

(No Model.)

W. GRAY.
COIN CONTROLLED SIGNAL APPARATUS.

No. 569,195.

Patented Oct. 13, 1896.

Fig. 1

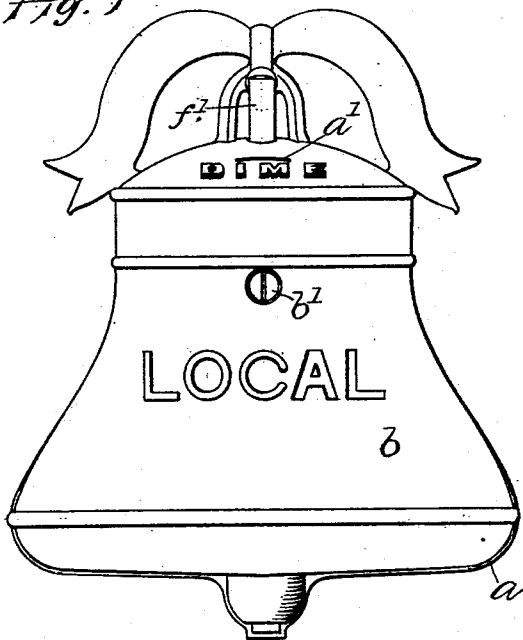


Fig. 2

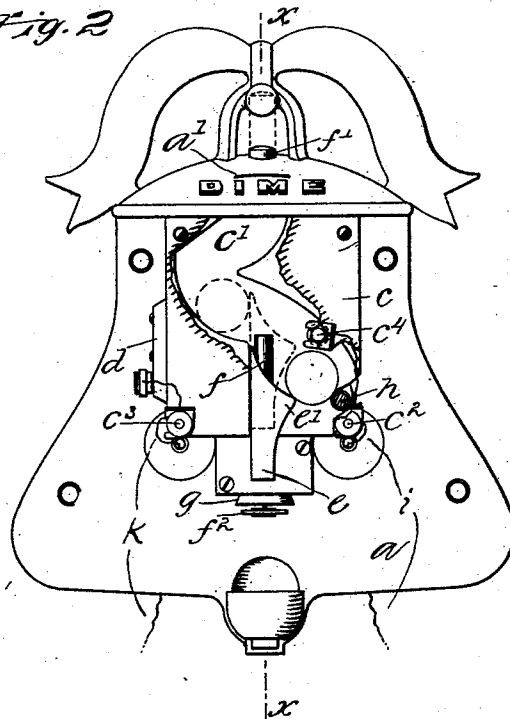


Fig. 3

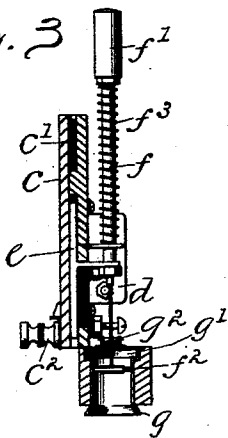


Fig. 5

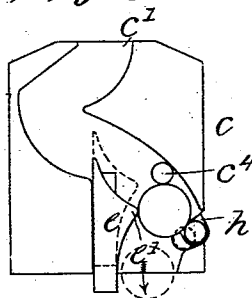
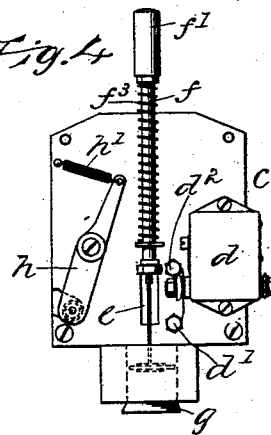


Fig. 4



Witnesses:

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UNITED STATES PATENT OFFICE.

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COIN-CONTROLLED SIGNAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 569,195, dated October 13, 1896.

Application filed September 7, 1895. Serial No. 561,742. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GRAY, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Coin-Controlled Signal Apparatus, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

My invention relates to that class of devices known as "telephone-toll apparatus," and the object of my invention is to provide a device of this class that may be readily connected up to any of the well-known forms of telephones in common use, and one that will certainly indicate the payment of a toll for the use of the apparatus before such use can be had.

To this end my invention consists in a device in which an electric circuit is completed through the medium of the coin used to pay the toll; and it further consists in the apparatus as a whole and in details of the several parts making up such apparatus, as more particularly hereinafter described, and pointed out in the claims.

Referring to the drawings, Figure 1 is a view in elevation of my improved signal apparatus. Fig. 2 is a detail view in elevation of the device with the front part of the case removed and the supporting-plate cut in section to show the coin-channel, the plunger being at the lower limit of its play. Fig. 3 is a detail side view, in vertical section, through the supporting-plate. Fig. 4 is a detail back view of the supporting-plate. Fig. 5 is a detail diagram view showing the position of the parts with the coin just about to be disengaged from the ward.

In the accompanying drawings, the letter *a* denotes the back piece and *b* the casing, which is adapted to be secured to the back piece in any suitable manner, a lock *b'* being preferably used for the purpose of securing the two against separation. In a projecting part from the back piece *a* or in the upper side of the casing is formed a coin-slot *a'*, in which a coin may be inserted to pay for the use of the apparatus.

The supporting-plate *c* is secured to the

back piece *a*, and in this supporting-plate is formed a coin-channel *c'*, leading from the coin-slot *a'* to the bottom of the plate. In the form of plate herein shown and described two sections, a front and a back piece, are secured together, the coin-channel being formed between the two sections. This supporting-plate is insulated from the back piece *a* and bears on opposite sides binding-posts *c²* *c³*. The binding-post *c²* is connected by wire with one pole of a battery, and also to a conductor *c⁴*. The binding-post *c³* is connected with a wire from the opposite pole of the battery, and also with a buzzer or like device *d*, secured to the back part of the supporting-plate. This buzzer is also electrically connected with conductors *d'* *d²*, these conductors being adapted to engage a ward *e*, located in the coin-channel *c'*.

A plunger *f* is mounted on the supporting-plate, the upper end *f'* of the plunger projecting outside of the casing and the lower end bearing a piston *f²*. The plunger is also connected with the ward *e* in such manner that the two are reciprocated together, a spring *f³* being provided to hold the plunger normally at the upper limit of its play. The piston *f²* fits closely within the dash-pot *g* and compels the plunger to move slowly upward under the impulse of the spring *f³* by reason of the compression of the air within the dash-pot. A stuffing-box *g²* may be used for the purpose of packing the piston-rod or plunger against the escape of air. There is also provided in the upper end of the dash-pot a relief-chamber *g'*, so that when the plunger reaches nearly the limit of its upward movement the piston enters this chamber and the air is allowed to escape freely from behind the piston and the plunger moved to its upward position. A spring-controlled follower *h* is located with one end in the coin-channel in the path of movement of a falling coin, the coin in its downward movement resting against the follower, the latter pressing the coin against the ward *e* and insuring its contact therewith.

The ward *e* is formed so that its upper end, at the upper limit of its play, projects across the coin-channel, offering an obstruction to

the passage of the coin. As the ward is pressed downward by means of the plunger this upper end retreats before the coin and allows the latter to pass along the channel till it rests against the follower *h* and on the upper side of a nose *e'* on the ward. As the ward travels upward under the impulse of the spring *f*³ the coin is forced back up the channel in contact with the conductor. The follower under the pressure of the nose *e'* retreats and allows the coin to move to one side until the nose has passed upward beyond the coin, when the coin falls out of the channel into a proper receptacle provided for it, and the follower moves back to its normal position. This follower is shown and described herein as pivoted to the supporting-plate, a spring *h'* being connected with the upper end of the follower, and the lower end, on the opposite side of the pivot from the spring, as before described, projecting into the path of the falling coin.

The operation of the device is as follows: The telephone having been used to call the central station in the ordinary manner, and it being found that the desired connections can be had, the user of the device is directed to drop a coin into the coin-slot *a'* at the mouth of the coin-channel *c'*. The coin falls to the position shown in dotted outline in Fig. 2 of the drawings. The plunger is then pressed down to its full extent, when the coin rolls over the top of the ward *e* into the position shown in full lines in Fig. 2 of the drawings, said coin in this position resting against the follower *h* and the nose *e'* on the ward *e*. As the pressure upon the plunger is released the ward *e* travels slowly backward, pushing the coin against the conductor *c*¹, (see Fig. 5 of the drawings,) the follower *h* insuring the engagement of the coin with the nose *e'* on the ward and the conductor. The electrical circuit is completed by the coin in this position, the current passing through the wire *i* to the binding-post *c*², thence to the conductor *c*¹, thence through the coin to the ward *e* and to the conductors *d'* and *d*², (one or both,) thence through the buzzer to the binding-post *c*³ and out through the wire *k* to the battery. When the pressure is relieved from the plunger, the latter moves slowly upward, owing to the compression of the air within the dash-pot, and this insures the sounding of the signal for a sufficient length of time to certainly notify the operative at the central office that the required toll for the use of the device has been paid. As the ward travels backward under the impulse of the spring *f*³ the coin is forced into contact with the conductor *c*¹, that prevents its further movement backward along the channel. The upward movement of the ward forces the coin to one side against the push of the follower *h* until the nose *e'* has passed upward beyond the coin, when the latter falls out of the end of the end of the coin-channel into its receptacle.

It is to be noted that in the use of this ap-

paratus a coin or like piece that is a good conductor of electricity must be used to cause the signal to sound, and the use of pieces of pasteboard or like material cannot be employed for the purpose of sounding a signal.

I claim as my invention—

1. An electrical signal device connected up in an electric circuit, a coin-channel, a ward projecting into the channel, connected to one pole of a battery and in its movement permitting the coin to travel therealong, a conductor located on the opposite side of the channel from the ward and in the path of movement of a falling coin in its passage along the channel and connected up to the opposite pole of the battery, and a follower to insure the engagement of the coin with the conductor, all substantially as described.

2. An electric signal device connected up in an electric circuit, a coin-channel, a reciprocating ward projecting into the channel, connected with one pole of a battery and in its movement permitting a coin to travel therealong, means for causing the slow return of the ward, a conductor located on the opposite side of the channel from the ward and in the path of movement of a falling coin in its passage along the channel and connected to the opposite pole of the battery all substantially as described.

3. An electrical signal device connected up in an electric circuit, a coin-channel, a reciprocating ward projecting into the channel, connected with one pole of a battery and in its movement permitting a coin to travel therealong, a dash-pot, a piston located in the dash-pot and connected with the ward, and a conductor located on the opposite side of the channel from the ward and in the path of movement of a falling coin in its passage along the channel and connected to the opposite pole of the battery, all substantially as described.

4. An electrical signal device connected up in an electric circuit, a coin-channel, a ward projecting into the channel, connected to one pole of a battery and, in its movement, permitting a coin to travel along the channel, and a conductor located on the opposite side of the channel from the ward in the path of movement of a falling coin in its journey through the channel and connected up to the opposite pole of the battery, all substantially as described.

5. An electrical signal device joined up in an electric circuit, a coin-channel, a ward projecting through one wall of the channel and in the path of movement of a falling coin and connected to one pole of the battery, a conductor located in the opposite wall of the channel in the path of movement of a falling coin and connected to the opposite pole of the battery and a follower located in the channel in the path of movement of the falling coin, all substantially as described.

6. An electrical signal device connected up in an electric circuit, a coin-channel, a reciprocating ward controlling the movement of a

coin along the channel, a dash-pot, a piston located in the dash-pot and connected with the ward to control its movement, and a conductor located on the opposite side of the channel from the ward and in the path of movement of a falling coin, all substantially as described.

7. An electrical signal device connected up in an electric circuit, a coin-channel, a ward projecting into the channel, connected with one pole of a battery and in its movement permitting a coin to travel therealong, a conductor located on the opposite side of the channel from the ward and in the path of movement of a falling coin in its passage along the channel and connected to the opposite pole of the battery, a dash-pot a piston located in the dash-pot and connected with the ward, and a relief-port automatically operated in the

movement of the piston, all substantially as described.

8. A signal apparatus joined up in an electric circuit, a coin-channel, a reciprocating ward connected to one pole of a battery and projecting into the path of movement of a falling coin and controlling its movement along the channel a follower coöperating with the ward in controlling the movement of said coin, to force it against a conductor, and the conductor connected to the opposite pole of the battery and preventing the backward movement of the coin along the channel, all substantially as described.

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Witnesses:

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