

E. B. CRAFT & A. F. DIXON.
COIN COLLECTOR.

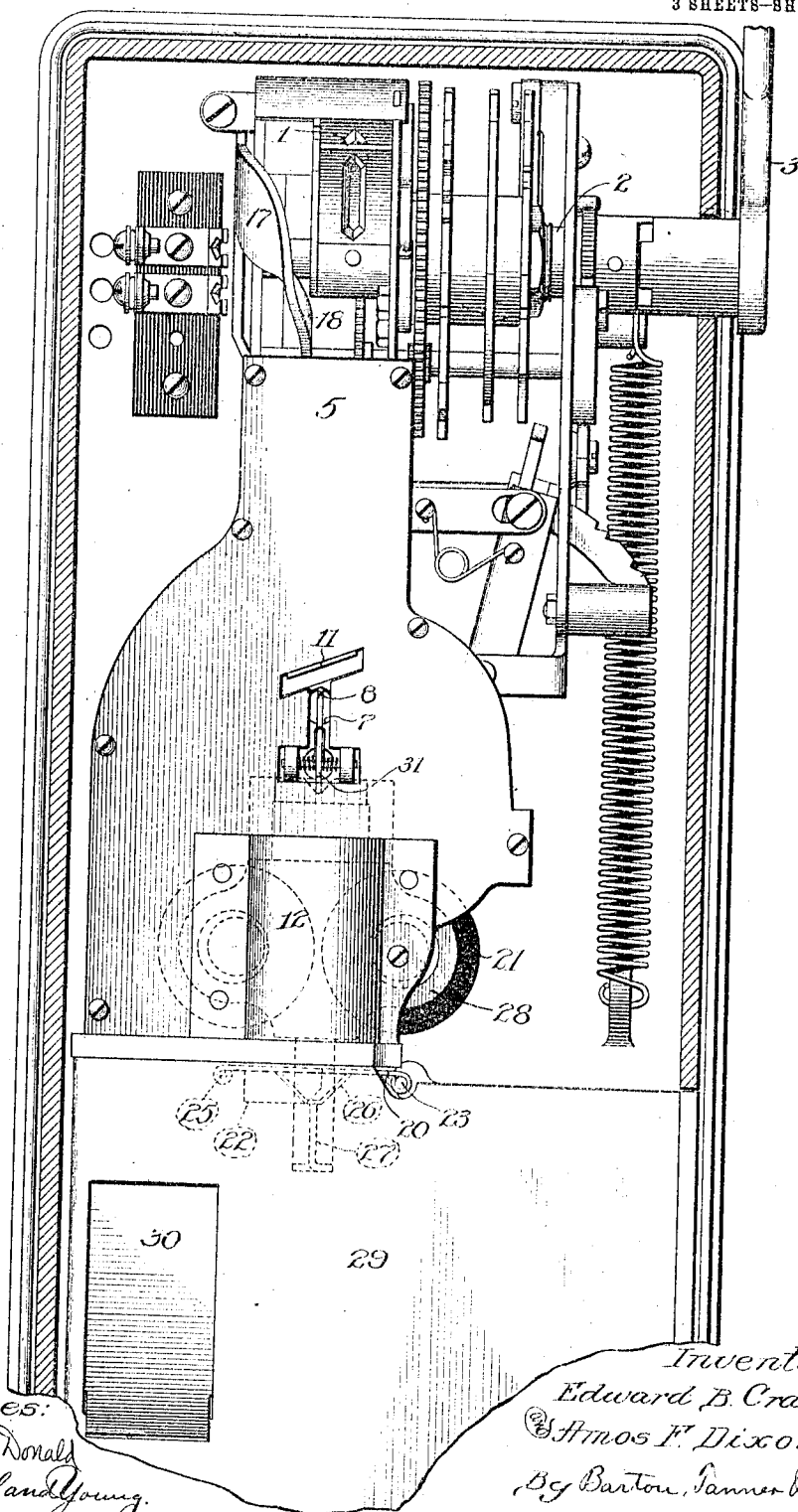
APPLICATION FILED NOV. 2, 1907.

Patented Oct. 15, 1912.

3 SHEETS-SHEET 1.

1,041,030.

Fig. 1.



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M. C. Leland Young.

Inventors:
Edward B. Craft,
Amos F. Dixon,
By Barton, Tanner & Felt.
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E. B. CRAFT & A. F. DIXON.

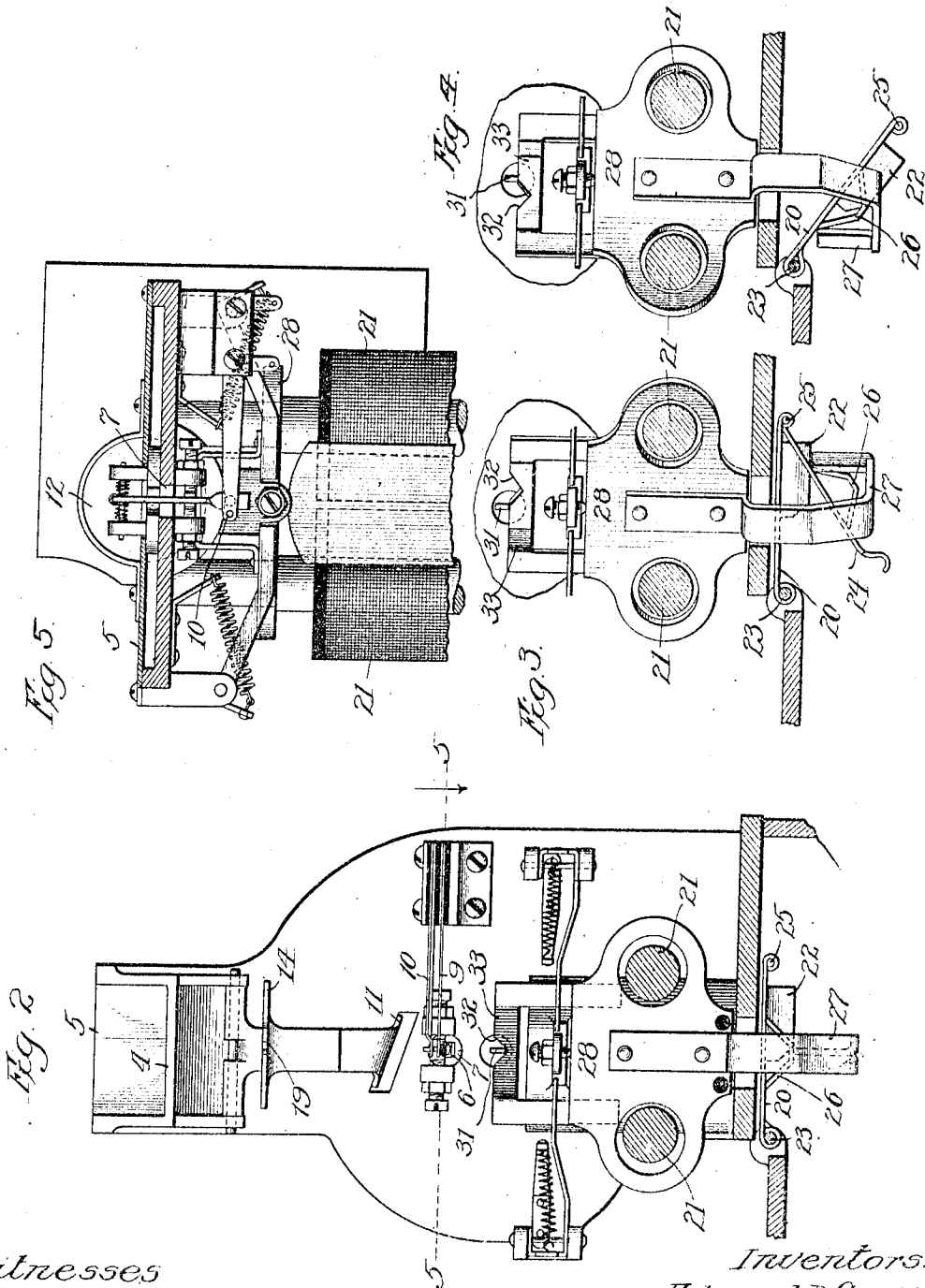
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3 SHEETS-SHEET 2.



Witnesses
Irving MacDonald
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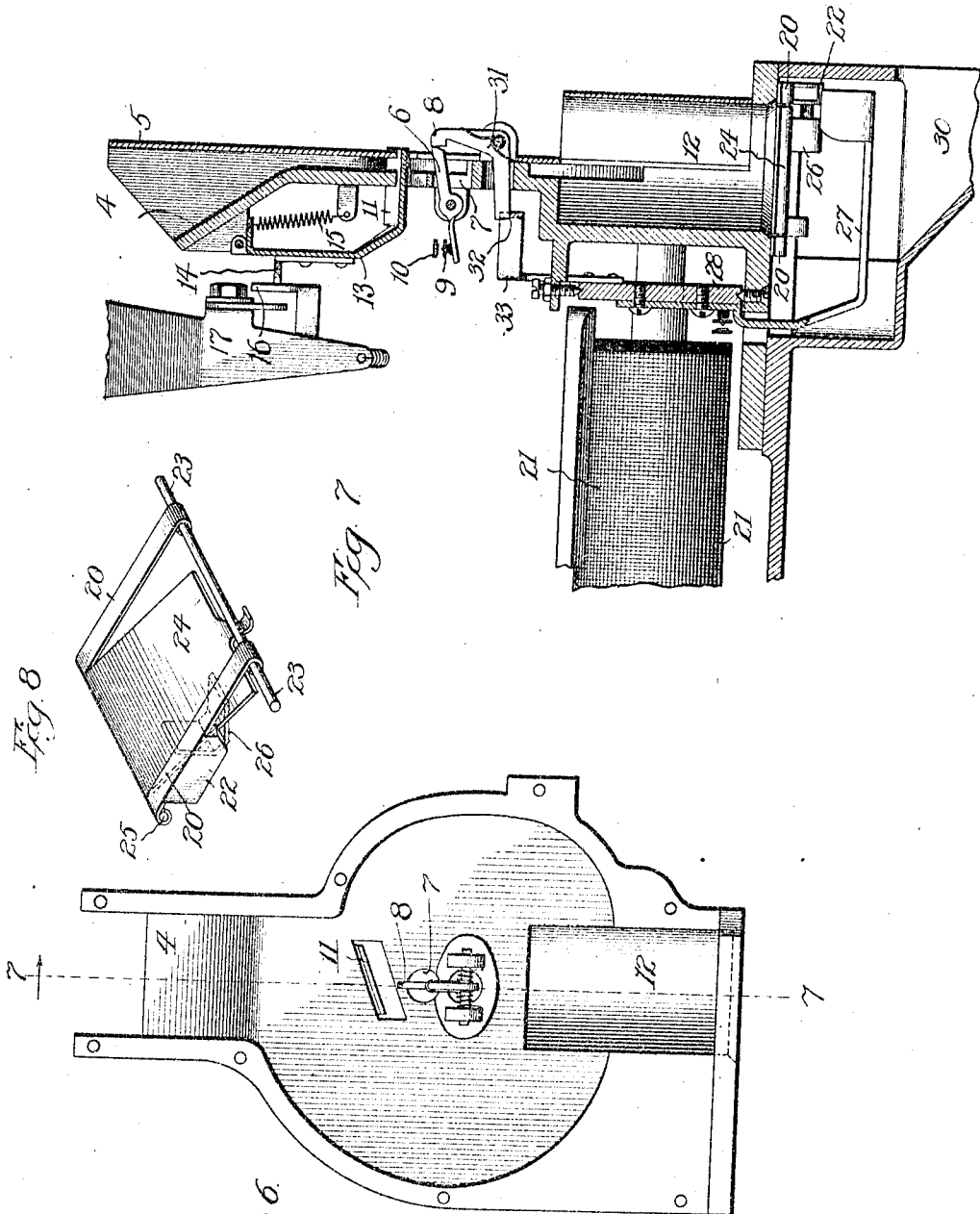
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3 SHEETS—SHEET 3.



Witnesses
 Irving Mac Donald
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Inventors
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UNITED STATES PATENT OFFICE.

EDWARD B. CRAFT AND AMOS F. DIXON, OF CHICAGO, ILLINOIS, ASSIGNORS TO
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COIN-COLLECTOR.

1,041,030.

Specification of Letters Patent.

Patented Oct. 15, 1912.

Application filed November 2, 1907. Serial No. 400,406.

To all whom it may concern:

Be it known that we, EDWARD B. CRAFT and AMOS F. DIXON, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Coin-Collectors, of which the following is a full, clear, concise, and exact description.

Our invention relates to a coin collector for telephone pay stations, and its object is to provide apparatus which will be adapted for use as either a local or a toll coin-collector, and which will relieve the toll operator of drag.

Our invention contemplates a coin collector in which the deposit of a coin of predetermined size is required of a subscriber in order to signal the central office, and in which, if the call is for a toll connection, means are provided for operating signals to inform the central office operator of the character of the coin deposited in payment for such toll connection. Whether the call be for a local connection or for a toll connection, our invention provides means whereby the coin or coins deposited are under the control of the subscriber's operator, and may be deposited in the cash box or returned, in the usual manner.

Our invention is preferably embodied in connection with the mechanism similar to that illustrated in patent to Edward B. Craft, No. 867,707, dated October 8th, 1907. The means for operating signals to inform the central office operator of the character of the coin deposited is also substantially the same as that shown in Letters Patent to Frank R. McBerty and Howard B. Holmes, No. 846,500, issued March 12, 1907.

We will describe our invention by reference to the accompanying drawings, which illustrate the preferred embodiment thereof, and the particular parts, improvements or combinations which we consider as novel, and of which we are the joint inventors, will be set forth in the appended claims.

Figure 1 is a front elevation of the coin collector of our invention, with the cover in section; Fig. 2 is a view showing the coin chute in rear elevation, also showing in section portions of the casing upon which the chute is supported and the polarized electromagnet for disposing of the coin; the armature of the polarized magnet is shown in its normal unoperated position for retaining

coins in a cup in which they are temporarily deposited upon passing from the coin chute; Figs. 3 and 4 are detailed views of certain parts illustrated in Fig. 3, showing the armature of the polarized magnet in position to deposit and to refund, respectively, coins held in the coin receiving cup; Fig. 5 is a section on line 5—5 of Fig. 2; Fig. 6 is a detail front view of the coin chute, with its front wall removed; Fig. 7 is a sectional view on the line 7—7 of Fig. 6; and Fig. 8 is a detailed perspective view of the tilting cup-bottom.

Similar letters of reference are used to designate similar parts wherever shown.

The temporary coin carrier 1 is mounted upon a rocking shaft 2, which is adapted to be actuated through the medium of the operating handle 3 to move the coin-carrier forward, so that a coin held in said carrier will be dropped into the mouth or opening 4 of the coin chute 5. Below the mouth 4 of the coin chute 5 is a lever 6 centrally pivoted at the rear of the coin chute. The forward end of the lever 6 passes through a slot 7 in the walls of the coin chute, and projects beyond the front wall thereof in position to be engaged, when depressed, by a spring-pressed catch or dog 8. The forwardly projecting end of the lever 6 is normally held in an elevated position by the tension of the spring 9, forming one of a pair of contact springs 9, 10.

The fall of a coin upon the lever 6 is normally blocked by an obliquely disposed stop or guide 11, so that when said stop is in position a coin will be deflected to one side in the passageway, shown at the left in Fig. 6, leading to the cup 12 and will pass into the cup 12 without contacting with the lever 6. When said stop is withdrawn, in a manner hereinafter described, a coin held in the carrier 1 will in its fall strike the projecting end of the lever 6 and depress the same, whereupon the end of said lever will be engaged by the dog 8 and held in its depressed position.

The lever 6 when engaged by the catch 8 holds the contact springs 9, 10, closed. Said contacts control the usual line signaling circuit, and by their closure indicate to the central office operator, in a manner well understood, that a connection is desired. If a toll connection is desired, the subscriber is informed by the operator as to the addi-

tional amount to be deposited in payment for such service. Meanwhile the lever 6 is held locked, and it is immaterial what denomination of coins, within the limits for which the coin box is adapted, are used in payment of the toll.

The operation of the toll signaling mechanism and means by which the stop 11 is removed from the coin chute are fully described in the patents hereinbefore referred to, and hence a detailed description thereof is unnecessary. Said stop forms the free end of a bent lever 13, which is pivoted at its opposite end. The lever 13 carries a cam plate 14, which projects rearwardly from the same. A spring 15 tends to operate the lever 13 so as to withdraw the stop 11, but such movement of the lever is normally blocked by the engagement of the cam surface of the plate 14 with an extension 16 of a caliper lever 17.

The coin carrier 1 has an opening in one of its side walls, through which a coin held in said carrier may project. During the advance movement of said carrier, said coin engages the curved arm 18 of the caliper lever 17, the extent of displacement of said lever depending upon the diameter of the coin. A coin held in the carrier is not released therefrom until it has passed below the arm 18, that is, not until the caliper lever 17 has been moved to the utmost extent that a coin of such diameter will operate the same.

As the lever 17 is moved to the left, a depression 19 on the cam face of the plate 14 permits said plate and the lever 13 to spring backwardly, thus withdrawing the stop 11 from the coin chute. If the coin is of such denomination, as for example, a five cent piece, as will finally set the lever 17 in the position that will permit such withdrawal of the stop 11, the coin will fall from the carrier upon the lever 6 and depress the same, as hereinbefore described. Coins of lesser or of greater diameter will not so set the lever 17, and hence such coins will be deflected into the cup 12 without contacting with the lever 6. The above described mechanism for effecting the withdrawal of the stop 11 by a coin of predetermined size is substantially the same as that disclosed in the above mentioned patent of Edward B. Craft.

The cup 12 which constitutes a receptacle into which all coins are first temporarily deposited after leaving the carrier 1, has a bottom adapted to be tilted by a polarized electromagnet 21 in one or the other direction, thereby depositing the coins in the cash box or refunding the same. The bottom of the cup 12 comprises a frame 20, hinged at one side upon the pivot 23, provided with a gate 24 pivoted at 25 upon the side of the frame opposite the hinge 23. The under

side of the gate 24 is provided with a downwardly projecting V-shaped lug 26 which normally rests upon the end of an arm 27, fixed to the armature 28 of the electromagnet 21 and extending underneath the bottom of the cup 12. When the lug 26 rests upon the arm 27, as shown in Figs. 1, 2 and 7, the bottom of the cup is closed so as to hold the coins therein. The armature 28 is pivoted and normally held in its central position in the usual manner, and when tilted in either direction withdraws the arm 27 from beneath the lug 26. When the armature is tilted in the direction shown in Fig. 3, the arm 27 is moved beneath a lug 22 on the frame 20, thereby supporting said frame, but permitting the gate 24 to drop down, thus depositing the coins in the cash box 29. When the armature is tilted in the opposite direction, as indicated in Fig. 4, the bottom of the cup swings on the hinge 23, thereby directing the coins into the refund chute 30.

The dog or catch 8 forms one end of a bell-crank lever 31, the other end of which normally rests in a groove 32 provided upon the upper surface of an extension 33 of the armature 28. When the armature is tilted in either direction the lever 31 rides out of the groove 32, thereby withdrawing the dog 8 so as to release the lever 6, whereupon the contacts controlled by the springs 9 and 10 are opened.

Although the coin-collector of our invention is not limited to use with a particular system, we prefer to illustrate its operation as used in connection with a system wherein toll connections are made by the subscriber's operator. Briefly, the operation under these conditions is as follows:—The subscriber desiring a connection, either local or toll, deposits a nickel in the coin slot and then pulls down the lever 3, thereby depositing the nickel in the coin cup 12. Said nickel in its passage through the coin chute 5 operates the lever 6, so as to lock the same beneath the catch 8, with the contact springs 9, 10 closed, thus lighting the usual line lamp at the central office. If the call is for a local connection the coin will be released from the cup 12 so as to be deposited or refunded, according to whether or not the desired connection is secured. If the call is for a toll connection, the operator will request the calling party to deposit the required amount of toll charges. This the subscriber may do by depositing a coin or coins of the denomination or denominations with which the collector is constructed to operate all of which coins will pass into the cup 12. If the connection is secured, the operator will send current of proper polarity through the electromagnet 21 to tilt the gate 24 in a direction to deposit all the coins in the cash box. If the connection cannot be secured, the operator will send a reverse current through

the electromagnet and thereby refund all the coins.

Although the operation described is that of a system wherein the regular subscriber's operator makes the toll connection, the coin collector of our invention is obviously capable of use with a system wherein the toll operator may make the toll connection.

We claim:

1. In a coin collector for a telephone system, the combination with a coin-chute, of a pivoted lever having an arm projecting in the path of a coin passing through said chute, said lever being thereby adapted to be operated by a coin striking said arm in its passage through said chute, contacts controlled by said lever, a cup for receiving and simultaneously holding tentatively a plurality of coins deposited in the coin-chute after they have passed beyond said arm, a polarized electromagnet, and an armature therefor arranged when tilted to deposit or to refund the coins held in said cup.

2. In a coin collector for a telephone system, the combination with a coin-chute, of a pivoted lever having an arm projecting in the path of a coin passing through said chute, said lever being thereby adapted to be operated by a coin striking said arm in its passage through said chute, a catch for holding said lever in its operated position, contacts controlled by said lever, a cup for receiving coins deposited in the coin-chute, a polarized electromagnet, an armature therefor arranged when tilted to deposit or to refund the coins held in said cup, and means for releasing said lever upon the tilting of said armature.

3. In a coin-collector for a telephone system, a movable coin carrier, a coin chute arranged to receive a coin from said receptacle, a cup arranged to receive a coin from said coin chute, line signaling mechanism arranged to be operated by a coin contacting therewith in its passage through said chute, a guide normally deflecting a coin from said signaling mechanism, means controlled by a deposited coin of a predetermined size, in the movement of said carrier, for withdrawing said guide to permit the contact of said coin with said signaling mechanism, and means for refunding or depositing a coin collected in said cup.

4. In a combined local and toll coin collector for a telephone, a coin carrier, toll-indicating mechanism arranged to be operated by a coin deposited in said carrier, a cup, a coin chute arranged to receive a coin from said carrier and direct it into said cup, line-signaling mechanism arranged to be operated by a coin contacting therewith in its passage through said chute, a movable guide normally deflecting a coin from said line-signaling mechanism, means controlled by said toll-indicating mechanism for gov-

erning the interposition of said guide, and means for depositing or refunding the coin or coins collected in said cup.

5. In a coin-collector for a telephone system, the combination with a coin-chute, of a cup for receiving coins from said chute, said cup having a pivoted bottom arranged to tilt in either of two directions and thereby to deposit or to refund said coins, line signaling mechanism arranged to be operated by a coin contacting therewith in its passage through said chute, and electromagnetically controlled means for tilting the bottom of said cup in either direction.

6. In a coin-collector for a telephone system, the combination with a coin-chute and line signaling mechanism arranged therein to be actuated by a coin deposited in said chute, of a cup for receiving coins from said chute said cup being provided with a bottom comprising a frame pivoted at one side and a gate fitting within said frame and hinged thereto opposite the pivoted side of the frame, means for supporting said bottom in position to retain the coins within said cup, and means for removing the supporting means in a direction to permit either said frame to swing upon its pivots or said gate to swing upon its hinges and thereby to either refund or deposit the coins collected in said cup.

7. In a coin-collector for a telephone system, the combination with a coin-chute and line-signaling mechanism arranged therein to be actuated by a coin deposited in said chute, of a cup for receiving coins from said chute, said cup being provided with a bottom comprising a frame pivoted at one side and a gate fitting within said frame and hinged thereto opposite the pivoted side of the frame, a lug projecting downward from said gate, a polarized electromagnet having an armature arranged to be tilted in either of two directions, and an arm extending from said armature beneath said cup and upon which said lug normally rests in position to close the bottom of said cup.

8. In a coin collector for a telephone system, the combination with a coin-chute, of a pivoted lever having an arm projecting in the path of a coin passing through said chute, said lever being thereby adapted to be operated by a coin striking said arm in its passage through said chute, a catch for holding said lever in its operated position, contacts controlled by said lever, a cup for receiving coins deposited in the coin-chute, said cup being provided with a bottom comprising a frame pivoted at one side and a gate within said frame and hinged thereto opposite the pivoted side of said frame, a lug projecting downward from said gate, a polarized electromagnet having an armature arranged to be tilted in either of two directions, an arm extending from said ar-

mature beneath said cup and upon which said lug normally rests in position to close the bottom of said cup, and means for releasing said lever upon the tilting of said armature.

9. In a coin collector for a telephone system, the combination with a coin chute, of line signaling mechanism arranged to be operated by a coin in its passage through said chute, a receptacle adapted to receive and hold a plurality of coins of varying denominations delivered by said chute, and electromagnetically controlled means for depositing or refunding the coin or coins in said receptacle.

10. In a coin collector for telephone systems, the combination with a coin chute, of line signaling mechanism arranged to be operated by a coin in its passage through said chute, a receptacle adapted to receive and hold a plurality of coins of varying denominations after they have passed said signaling mechanism, and electromagnetically controlled means for depositing or refunding the coin or coins in said receptacle.

11. In a coin collector for a telephone system, the combination with a coin chute, of a receptacle for receiving from said chute and temporarily holding a plurality of coins of varying denominations, line signaling mechanism arranged to be operated by a coin contacting therewith in its passage through said chute, means for permitting only coins of a predetermined denomination to contact with said signaling mechanism, and means for simultaneously depositing or refunding coins collected in said receptacle.

12. In a coin collector for a telephone system, the combination with a coin chute, of a receptacle for receiving from said chute and temporarily holding a plurality of coins of varying denominations, line signaling mechanism arranged to be operated by a coin contacting therewith in its passage through said chute, a movable guide normally deflecting a coin from said line-signaling mechanism, means controlled by a coin of a predetermined denomination for withdrawing said guide, and electromagnetically operated means for simultaneously depositing or refunding coins collected in said receptacle.

13. In a coin collector for a telephone system, the combination with a coin-chute, of a pivoted lever having an arm projecting in the path of a coin passing through said chute, said lever being thereby adapted to be operated by said coin, contacts controlled by said lever, a catch cooperating with said lever to control said contacts, a receptacle for receiving a coin deposited in the coin-chute, electrically-operated means for depositing or refunding a coin held in said receptacle, and means for restoring said

lever to its initial position upon the depositing or refunding of said coin.

14. A telephone pay station comprising circuit connections, means operative by a coin for controlling the circuit of which said connections form a part, and coin-controlled signal means operable independently of the coin operated circuit controlling means.

15. A telephone pay station having coin-controlled means for causing the action of a warning signal, and coin-operated signal means active independently of said first-mentioned means.

16. A telephone pay station having distinct means for operating a signal, and independent coin-operated means for causing the action of signals of different characters.

17. A telephone pay station having distinct means for operating a signal, independent coin-operated means for causing the action of signals of different characters by coins of different denominations, a device to temporarily retain the coins after they have operated said signals, and means for releasing the coins thus retained.

18. A telephone pay station comprising means for effecting the action of a warning signal, coin operated means for producing signals of different characters separate from the warning signal, means for supporting a group of the coins, and means operable at will for effecting the positive discharge of the coins from said supporting means.

19. In a telephone pay station, circuit connections, means operable by the act of a subscriber for controlling the circuit of which said connections form a part, means for forwarding coins of different denominations, means actuated by the coins, for causing the operation of different kinds of signals, a device to receive several coins, means for shifting said device to cause the movement of the coins in different directions.

20. In a telephone pay station, a device for simultaneously receiving several coins of different denominations, and means for operating said device to cause the discharge of said coins therefrom in different directions.

21. In a telephone pay station, a device adapted to simultaneously receive and support a plurality of coins of different denominations, said device being operable to direct the coins carried thereby in different directions.

22. In a telephone pay station, means for forwarding coins of different denominations, means to receive simultaneously several of such coins, and means for causing said coins to take different paths.

23. In a telephone pay station, a device to simultaneously receive coins of different denominations, means for forwarding such

coins to said device, signal means operable by the coins, and means for operating said device to cause the coins thereon to take different paths.

5 24. In a telephone pay station, a device adapted to simultaneously receive and support a plurality of coins of different denominations, and means to simultaneously cause the coins thereon to simultaneously all follow one path or to simultaneously all follow a different path.

25. In a telephone pay station, means for forwarding coins of different denominations, a device for receiving and temporarily supporting said coins in superimposed relation, and means operable at will for releasing said coins.

26. In a telephone pay station, means for supporting a plurality of coins of different denominations in superimposed relation, and means for causing all the coins to take one path or all of them to take a different path at will.

27. In a telephone pay station, means for forwarding coins of different denominations, signal means operable by the coins, a device to receive several of the coins simultaneously, and means to cause the coins to travel one path or a different path at will, after the same have been received by said device.

28. In a telephone pay station, means for forwarding coins of different denominations, signal means operable by the coins to produce signals of different characters, a device to simultaneously receive several of the coins after the operation of the signal means, and means to cause all the coins to travel one path or a different path at will.

In witness whereof we hereunto subscribe our names this 28th day of October, A. D., 1907.

EDWARD B. CRAFT.
AMOS F. DIXON.

Witnesses:

C. G. STOTT,
J. J. LYNG.