

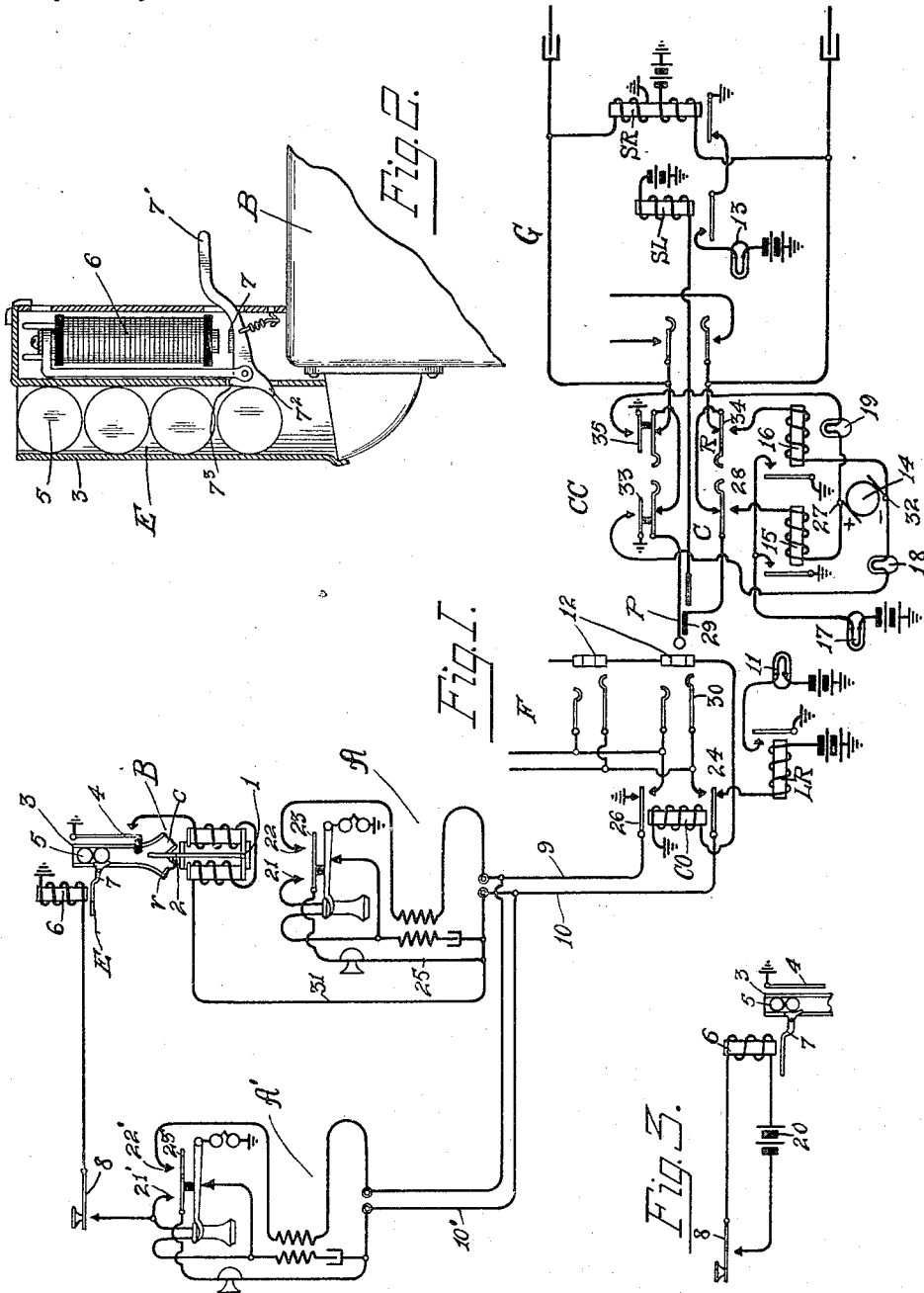
R. I. UTTER.

COIN BOX.

APPLICATION FILED FEB. 8, 1913.

1,124,561.

Patented Jan. 12, 1915.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## COIN-BOX.

1,124,561.

Specification of Letters Patent.

Patented Jan. 12, 1915.

Application filed February 8, 1913. Serial No. 747,061.

*To all whom it may concern:*

Be it known that I, RICHARD I. UTTER, a citizen of the United States of America, residing in Chicago, county of Cook and State of Illinois, have invented certain new and useful Improvements in Coin-Boxes, of which the following is a specification.

My invention in general relates to coin boxes for telephone systems and has more particularly to do with control circuits for regulating the deposit of coin in the coin box either from a main telephone substation or an extension thereof. In the installation of coin boxes in connection with telephone substations, when an extension is connected to a main telephone, it has been found necessary to install a coin control box at both the main and extension telephones, and my invention relates to means whereby a coin box may be installed at the main telephone and a simple key provided at the extension telephone A whereby the deposit of a coin in the coin box may be controlled from either the main or extension telephone.

A better understanding of my invention may be had by reference to the accompanying drawing in which like reference characters indicate like parts and in which—

Figure 1 illustrates diagrammatically the preferred circuit arrangement embodying my invention; Fig. 2, shows the coin depositing device attached to the coin disposing box and Fig. 3 illustrates a modified arrangement for controlling the coin disposing magnet from the extension telephone.

In illustrating my invention I have shown a well-known form of substation telephone A having the usual switch-hook receiver, transmitter, call bell, condenser, and induction coil. The telephone A which will be referred to as the main telephone, has a coin disposing device B shown diagrammatically. The coin box B has a polarized disposing magnet 1 whose armature 2 is extended into the coin chute 3, which coin chute has two openings for disposition of the deposited coin, the opening *c* being adapted for collecting the coin while the opening *r* is adapted for restoring the coin. A pair of contacts 4 are provided, being so arranged that when a coin or token 5 is deposited, it stops in engagement with the armature 2 and closes the alternate contact 4. The coin chute 3 is preferably arranged to receive a number of coins as 5 which coins are controlled

by a depositing magnet 6 and armature 7. The armature 7 may be actuated either manually by the lever extension 7<sup>1</sup> or by the energization of the magnet 6. When the member 7 is actuated, the projection 7<sup>2</sup> is moved to allow the deposit of the coin resting thereon while the other projection 7<sup>3</sup> is moved into position to prevent the dropping of more than one coin at a time.

In general when a call is to be made from the main substation as A, the receiver is removed in the usual manner to signal the operator. A coin is not deposited by the subscriber until he is told to do so by the operator who may effect the actuation of the polarized disposing magnet to collect or return the deposited coin. Of course where but a single main substation is installed the disposing device E need not be provided for the coin box B, but when an extension telephone as A<sup>1</sup> is installed the mechanism E may be attached to the coin box B and a push button 8 connected from the substation A<sup>1</sup> to the coin controlling magnet 6 which with the present circuit arrangement is connected to ground. When a subscriber at extension telephone A<sup>1</sup> desires to make a call he removes his receiver in the usual manner and when told by the operator to deposit a coin he simply presses the button 8 which energizes the depositing magnet 6 to allow the deposit of a single coin into the coin box. The operator then may either collect or refund the coin.

The main and extension substations are connected to the central office by line conductors 9, 10, which terminate in a line circuit F comprising the usual line relay LR, cut-off relay CO, line signal 11, and multiply connected jacks 12.

A cord circuit G suitable for interconnecting the telephone lines is provided and I have shown a cord circuit G having a bridged supervisory relay SR and a sleeve relay SL, together with a supervisory lamp 13. The central office talking battery is not of a high enough voltage to operate the coin disposing magnet. But a portion of a cord circuit is shown, as it is thought the manner of embodying my invention will be readily understood without showing more of the cord circuit than that illustrated.

Associated with the connecting circuit G is a coin control circuit CC comprising a collecting key C which when operated effects

the operation of the polarized magnet 1 to collect a coin and a refunding key R which effects the operation of the magnet 1 to return a deposited coin. I preferably provide a separate source of current for operating the disposing magnet, and I have shown a direct current generator 14 which when connected by the collecting key C sends the current in one direction through the polarized magnet 1. When the generator 14 is connected by the refunding key R the current is sent in the opposite direction through the polarized magnet 1. I also connect signal relays 15, 16, in circuit with the generator 14, which relays are adapted to energize only if a coin has been deposited when a key C or R is depressed. If a relay 15 or 16 energizes the signal lamp 17 lights to indicate to the operator that a coin has been deposited in the coin box. Protective resistances 18, 19, are also provided to prevent a short circuit of the generator 14 should two keys C and R be simultaneously depressed.

In the preferred arrangement of my invention I use a central office source of current for operating the coin depositing magnet 6 when operated through the key 8, but in Fig. 3 I have shown a modified arrangement of this part of my invention in which a local battery 20 may be provided at the substation and which causes the operation of the magnet 6 when the key 8 is closed.

Operation: Now when a call is to be initiated from a main telephone A of a substation, the subscriber removes the receiver thereby closing the switch-hook contacts 21, 22, 23, whereby a circuit for the line relay LR is established. This circuit is traced from battery through the winding of LR, normal contact 24, line conductor 10, conductor 25, contacts 23, 22, returning over line conductor 9 to ground at normal contact 26. The line relay therefore effects the illumination of the line signal 11 whereupon the operator inserts an answering plug P into the answering jack 12 of the calling line thereby establishing a circuit through the cut-off relay CO and sleeve relay SL, through the sleeve contacts of the plug and jack. Relays CO and SL therefore energize, relay CO restoring the line relay LR, and relay SL closing a circuit through the supervisory signal 13, but due to the fact that the receiver is off the switch-hook at the substation the supervisory relay SR immediately energizes as is well understood so that the signal 13 gives but a short flash.

The operator after ascertaining the number of the wanted substation and having connected thereto, requests that the calling subscriber deposit a coin in the coin box B. Therefore the subscriber manually operates the lever 7<sup>1</sup> to allow the deposit of a single coin or token 5. Such coin when released

moves downwardly until it engages the extension of the armature 2 at which point it effects the closure of the alternate contacts 4.

The operator having ascertained that the two subscribers are in conversation operates the collecting key C whereby current from source 14 flows through the polarized magnet 1 in such a direction as to tilt its armature 2 toward the left. This flow of current may be traced from the pole 27 of generator 14, relay 15, alternate contact 28, contacts 29, 30, alternate contact 24, conductors 10, 31, polarized magnet 1 and alternate contact 4 to ground. The operation of key C also grounds the other terminal 32 of generator 14 by the closing of alternate contact 33 so that the circuit is completed through the magnet 1, and this flow of current is in such direction that the armature 2 tilts toward the left and drops the deposited coin 5 through the collecting chute C. As the coin is collected, the contacts 4 are interrupted so that the controlling magnet 1 is cut out of circuit during conversation. This circuit also energizes relay 15 to operate lamp 17 which is an indication to the operator that a coin has been deposited. It will be seen that if the subscriber failed to deposit a coin, the contacts 4 would not be closed so that no circuit for the collecting current would exist and therefore relay 15 could not operate and the signal 17 would fail to light. The operator would then know the subscriber did not deposit a coin.

Assuming now that the operator wishes to refund the coin to the subscriber at telephone A, the restoring key R is operated whereby the pole 32 is connected through the relay 16 and alternate contact 34 to the line conductor 10, and as the alternate contact 35 of key R in this instance grounded the other terminal 27 of the generator 14 it will be apparent that the flow of current through polarized magnet 1 is in a direction opposite to that described when the coin was collected. Therefore, the magnet 1 tilts the armature 2 toward the right and allows the deposited coin to drop through the restoring chute r.

Assuming now that a call is initiated from the extension telephone A<sup>1</sup>, the calling party thereat removes his receiver from its switch-hook, closing the switch-hook contacts 21<sup>1</sup>, 22<sup>1</sup>, 23<sup>1</sup>, and thereby lighting the line lamp 11 in a manner as before described. The operator then inserts an answering plug P to effect circuit changes as before described. After completing the connection to the wanted line the operator requests the deposit of a coin. The calling party at A<sup>1</sup> therefore simply presses the coin control key 8 a single time to effect a single operation of the depositing magnet 130

6. The operating circuit for magnet 6 may be traced from ground through the winding thereof, contacts 8, contacts 21<sup>1</sup>, 23<sup>1</sup>, transmitter, line conductors, 10<sup>1</sup>, 10, alternate  
 5 contact 24, contacts 30, 29, 28, 34 and the lower winding of supervisory relay SR to battery. This single operation of magnet 6 causes the attraction of its armature 7 whereby a single coin 5 is deposited in the  
 10 coin box B. The operator now by depressing either the calling key C or restoring key R effects a disposal of the coin in a manner as previously described.

Should a local controlling circuit for the  
 15 coin magnet 6 be used as is shown in Fig. 3, the operation of the key 8 will of course operate the magnet 6 by current from the local battery 20 instead of from the central office battery as described.

20 In illustrating my invention I have shown well-known forms of circuits but I contemplate using my invention in other circuit arrangements than that shown and I am also aware that many changes and modifications  
 25 of my invention will readily suggest themselves and therefore I aim to cover all such changes and modifications as come within the spirit and scope of the appended claims.

What I claim as new and desire to secure  
 30 by United States Letters Patent is:

1. A telephone substation comprising main and extension telephones, a coin disposing device at one of said telephones, a  
 35 coin depositing device therefor, and means whereby said depositing device may be operated from either of said telephones.

2. A telephone system comprising a telephone line and substation, main and extension  
 40 telephones at said substation, a coin disposing device at one of said telephones and means controlled from either telephone for depositing a coin or token in said disposing device.

3. A telephone system comprising a telephone line and substation, main and extension  
 45 telephones at said substation, a coin disposing device at one of said telephones, a coin depositing device therefor, and means for operating said depositing device from  
 50 either of said telephones.

4. A telephone system comprising a telephone line and substation, main and extension  
 55 telephones at said substation, a coin disposing device at one of said telephones, a coin or token storage receptacle at said coin disposing device, and means controlled from either telephone for depositing a coin or token from said receptacle into said disposing device.

60 5. A telephone substation comprising main

and extension telephones, a coin disposing device at one of said telephones, an electromagnetic coin depositing device therefor, and means whereby said depositing device  
 65 may be operated from either of said telephones.

6. A telephone substation comprising main and extension telephones, a coin disposing device at one of said telephones, a coin depositing device therefor, manual means for  
 70 operating said depositing device, an electromagnetic device controllable from said other telephone for operating said coin depositing device.

7. A telephone system comprising a telephone line having main and extension tele-  
 75 phones, a coin disposing device common to said telephones, a coin depositing device therefor, and means for operating said depositing device from either of said tele-  
 80 phones.

8. A telephone system comprising a central office, a telephone line having main and extension telephones, a coin disposing device common to said telephones, a coin de-  
 85 positng device therefor, means for operating said depositing device from either of said telephones, and operating means for said coin disposing device controllable from the central office.

9. A telephone system comprising a telephone line, telephones connected thereto, a coin depositing and a coin disposing device for said line, and means whereby said  
 95 depositing device may be operated from either one or more of said telephones.

10. A telephone system comprising a telephone line, main and extension telephones  
 100 therefor, a coin depositing and coin disposing device common to said telephones, means controlled from either telephone for operating said depositing device and whereby said device is operable from said extension telephone only when said extension telephone  
 105 is operatively connected to the line.

11. A telephone system comprising a telephone line having telephones connected  
 110 thereto, a coin disposing device common thereto, a common coin depositing device including a coin releasing element, and means whereby said element is operable from any of said telephones.

Signed by me at Chicago, county of Cook and State of Illinois, in the presence of two witnesses.

RICHARD I. UTTER.

Witnesses:

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 B. O'BRIEN.