause a coin to fall into one or another of the compartments in the hopper.

7. A coin-operated telephone apparatus comprising a telephone, a slotted casing, a rocking shaft therein, projections upon said rocking shaft and insulated therefrom, contact points above said projections and against which latter and the points a coin is adapted to contact to close the circuit, means actuated by the telephone receiver hanger for rocking the shaft to dump the coin from said projection and break the circuit, a deflecting member having a plurality of compartments adapted to cause a coin to be delivered from the hopper in different directions, a rocking shaft mounted over the hopper, a deflecting member fixed to said shaft, and means for rocking the shaft to cause the deflecting member to cause a coin to fall into one or another of the compartments in the hopper.

8. A coin-operated telephone apparatus comprising a telephone, a slotted casing, a rocking shaft therein, projections upon said rocking shaft and insulated therefrom, contact points above said projections and against which latter and the points a coin is adapted to contact to close the circuit, means actuated by the telephone receiver hanger for rocking the shaft to dump the coin from said projection and break the circuit, and an armature adapted to be drawn in contact with the latter as the solenoid is energized, and connections between the armature and said shaft to cause the same to rock and the deflecting member to swing to direct a coin into one or the other of the compartments of the hopper.

9. A coin-operated telephone apparatus comprising a telephone, a slotted casing, a rocking shaft therein, projections upon said rocking shaft and insulated therefrom, contact points above said projections and against which latter and the points a coin is adapted to contact to close the circuit, means actuated by the telephone receiver hanger for rocking the shaft to dump the coin from said projection and break the circuit, and a crank arm fastened to the shank portion of said armature, and link connections between said crank arm and hopper.

10. A coin-operated telephone apparatus comprising a telephone, a slotted casing, a rocking shaft therein, projections upon said rocking shaft and insulated therefrom, contact points above said projections and against which latter and the points a coin is adapted to contact to close the circuit, means actuated by the telephone receiver hanger for rocking the shaft to dump the coin from said projection and break the circuit, a deflecting member having a plurality of compartments adapted to cause a coin to be delivered from the hopper in different directions, a rocking shaft mounted over the hopper, a deflecting member fixed to said shaft, and means for rocking the shaft to cause the deflecting member to cause a coin to fall into one or another of the compartments in the hopper.
which latter and the points a coin is adapted to contact to close the circuit, a solenoid, a longitudinally movable core therein, contact shoes movable with said core and insulated therefrom, a series of contact points, said shoes adapted to bridge the latter, means for returning the shoes to their normal positions when the receiver is cased upon the hanger, a crank arm fixed to the rock shaft, a cable fastened to the casing, a pulley upon said crank arm and about which the cable passes, said cable being connected to the core of the solenoid and designed to cause the same to move longitudinally as the shaft is rocked.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

DAVID PRATT MEADE.

Witnesses:

A. L. Hough,

A. R. Fowler.