No. 821,778. PATENTED MAY 29, 1906.

O. BRISBOIS.

TELEPHONE TOLL BOX.

APPLICATION FILED MAY 1, 1905.

3 SHEETS—SHEET 1.

Fig. 1.

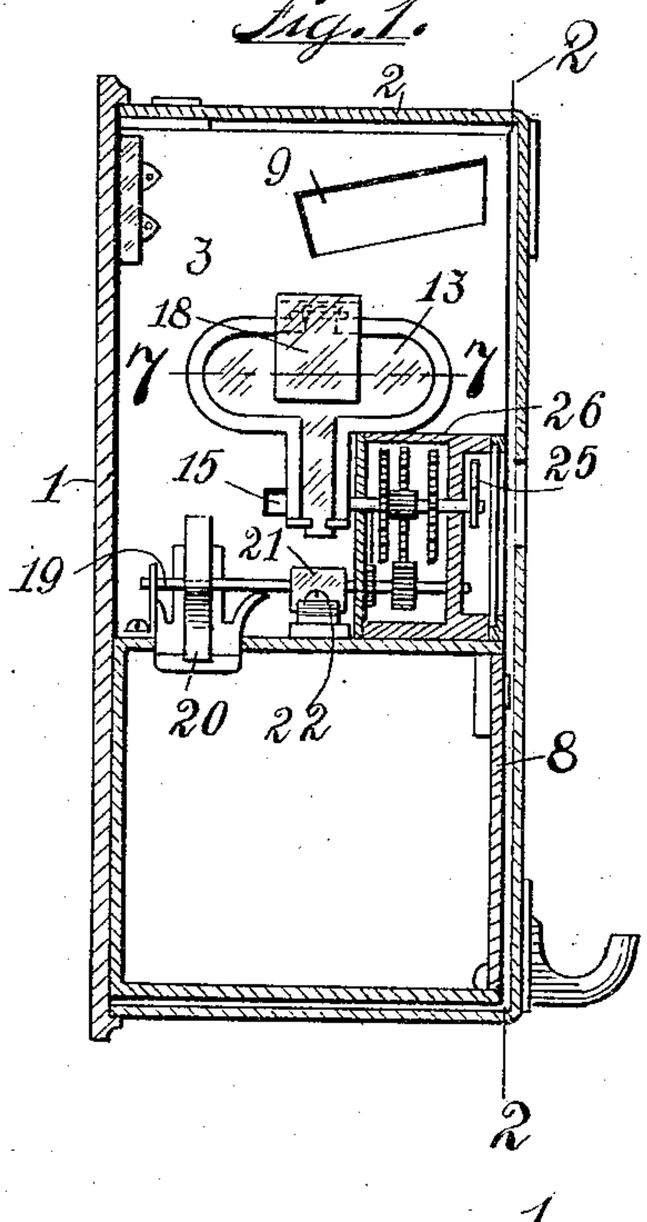


Fig. 3.

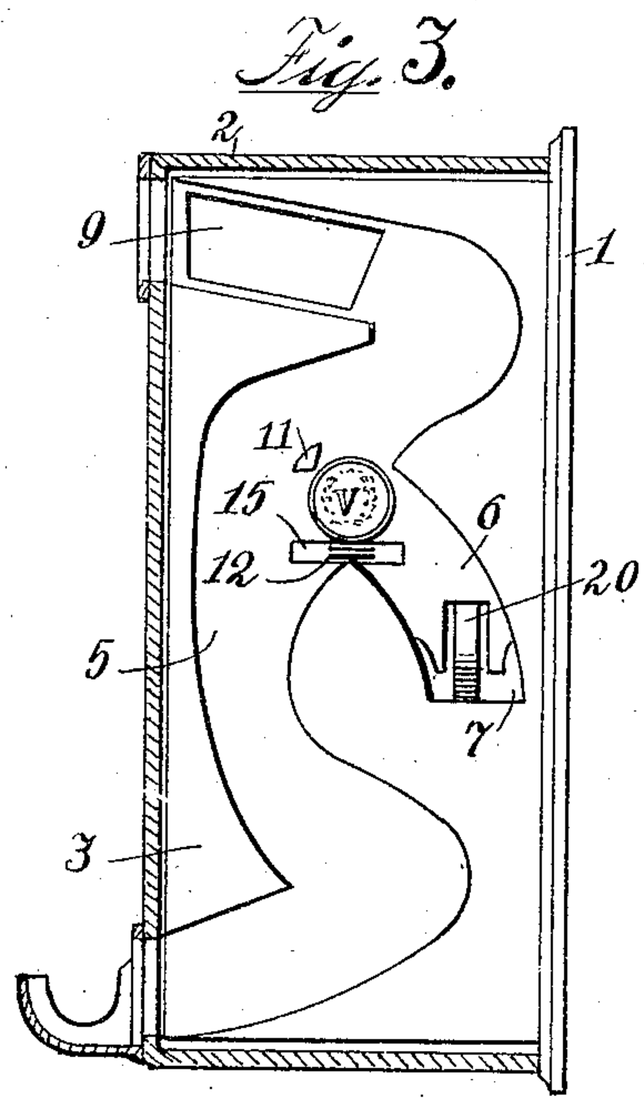
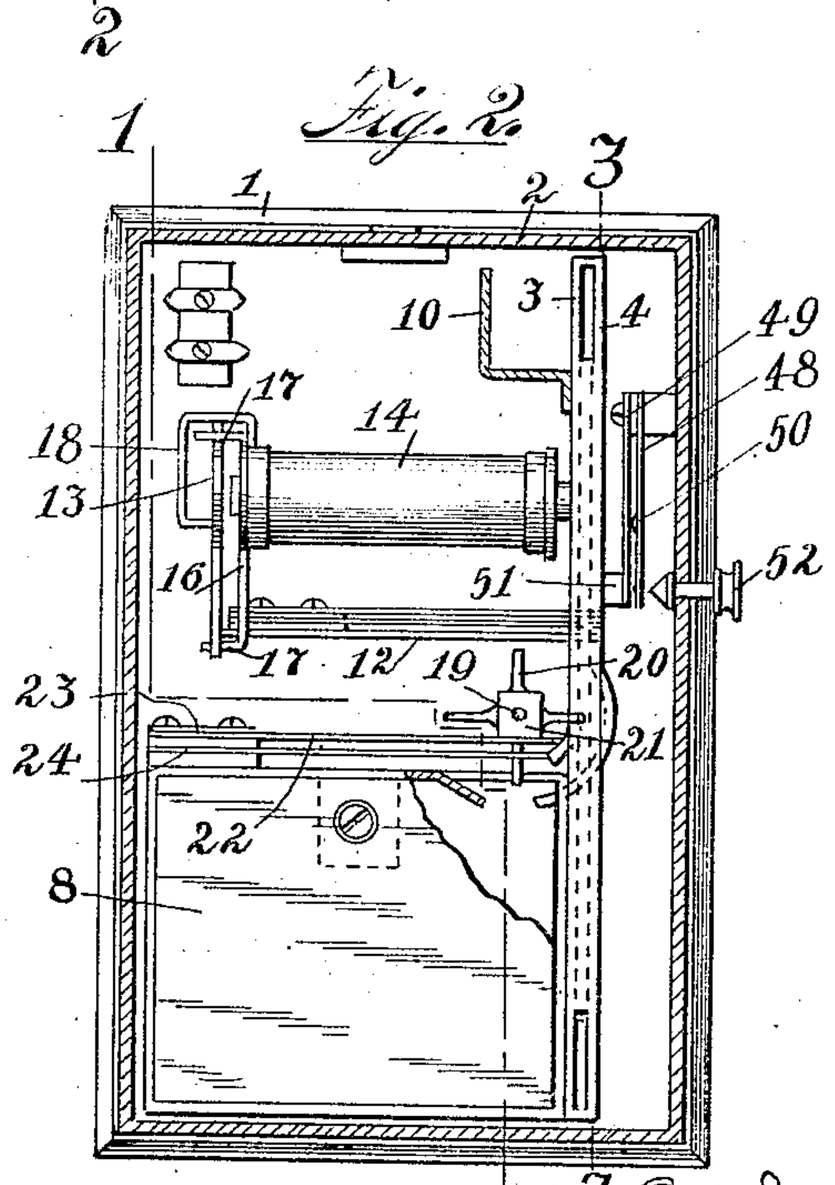


Fig. 2.



Witnesses.

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3 SHEETS—SHEET 2.

Fig. 4.

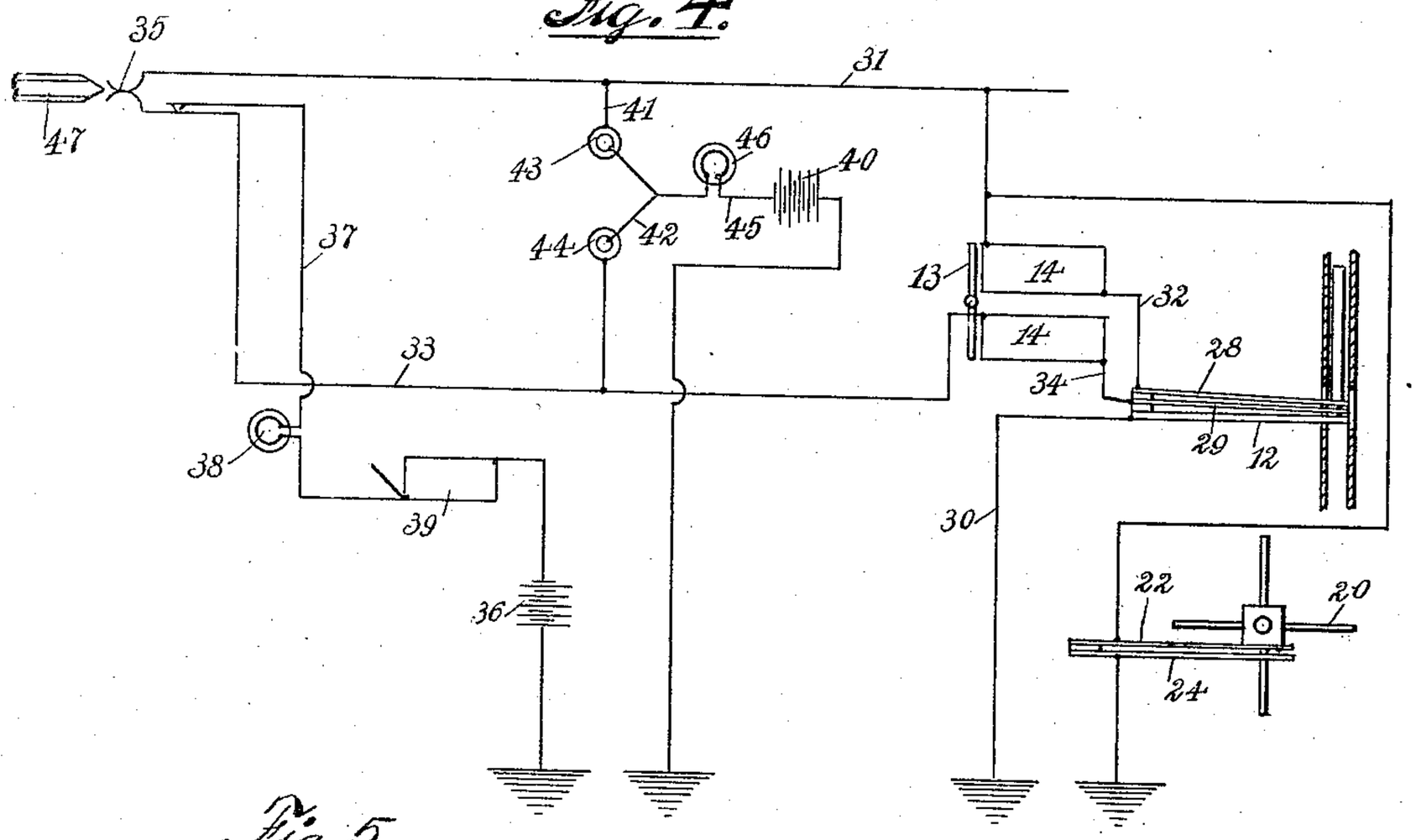

Fig. 5.

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3 SHEETS—SHEET 3.

Fig. 6.

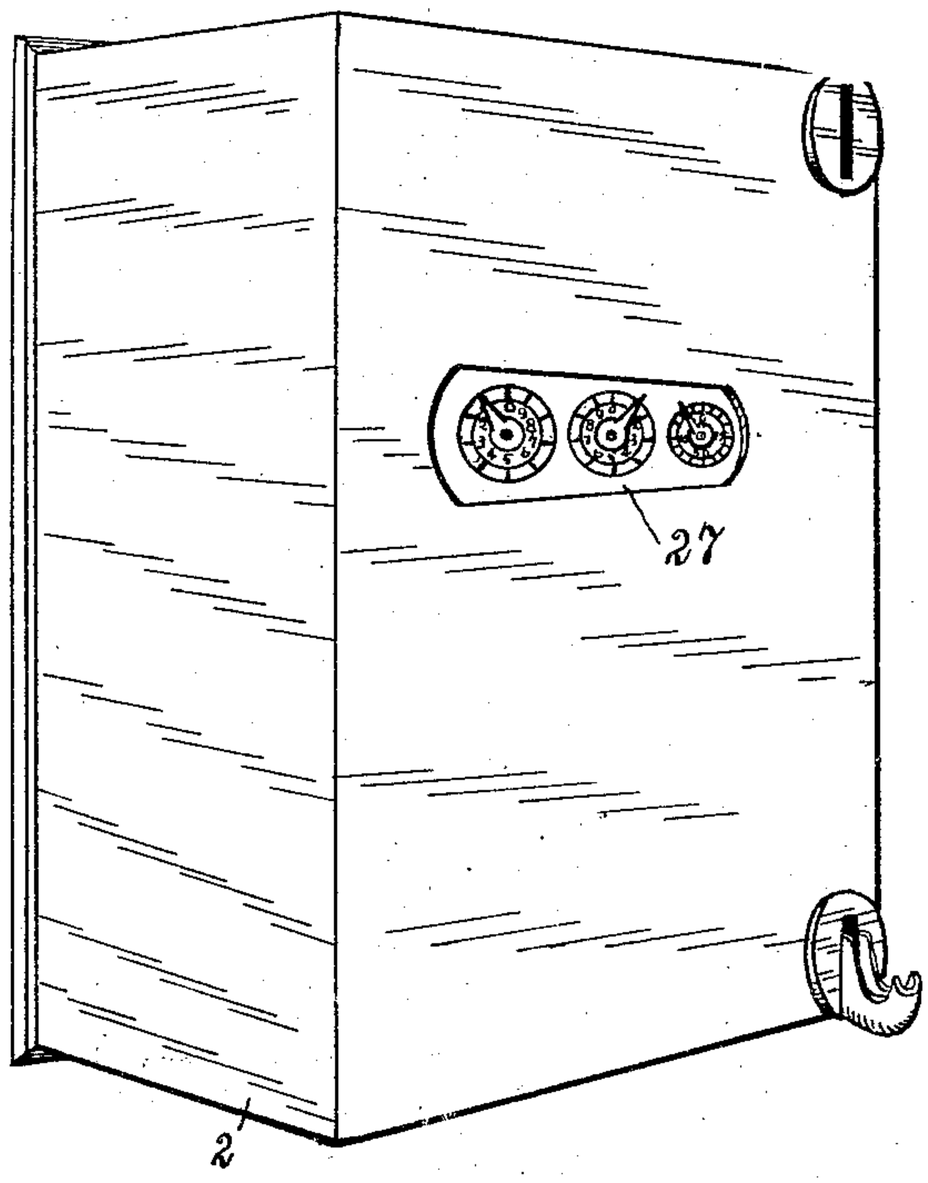
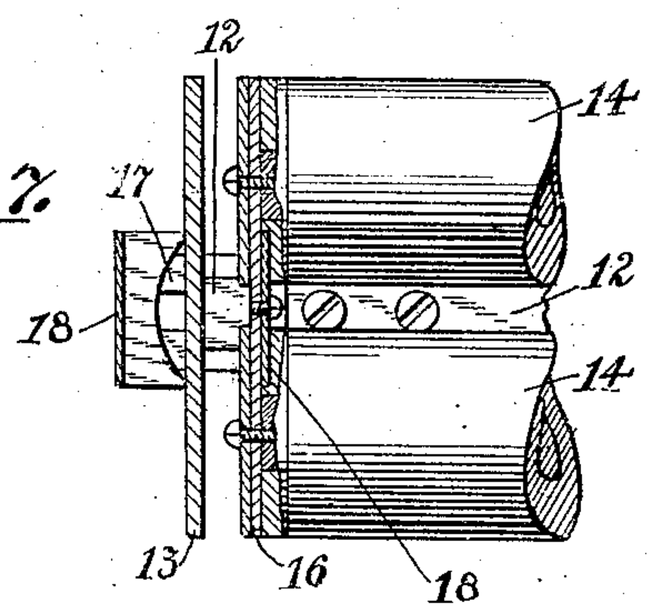


Fig. 7.



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UNITED STATES PATENT OFFICE.

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TELEPHONE TOLL-BOX.

No. 821,778. Specification of Letters Patent. Patented May 29, 1906.

Application filed May 1, 1905. Serial No. 258,377.

To all whom it may concern:

Be it known that I, ODILON BRISBOIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Telephone Toll-Boxes; 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.

This invention relates to a novel construction in a telephone toll-box, the object being to provide a device of this character in which a record of each coin or token deposited is kept and which can be applied or used in connection with various telephone systems.

The invention consists partially in the novel features of construction of the box proper, and more particularly in the electrical circuits controlling the same, all as hereinafter fully described and claimed.

In the accompanying drawings, illustrating this invention, Figure 1 is a vertical longitudinal sectional view of a toll-box constructed in accordance with my invention, taken on the line 1 1 of Fig. 2. Fig. 2 is a vertical transverse section of the same on the line 2 2 of Fig. 1. Fig. 3 is a vertical longitudinal section on the line 3 3 of Fig. 2. Figs. 4 and 5 are diagrammatic views, partly in fragmentary vertical transverse section, illustrating the various systems of electrical circuits employed in telephone systems and controlling the mechanism of the box. Fig. 6 is a perspective view in elevation of the box. Fig. 7 is a fragmentary detail sectional view, on an enlarged scale, on the line 7 7 of Fig. 1.

One object of my invention is to provide a toll-box which is so arranged that the coin or token must be deposited before the central office can be signaled, the signaling being in some systems effected by the coin and in other systems, as the generator and kick-coil, by external means actuated by the subscriber; but in either case the signaling is effected through the medium of the deposited coin or token.

Another object of my invention is to provide means actuated by the deposited coin or token to register its deposit in the cash-box and simultaneously signal the central office, so that its deposit will be known to the operator.

Another object of my invention is to provide means auxiliary to the deposited coin to close a circuit therethrough to further signal the operator in the event that no attention is paid to the signal effected by the deposit of the coin.

To the above and other ends my said device comprises a wall-plate 1, carrying all of the mechanism and wires controlling circuits, to which a casing 2 is adapted to be secured to cover said mechanism, &c., said casing 2 being held in place by means of a lock of suitable construction, controlled by a key held by the operating company in the usual manner. Mounted on said plate 1 are two vertically-disposed parallel plates 3 and 4, the former being provided in one face with a substantially W-shaped recess 5, terminating in the forward edge of same and at its upper and lower ends, respectively, while an arm or branch 6 of said recess extends rearwardly and downwardly from a point substantially midway between the ends of the second arm of said recess and communicates with an opening 7, through which the coin or token passes into the cash-box 8. The said plate 4 is adapted to be secured to the plate 3 on the recessed side thereof to cover said recess, and thus form a passage through which coins or tokens travel.

The coins to be deposited are of a given denomination, usually five-cent pieces or nickels, and to prevent smaller coins being employed a slot 9 is provided in the inner wall of the recess adjacent the point of admission of the coin, through which smaller coins will fall upon a flanged plate 10 provided therefor. A projection 11 is interposed in said recess or passage 5 above and to the left of the arm or branch 6 thereof, between which and the inner wall of the said recess the deposited coin is adapted to pass to fall upon and be supported by the free end of an arm 12 of a horizontally-rocking armature 13, which is actuated to swing either right or left by means of electromagnets 14, the said free end of said arm projecting into said passage 5 through a horizontal slot 15, said arm being so disposed that if swung to the left it will cause the coin supported thereon to be deflected into the arm or branch 6 and if swung to the right will cause such supported coin to be deflected into the lower portion of said passage 5 and returned to the depositor,

Said passage is so arranged and the coin deposited so supported that a second coin inserted in the passage will ride over the first and be returned to the depositor. Such arrangement is not new, however, and forms no part of my invention. The said electromagnets 14 are horizontally disposed and suitably supported on the plate 3, and to the inner end, of same a plate 16 is secured, which is provided with arms 17 at its upper and lower ends, which are recessed to receive the pivots of the armature 13, the latter being normally held between the limits of its movement by means of an overhanging flat spring 18, the free end of which bears on said armature on each side of and at some distance from its pivotal axis, thus preventing vibratory swinging of said armature due to sudden release after having been turned in either direction by the action of said electromagnets.

Mounted on a horizontal shaft 19 above the cash-box is a four-armed wheel or turnstile 20, the arms of which are adapted to successively project through the opening in the plate 3 into the arm 7 of the passage 6 in the path of the coin and is adapted to be turned by the latter during its passage into the said cash-box. On said shaft 19 is a rectangular wheel or cam 21, the outer faces of which are parallel with the arms of the turnstile, and bearing upon the lowermost face of said wheel or cam is the free end of a light flat spring 22, the other end of which is mounted upon an insulating-block 23 on the cash-box. Below said spring 22 is a similar parallel spring 24, upon which said spring 22 is adapted to be depressed at each quarter-turn of said turnstile, said spring 22 serving to impart final turning movement to said shaft to complete each quarter-revolution thereof in an obvious and well-known manner. The said shaft 19 is geared to and actuates a meter 25, contained in a compartment 26, partitioned off and isolated from the balance of the box, the dials of said meter being visible through a slot 27 in the casing 2. Said meter is of well-known construction and is so arranged as to be non-reversible, so that it cannot be tampered with by a collector for the operating company. The cash-box is provided with a hinged door which is locked by a different key from that used to lock the casing 2 in place.

The mechanism hereinbefore described is very simple and efficient and well adapted to be operated by the arrangement of electrical circuits which I will now proceed to describe and which form the most essential feature of my invention. Certain parts of the mechanism have not been hereinbefore described, for the reason that they can be more intelligently understood in connection with the description of the electrical circuits partially controlled thereby.

In Fig. 4 I have shown the electric telephone-circuit known as the "common-battery" system to illustrate the manner in which the toll-box is interposed and operated thereby, and in Fig. 5 I have likewise shown the generator-call system with the box interposed in the circuit. Primarily when the subscriber desires to call he raises the receiver to ascertain whether the line is clear. He then deposits his coin or token, which lodges upon the free end of a spring 28 on the arm 12, which is insulated from the latter, and depresses said spring 28 upon a second spring 29 on said arm 12, which is normally insulated from the latter and said spring 28, and causes the free end of said spring 29 to bear upon said arm 12, which is connected by electric conduit 30 with the ground. Said spring 28 is connected with one side 31 of the line by means of a conduit 32, in which one of said electromagnets 14 is interposed, and said spring 29 is connected with the other side 33 of the line by means of the conduit 34, in which the other electromagnet 14 is interposed. The lines 31 and 33 are normally closed at the switchboard, as at 35, and the line 33 is connected with one pole of a battery 36 by means of the conduit 37, in which a signal-light 38 and a signal-relay 39 are interposed, the other pole of said battery being grounded. Each of said lines 31 and 33 is bridged to one pole of a battery 40 (the other pole of which is grounded) by means of conduits 41 and 42, each having a push-button 43 and 44 interposed therein and both connecting with the conduit 45, having a signal-lamp 46 interposed therein. When the coin is deposited, both lines 31 and 33 are obviously grounded through the springs 28 and 29 and the arm 12, and through the conduit 37 and battery 36 the circuit is completed through the signal-light 38 and relay 39 to the ground, thus signaling the operator. The latter now inserts the plug 47 to open the circuit between the lines 31 and 33 and through the latter and the conduit 37. By now pushing the button 43 the circuit through one of the electromagnets 14 is closed and the armature 13 swung to one side to deflect the deposited coin or token in the cash-box. As soon as the coin drops, the circuit through said electromagnet is obviously opened and the lamp 46 extinguished; but as said coin strikes and turns the turnstile 20 the circuit from said battery 40 through said springs 22 and 24 is momentarily closed to flash said lamp, thus signaling the operator that the coin has been deposited. By pushing the button 44 the circuit through the other electromagnet is closed until the coin is released and returned to the subscriber, the lamp 46 serving in either case to show the operator that said coin is in place when the button is pushed. The coin may be left upon the arm 12 while the subscribers are conversing without affecting the line-circuit or may be de-

posited immediately upon effecting connection. When the box is to be used in connection with generator-coil systems, special means must be provided for signaling the operator, and to this end I provide in said box between coin-chute and the adjacent wall of the casing 2 two springs 48 and 49, between which is interposed an insulating-block 50, which holds said springs normally separated. On the free end of said spring 49 is an insulating-block 51, which is adapted to pass through an opening in the coin-chute and engage the supported coin or, if no coin is present, to pass through an opening in the farther wall of the chute. The free end of the spring 48 is disposed in the path of a push-button 52, which is adapted to bend said free ends of said springs inwardly and if a coin is in the path of the block 51 will force the spring 48 into contact with said spring 49. To signal the operator in this case, the receiver is first raised to ascertain that the line is clear and the coin then deposited. The button 52 is then pressed inwardly and held while the generator 53 is operated, one pole of the latter being grounded and the other connected with said spring 48. The said spring 49 being connected with the line corresponding to 33 in Fig. 4, the circuit through the signal-lamp 38 and relay 39 is closed in an obvious manner, thus signaling the operator, who then inserts the plug 47 and effects the desired connection, the operation and circuits being otherwise exactly the same as in the common-battery system illustrated in Fig. 4.

My said toll-box may be employed in connection with any existing telephone system so far as I am informed and is very simple and efficient and a source of great economy to operating companies in view of the fact that it enables a check on collectors to be readily kept.

I claim as my invention—

1. In a signaling apparatus for telephone systems, the combination with two main lines normally closed at one point, a shunt-circuit having a battery grounded at one end and signaling means interposed therein, normally connected with said main lines, an electromagnet disposed in each of said main lines, a grounded armature adapted to be actuated by either of said electromagnets, circuit-closers carried by said armature and connected with said main lines, said circuit-closers being adapted to be actuated by a coin to connect said lines with each other and with the ground to close the shunt-circuit, a second shunt-circuit having a battery disposed therein grounded at one end and bridged to both said lines through circuit-closing devices, and means for opening said main lines at said first-named point simultaneously with said shunt-circuit to enable either of said electromagnets to be energized through said second shunt-circuit to actuate said armature and throw said coin to reopen said main lines.

2. In a signaling apparatus for telephone systems, the combination with two main lines normally closed at one point, a shunt-circuit having a battery grounded at one end and signaling means interposed therein, normally connected with said main lines, an electromagnet disposed in each of said main lines, a grounded armature adapted to be actuated by either of said electromagnets, circuit-closers carried by said armature and connected with said main lines, said circuit-closers being adapted to be actuated by a coin to connect said lines with each other and with the ground to close said shunt-circuit, a second shunt-circuit having a battery disposed therein grounded at one end and bridged to both of said lines through circuit-closing devices, a shunt-circuit from one of said main lines to the ground, a coin-actuated circuit-closer disposed therein, signaling means disposed in a part of the aforesaid circuits in operative relation to said last-named shunt-circuit and adapted to be actuated by closing the circuit through the latter and one side of the second-named shunt-circuit, and means for opening said main lines at said first-named point simultaneously with said shunt-circuit to enable either of said electromagnets to be energized through said second shunt-circuit to actuate said armature and throw said coin to reopen said main lines.

3. In a telephone toll-box having a coin-chute, the combination with an electrically-actuated device for supporting and deflecting a coin, of a signal-circuit closer carried thereby and adapted to be closed by said coin, and a shunt-circuit partially controlled by said circuit-closer for actuating said support to deflect and release said coin.

4. In a telephone toll-box having a coin-chute, the combination with an electrically-actuated device for supporting and deflecting coins, a circuit controlling the means for electrically actuating said device normally open, a shunt-circuit connected therewith and having signaling means disposed therein, of a circuit-closer carried by said supporting device and controlling said first-named circuit and said shunt-circuit and adapted to be actuated by the supported coin, and means including a shunt-circuit for throwing an impulse through one side of said first-named circuit to actuate said supporting and deflecting device to release said coin.

5. In a telephone toll-box, the combination with devices disposed in the path of the coin for supporting and deflecting same, a circuit-closer carried thereby and adapted to be actuated by the coin, electrically-controlled devices actuating said supporting and deflecting devices, a main circuit controlling same, a signal-circuit connected with said main circuit, both said circuits being partially con-

trolled by said circuit-closer, a second shunt-circuit connected with said main circuit and having signaling means disposed therein, hand-operated circuit-closing means disposed in said shunt-circuit and adapted to be actuated to close a circuit through the devices controlling said supporting and deflecting devices to release the coin, a third shunt-circuit connected with said main circuit and receiving its impulse from said second shunt-circuit, a circuit-closer disposed in said third shunt-circuit, and devices for closing same disposed in the path of the released coin to signal its passage.

In testimony whereof I have signed my name in presence of two subscribing witnesses.

ODILON BRISBOIS.

Witnesses;
RUDOLPH WM. LOTZ,
P. J. HERTZ.