BEST AVAILABLE COP

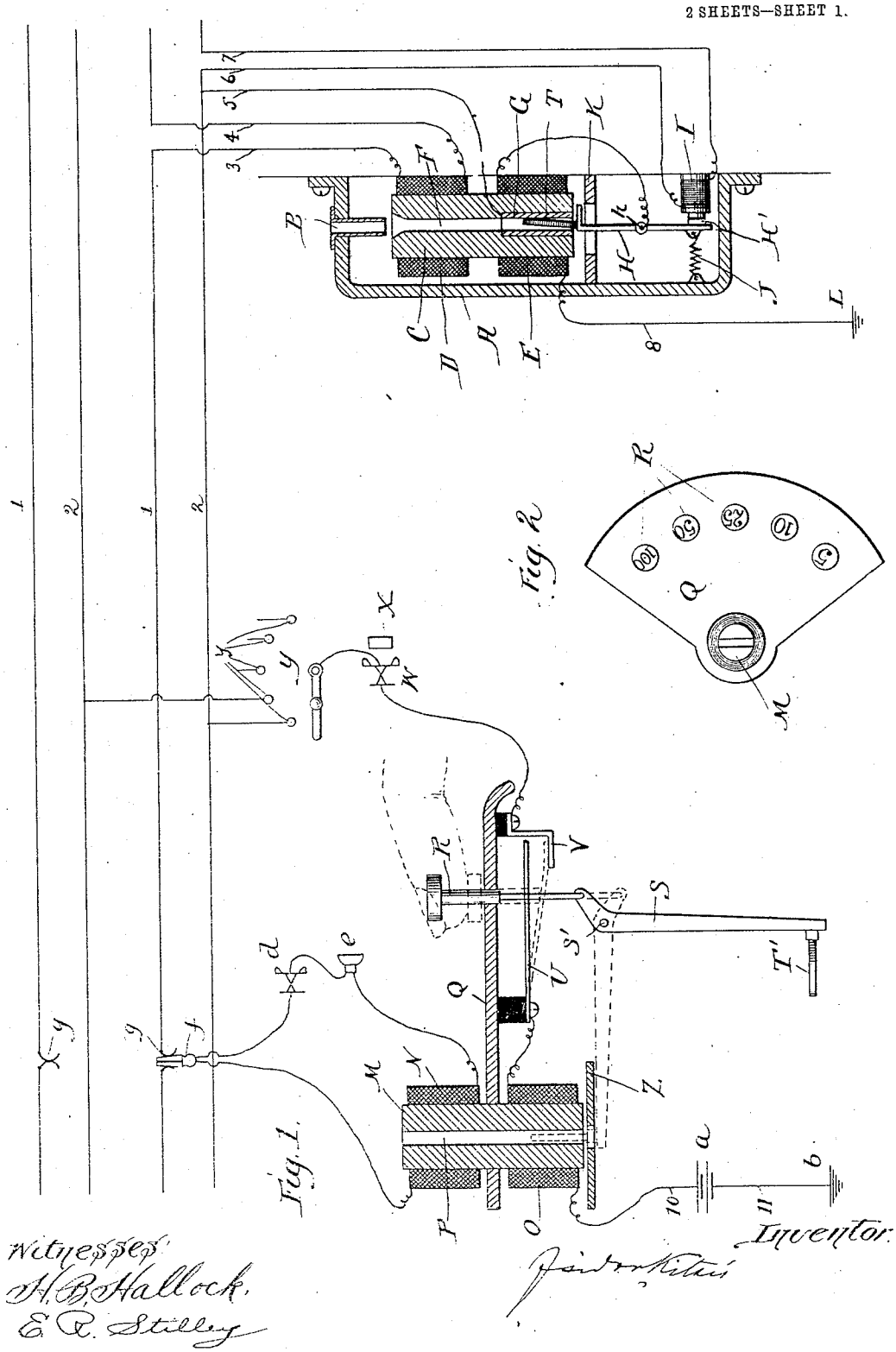
No. 790,641. PATENTED MAY 23, 1905.

I. KITSEE.

COIN CONTROLLED APPARATUS.

APPLICATION FILED OCT. 11, 1901.

2 SHEETS—SHEET 1.



No. 790,641. PATENTED MAY 23, 1905.

BEST AVAILABLE COP

A. KITSEE.

COIN CONTROLLED APPARATUS.

APPLICATION FILED OCT. 11, 1901.

2 SHEETS—SHEET 2.

Fig. 4.

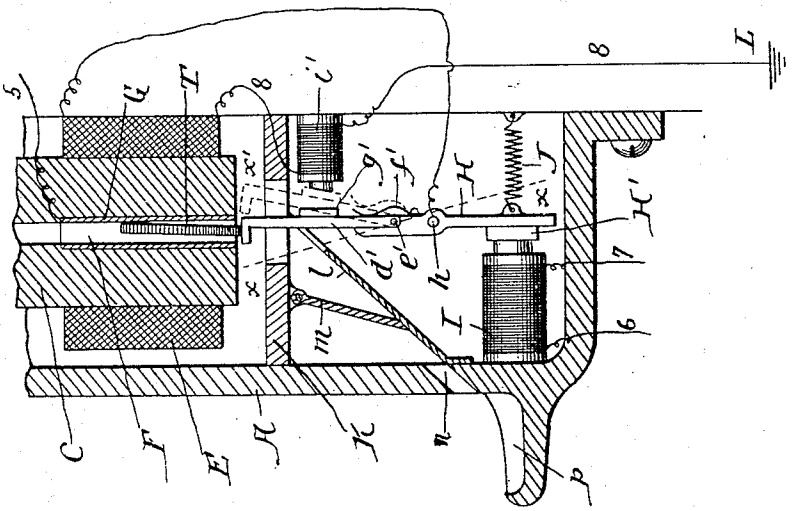
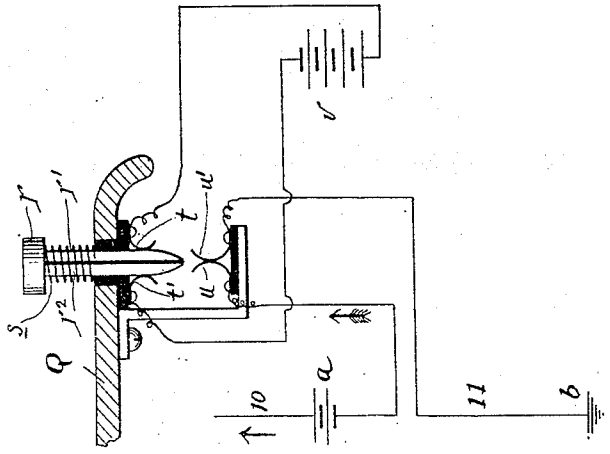


Fig. 3.



Witnesses:
H. B. Hallock,
E. R. Stilley

Inventor.

BEST AVAILABLE COPY

No. 790,641. Patented May 23, 1905.

UNITED STATES PATENT OFFICE.

ISIDOR KITSEE, OF PHILADELPHIA, PENNSYLVANIA.

COIN-CONTROLLED APPARATUS.

SPECIFICATION forming part of Letters Patent No. 790,641, dated May 23, 1905.

Application filed October 11, 1901. Serial No. 78,365.

To all whom it may concern:

Be it known that I, ISIDOR KITSEE, of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Coin-Controlled Devices, (Case No. 96,) of which the following is a specification.

My invention relates to an improvement in coin-controlled devices, and has more special reference to a device useful in connection with telephonic circuits.

In all of the devices of to-day in the market it is impossible for the operator stationed at the central or exchange to inform herself if the coin placed in the device is not merely a blank. The operator does not know if this coin is a legal one or a counterfeit or if the same is mutilated to such an extent as to be practically valueless.

It is the aim of my invention to produce a device wherewith the operator at the exchange can detect the genuineness, proper condition of the coin placed in the slot, and the right denomination of the same.

Referring to the drawings, Figure 1 illustrates in section my device and in diagram the connections of the same to the telephonic circuits. Fig. 2 is a reduced plan view of the keyboard and coil located at the central station.

In Fig. 1 the device as illustrated at the left-hand side is supposed to be stationed at the central or exchange and the device as illustrated at the right-hand side is supposed to be placed at the subscriber or calling-up station.

The underlying principle of my invention is the employment of induction-coils in a manner so that if a material capable of inducing such induction is placed in one of the coils but not in the other the difference of the induction between the one and the other can be determined by an instrument like a telephonic receiver.

Figs. 3 and 4 are modifications, partially in section and partially in diagram, of the device as illustrated in Fig. 1, Fig. 3 being a cross-section of a switch device for placing opposing batteries in the circuit and Fig. 4 being a cross-section of the coin-controlled device as illustrated in the right-hand side of Fig. 1.

I will first describe the devices as illustrated in Fig. 1 and will commence the description with the device supposed to be placed in the subscriber's station. In this device, A represents the casing; B, the slot for the purpose of receiving the coin. In this casing are placed the two coils D and E, wound, preferably, around a hollow cylinder C, of wood, hard rubber, or other suitable material. The coil D is electrically connected, through the wires 3 and 4, with the wire 1 of the main telephonic circuit. Coil E is connected, through wire 8, with the ground L and is also connected, through a short wire at the point *h*, with the lever H. This lever performs the function of an armature and has secured on its lower end the soft-iron piece H'. The spring J keeps this armature away from the electromagnet I, the coil of which is connected, through wires 6 and 7, in series with the telephonic line-wire 2. Part of the inner surface of the hollow F of the cylinder C is lined with a metal—such, for instance, as very thin copper or tin-foil. This lining G connects with wire 5, which in turn is connect with the main wire 2. If a coin or other metal is placed in the hollow F and at the same time the electromagnet I is energized through the closing of the circuit 1 and 2, thereby closing with the upper part of the lever the lower part of the hollow cylinder C, the coin or other metal will rest partially on the conducting metal lining G and partially on the upper part of the conducting-lever H. A circuit will therefore be established from line 2, wire 5, conducting-lining G, coin or other metal T, lever H, coil E, wire 8 to the ground L. Below the coil E is placed the heavy metallic disk K. At the central station are placed the two induction-coils N and O. The induction-coil N is connected, through the usual operator's phone *d e*, with the plug *f*, adapted to be inserted at *g* in the line 1. This coil is therefore in series with the coil D. The induction-coil O is connected, through wire 10, with one terminal of the battery *a*, the other terminal of which is

BEST AVAILABLE COP

connected, through wire 11, to the ground *b*. The other terminal of this coil is connected to the spring-plate U, adapted to connect with the contact V. This contact is in electrical connection with the telephonic transmitter W, connected to the movable switch-arm Y in proximity to the contacts *y*. Each of these contacts *y* is connected to the wire 2 of one of the telephonic circuits. Should, therefore, the movable switch-arm connect with the proper point *y* and the spring-plate U be in electrical connection with the contact V and should at the same time at the subscriber's station a coin be placed in the hollow F, the circuit being closed, then the coil O at the exchange will be connected in series with the coil E at the subscriber's station. The circuit of these coils will be as follows: ground *b*, battery *a*, coil O, contact-plate U, contact V, transmitter W, switch-arm Y, switch-point *y*, conductor 2, conductor 5, conducting-lining G, coin T, lever H, coil E, wire 8 back to the ground L. These coils O and E should be connected as to each other and the current-carrying circuit in a manner so that the current traverses these coils in opposite directions, and if these coils would consist of the same number of windings and no other disturbing influence would be present it stands to reason that each would induce impulses of equal intensity, but of opposite direction, in a neighboring coil, and the induced impulses, therefore, in these coils would be nullified. At the central station is also located a device, consisting of the plate Q, which is adapted to support the testing-coils N and O, with their inner hollow support M, and this plate Q also forms a support or bearing for the keys R, which are arranged in a circle concentric to the testing-coils. Each of these keys has thereon the figure denoting the respective denomination it represents. To each of these keys is secured the bell-crank lever S, pivoted at the point S'. To the end of this lever is secured the coin (or other metal of the same inductive capacity) T', corresponding in valve to the value registered on the top of the key. In proximity to the transmitter W is placed the sound-producer X. In practice the two coils E and O should be perfectly alike as far as their electrical property is concerned; but they should be connected together, as said above, in such a manner that the inductive impulses produced by each of them should be of an opposite direction. The coils D and N should also be of similar construction and should have the same inductive capacity. The coil D should have the same inductive relation to the coil E as the coil N has to the coil O. The surroundings of the coil pair D and E should, as far as their inductive influence concerns, be equal to the surroundings of the coil pair N and O; but in practice it may not be possible to have these surroundings entirely equal, and the windings of the coils should be made such as to conform with the different surroundings. To shield the coils entirely from any outside inductive influence, the coils may, in a manner well known to the art, be, as much as possible, inclosed in a conducting-shell of are quired thickness. This shell performs then the office of a protective shield.

To persons versed in the art it is well known that the operator at the exchange having in charge a series of subscriber-circuits connects, as soon as aware, through the glowing of the lamp, that the circuit is calling, the phone with this circuit calling. To-day in most all of the exchanges the coin-controlled pay-stations are given in charge of special operators, and to the phone-circuits of these operators the coil N is permanently connected. When, therefore, one of her circuits is calling and the operator connects her phone-circuit for the purpose of ascertaining the wishes of the subscriber, then through this insertion the coil N is also connected in this circuit.

In the drawings I have illustrated the plug *f* as to connect with the circuit through the springs *g;* but it is understood that the springs *g* represent in reality the usual connection, either automatic or through throwing a switch by the operator.

I have illustrated only one key, with its appended lever and its coin; but in reality the device consists of a series of key-controlled levers, each lever provided with a coin of different denomination or other metal with equal inductive value. The appended metallic pieces T' should be set at varying angles to their respective levers, so that when the key R is depressed the metallic piece T' should always, with the help of the lever S, be inserted in the space P of the core M.

I will now describe the *modus operandi* of practicing my invention. Before installing it is best to have the two coil pairs tested in the following manner: The coil D should be connected in series with the coil N to one circuit, and the coil E should be connected oppositely to the coil O to a second circuit. This second circuit should be provided with a source of electric current. In this circuit shall also be placed a transmitter, and in proximity to same a source of sound—such, for instance, as a clock. In the first-named circuit—that is, the circuit with the coils D and N—should be placed a telephonic receiver; but it is important that both these coil pairs shall be provided with the same inductive surroundings as they will have after installation. In other words, when the two coil pairs are placed one pair at the subscriber-station and one pair at the central or exchange and each connected electrically to a separate circuit then the varying impulses flowing through E and O should induce impulses in each of the coils D and N of exactly the same intensity, and as these impulses will be in opposite direction they should

BEST AVAILABLE COP

exactly nullify each other and should therefore produce no sound in the receiver. In practice as soon as a subscriber-circuit or pay-station is provided with a device then the person installing this device shall place a coin of a predetermined denomination in the slot B. The operator being notified that this coin is placed in the device shall first of all close the switch Y and listen through her phone if the sound-producer X actuates her receiver. If she hears the sound of X clearly, then she presses the key denoting the denomination of the coin placed in the device at the pay-station, thereby inserting one of the coins T' into the lower part of the lower coil O. If the device is in perfect order—that is, the inductive capacity of their surroundings are equal—and if the two coins are of the same metallic value, then the sound in the receiver *e* should cease entirely. If such is the case, the device and installation are correct.

I will now describe the operations necessary in connection with this device. The person calling up central lifts in the usual manner the receiver from the hook. This operation will give in the exchange the signal that the respective station is calling. The operator connects in the usual manner her phone with the circuit and inquires what subscriber is called for. The person calling informs the operator of his or her desire. The operator at the central calls up the subscriber desired and requires then the person calling to place the coin of a certain denomination into the slot of the device, at the same time closing the switch Y. The placing of the coin in the device will at once disturb the inductive equilibrium of the coils E and O, and the sound-producer X actuates the receiver *e* of the operator's phone. The operator will then press the key denoting the same denomination as the coin just placed in the device at the pay-station, and if the coin deposited in the device at the pay-station is correct then the insertion of the equal coin through the pressing of the key in the central station will again establish the inductive equilibrium and the sound produced by X in *e* will cease. The operator will therefore know that the required coin was deposited and will make the necessary connections for communication. The two coins may not be of exactly the same inductive value on account of greater or less handling; but the operator will soon learn to distinguish between the difference due to a slight abrasion of the coin and the great difference due to a wrong coin or due to a metal of different inductive capacity. It has to be stated that as soon as the operator has ascertained the true value of the coin the circuit of the calling subscriber should be momentarily opened, so as to demagnetize the electromagnet I, thereby giving the coin in the hollow F a chance to drop into the lower reservoir of this device. This lower reservoir should be in such relation as to the coils, so as not to exert any influence on same, and therefore the lower part of the coil is provided with a heavy disk K. This heavy disk has a counterpart in the disk Z in the central station. The disks K and Z, as well as the conducting-shell mentioned above, perform only the function of a protective shield, and any other device capable of performing this office may be substituted therefor.

With a coin-controlled device of the class as described, where the difference of a good and bad or partially bad coin can be ascertained to a nicety by the operator at the exchange, cases may arise in which the subscriber or caller has deposited a coin not exactly valueless, but yet not in as good a condition as required, and for this and other reasons the return of the coin to the caller may be a desirable feature of the device. For this reason I have modified the device illustrated in Fig. 1 so as to conform with this expediency. The modification of the device placed at the subscriber's station is illustrated in Fig. 4, and the necessary addition to the device placed in the central station for operating this modification is illustrated in Fig. 3.

In Fig. 4, in which only the lower coil E is illustrated, the connection of this coil is the same as in Fig. 1—that is, wire 5 connects with the conducting-lining G in electrical contact through coin T with lever H; but this lever, which in Fig. 1 consisted of one unbroken part, consists now of the main lever part H, having pivoted at *e'* the upper movable part *d'*, held normally in position through the spring *f'*. This upper part is provided with the polarized armature *g'*. In proximity to this armature is placed the electromagnetic coil *i'*. This coil is inserted in series in the line 8 8. The coil I is connected to the wires 6 and 7, as illustrated in Fig. 1. The device is also provided with the chute *l* and with the swinging baffle-plate *m*. The chute *l* connects with the opening *n* and the receptacle *p* on the outside of the device. At the central the plate Q is provided with one additional key *r*, consisting of the two conducting-points *r'* and *r²*, insulated from each other. This key is preferably provided with the spring *s*, so as to hold it in an upward position. The conducting-point *r'* is in electrical contact with spring *t*, which is one of the terminals of the battery *v*. The conducting-point *r²* is in electrical contact with the spring *t'*, which is the second terminal of the battery *v*. Below the conducting-points *r'* and *r²* are the contact-springs *u* and *u'*, normally in electrical contact with each other. These contact-springs normally connect the battery *a* with the wire 11. As long as the key *r* remains in its normal position the battery *a* connects directly to the ground; but when through the depression of the key *r* the two conta[illegible] *r'* and *r²* are forced between the contact[illegible]d *u'* the

BEST AVAILABLE COP

battery v is inserted between the battery a and the ground b, and as the connection of the battery v is in opposition to the battery a and as the battery v consists of a greater number of cells than the battery a and has therefore a greater electromotive force it is obvious that the current which was flowing through the circuit in the direction of the unfeathered arrow will now after the insertion of the opposing battery v flow in the direction of the feathered arrow—that is, opposite from the first-named direction. In the subscriber's station the coil of the electromagnet i is wound in such direction that the polarized armature d' will be repelled if the current-flow is in the direction as illustrated by the unfeathered arrow, but will be attracted if the current-flow is in the direction as illustrated by the feathered arrow. This part of my invention—that is, the employment of polarized electromagnets or relays—is so so well understood as not to require further explanation. I will now describe the mode of practicing this part of my invention. Normally the lever H of the device placed at the subscriber or pay station will be drawn through the spring J in such a position that the upper part of this lever will be away from under the hollow F of the cylinder C and the lever will assume a position as indicated by the dotted line x x. After the closing of the line the lever will assume the position as illustrated in full in Fig. 4. If now after the insertion of the coin the operator finds that the coin inserted is not of full value and desires to return this coin to the caller, then she presses the key r and inserts through this operation the battery v into the circuit including the ground b and L. Through this insertion the flow of the current will be reversed and the armature d' will be attracted by the electromagnet i', thereby pulling the upper part of the lever H toward the right, as is indicated by the dotted lines x', and the coin not having the support of the lever will drop into that part of the compartment which is provided with the chute l and the swinging baffle-plate m and will drop out through the opening n into the receptacle p. When the key r is released from the pressure, the upper part of the lever H will again assume its perpendicular position and the device is ready to receive a second coin. The device is provided with the swinging baffle-plate m for the purpose that no instrument inserted through the opening n into the device shall be able to reach either the coin or the lever. I have illustrated the most simple manner of operating this part of my device; but the details of the same may vary without departing from the scope of my invention, which broadly consists therein that in a coin-controlled device the deposited coin may be returned at the will of the operator stationed at the exchange.

I have illustrated in the drawings the inclosure as being provided with the compartment for the reception of the coins removed from the coils and deposited therein, as the shape and size of this compartment may differ as the case requires; but it is obvious that such a compartment should be provided.

The upper part of the lever h should always assume a perpendicular position when the electromagnet i' repels the armature g', and as means to obtain such result are well known to persons versed in the art it is unnecessary for me to illustrate the same.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In telephony, an outlying station, a coin-receptacle at said station, said coin-receptacle provided with two coils connected respectively to one and the other of the circuit-wires connecting said station with the central or exchange, and also provided with means operatively connected with said central or exchange to remove the coin from one part of said receptacle to other parts of said receptacle.

2. In telephony, an outlying station, two coils in inductive relation to each other at said station, means to keep a coin deposited in inductive relation as to one of said coils, and means to remove said coin from said inductive relation, said means operatively connected with means located at the central or exchange, in combination with inductive coils located at the central station and connected to the first-named coils by the line-wire.

3. In telephony, a device of the class described provided with induction-coils at the pay or subscriber station, in combination with a testing device located at the central or exchange, both the coin-controlled device and the testing device operatively connected with each other, in combination with means to keep at the pay-station the coin in inductive relation to one of the coils.

4. In telephony, a device of the class described, induction-coils for said device, means to hold a coin in inductive relation to one of said coils, and means to remove said coin from said inductive relation, in combination with a device adapted to test the accuracy of the coin deposited placed at the central or exchange, induction-coils for said testing device, and means for said testing device to insert in one or the other of said coils a metal of substantially the same inductive value as the coin supposed to have been deposited in the coin-controlled device at the pay or subscriber station.

5. In a device of the class described, an inductive coil connected in series with a telephonic circuit, a second coil connected with one terminal to one part of said circuit and with the second terminal to the ground, both of said coils placed at an outlying station in combination with similar coils placed at the central or exchange, the first-named coils pro-

BEST AVAILABLE COP

vided with means for the insertion and retention of a coin or coins, and the second-named coils provided with means to test the accuracy of the coin inserted in the first-named coils.

6. In a device of the class described for telephonic circuits a receptacle, an inductive coil in said receptacle, said inductive coil connected in series with the telephonic circuit, a second inductive coil in inductive relation to the first-named coil, said second coil connected with one terminal to the ground and with the second terminal to a device adapted to connect, through the insertion of a coin, the second terminal with one part of the telephonic circuit.

7. In devices useful for telephonic circuits an inductive device, parts of which are placed at the central or exchange and parts of which are placed at the pay or subscriber station, both of said parts adapted to be operatively connected with each other, the part placed at the pay-station provided with means to hold the coin in inductive relation to the device, and to remove said coin from said inductive relation, the part placed at the central provided with means to equalize the inductive influence of one coil on the other as soon as said inductive influence is disturbed by the insertion of the coin in the first-named device.

8. In a device of the class described an electromagnet provided with a spring-actuated armature, the armature adapted to hold the coin deposited in said device in place, said armature when released also adapted to allow the coin to travel in one or the other of the compartments of said device if released.

9. In telephony, a device for the reception of a coin, placed at the pay or subscriber station, in combination with a device adapted to test said coin when placed in the first-named device, a part of said second device placed at the central or exchange, both devices operatively connected with each other through the telephonic circuit, both of said devices including two sets of coils, one set of coils always in inductive relation to the second set of coils.

10. In telephony, a device for the reception of a coin or coins, including induction-coils in inductive relation to each other, means to retain said coins in inductive relation to said coils, means to remove said coins from said inductive relation, and means to remove said coins from the inclosure with which said coils are provided.

In testimony whereof I hereby sign my name, in the presence of two subscribing witnesses, this 8th day of October, 1901.

ISIDOR KITSEE.

Witnesses:

EDITH P. STILLEY,

CHAS. KRESSENBUCH.