

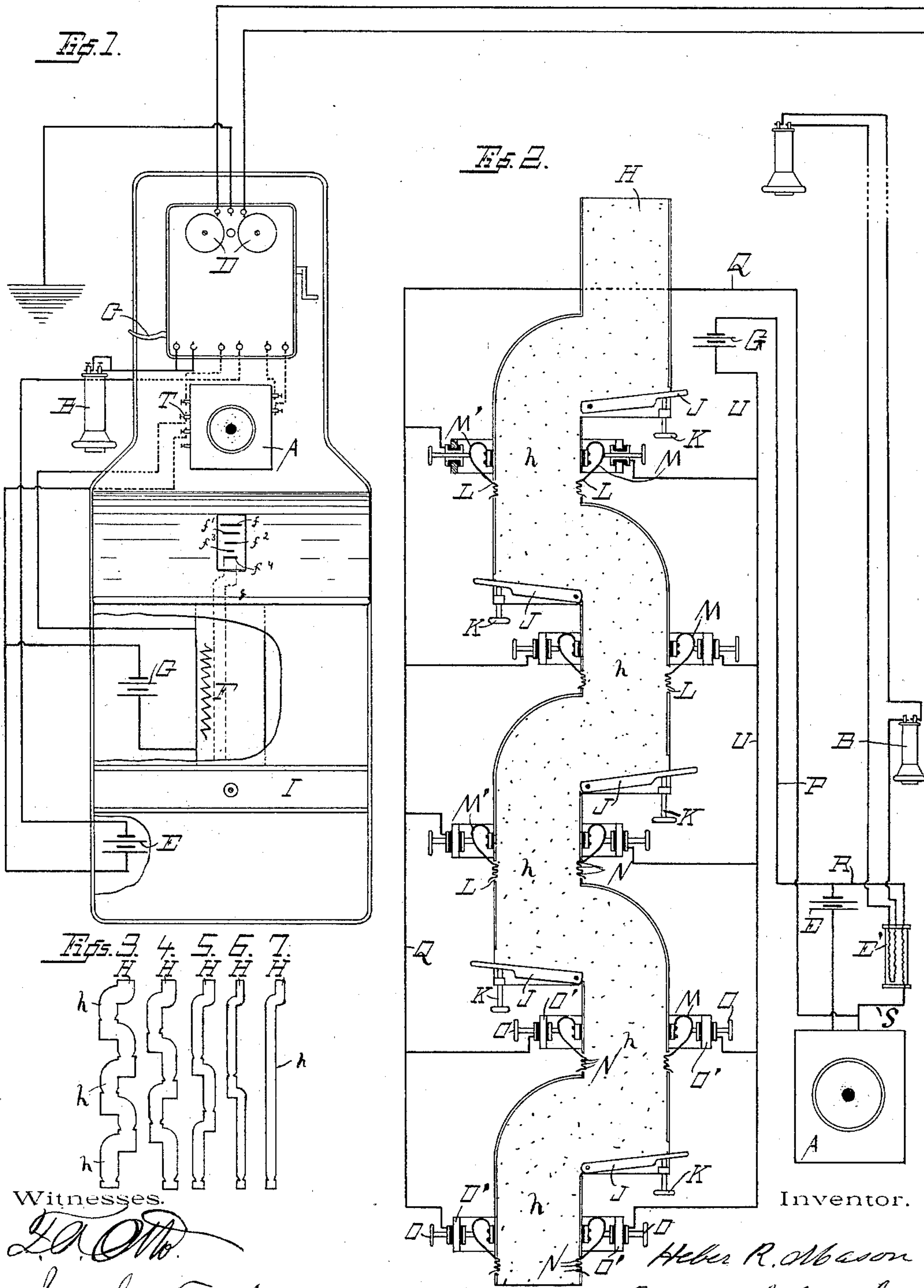
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Patented Oct. 18, 1898.

H. R. MASON.  
COIN ACTUATED SIGNAL APPARATUS.

(Application filed Dec. 31, 1897.)

(No Model.)



Witnesses.

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# UNITED STATES PATENT OFFICE.

HEBER R. MASON, OF LUDINGTON, MICHIGAN, ASSIGNOR TO THE MASON  
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## COIN-ACTUATED SIGNAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 612,782, dated October 18, 1898.

Application filed December 31, 1897. Serial No. 665,100. (No model.)

*To all whom it may concern:*

Be it known that I, HEBER R. MASON, a citizen of the United States, residing at Ludington, in the county of Mason and State of Michigan, have invented new and useful Improvements in Coin-Actuated Signal Apparatus, of which the following is a specification.

My invention relates to improvements in that class of coin-operated signal apparatus for pay-station telephones in which the payment of the required sum is indicated to the central operator by electrical signals produced by the coin itself in making and breaking an electrical circuit during its passage through the signal-box.

The objects of my invention are, first, to provide means for the production of a distinctive signal which cannot be produced or imitated in any other manner than by the payment of a coin of the proper denomination, and, second, to provide means whereby the circuit may be closed and opened for the production of the signal through the coin itself without the aid of switch-levers or other movable parts which require a delicate adjustment.

In the following description reference is had to the accompanying drawings, in which—

Figure 1 is a front view of an ordinary telephone equipped with my improved signaling apparatus. Fig. 2 is an enlarged view of one of the chutes in vertical longitudinal section and also illustrates its electrical connections. Figs. 3, 4, 5, 6, and 7 are side views, respectively, of the various chutes removed from the signal-box and stripped of their electrical connections.

Like parts are identified by the same reference-letters throughout the several parts.

A, B, C, and D are the transmitter, receiver, switch-lever, and call-bells, respectively, of an ordinary telephone.

E is the battery of the local or primary telephone-circuit, and E' is the induction-coil.

F is the signal-box, provided with coin-receiving slots  $f$ ,  $f'$ ,  $f^2$ ,  $f^3$ , and  $f^4$ , and G is a battery which I have especially provided for signaling purposes.

Within the signaling-box I have provided a series of chutes H, leading downwardly from the respective slots and discharging into

the cash-box I. The chutes are divided into sections  $h$ , preferably vertically disposed, and the sections of each chute are arranged alternately in adjacent columns, with the meeting ends of the sections overlapped and communicating with each other at their edges, as best illustrated in Fig. 2, so as to afford a continuous passage for the coin. The bottom of each section is closed by a bar J, which is preferably formed of fiber or other non-resonant material. These bars may be adjusted by screws K to regulate the speed at which the coins are discharged from one section into the other.

Referring to Figs. 3 to 7, inclusive, it will be observed that each chute is provided with a different number of sections from that of any of the others, and the length of the sections are increased as their number is diminished, each chute being of sufficient length to reach from its respective slot to the signal-box. The interior cross-sectional dimensions of the chute-sections are made to correspond approximately with the diameter and thickness of the coin for which it is intended, the coin being held on edge throughout its passage.

Each chute-section is provided with two or more apertures L, through which project the electrodes M M', respectively, constituting the polar extremities of the signaling-battery G. The electrodes are so arranged that they will be simultaneously struck or grazed by a coin of proper size passing through the chute-section and are adapted to yield sufficiently to permit the coin to pass. In the drawings I have shown the chute-sections provided with an aperture L in each edge, and the electrodes are formed of a curved elastic bar which is attached to the chute, but electrically insulated therefrom, and arranged with its free end projecting through the aperture and bent to form three contact-points N for each electrode, the points being held in a position to be successively struck or grazed by a coin passing through the chute. The bars are adjusted to increase or decrease their resistance by adjusting-screws O, operated through brackets O' upon the bent or looped portions of the bars. It is obvious, however, that any form of electrodes adapted to close the circuit by simultaneous contact with the coin with-



out stopping the progress of the latter would be within the scope of my invention.

Referring now to the electrical connections, it will be observed that the induction-coil E' of the primary telephone-circuit is also included in the circuit of the signaling-battery G by connecting the conductors P and Q of the signaling-circuit with the conductors R and S of the primary telephone-circuit, an additional binding-post T being used on the transmitter, as shown in Fig. 1, for the introduction of one pole of the signaling-circuit to the induction-coil. With this construction I am enabled to utilize a single induction-coil for both the telephone and signal apparatus. The electrodes M and M' of the signaling apparatus are located, respectively, upon the conductors Q and U of the signal-battery circuit, which is never closed except during the momentary contact of the coin.

From the foregoing description it is obvious that as the coin is dropped into any given chute and comes into simultaneous contact with the points N on the oppositely-disposed electrodes M and M' the signal-battery circuit will be closed and a current induced upon the line-wire, which will be indicated in the telephone of the central operator by a sharp click or signal as the diaphragm is depressed by the electromagnet. This signal will be repeated as often as the circuit is closed and reopened during the passage of the coin through the chute, and in the construction shown, in which I have provided each electrode with three contact-points in close proximity, the three signals thus produced by the coin in each section will occur in such quick succession as to produce a single compound signal or vibratory click which it will be impossible to imitate. As each chute comprises a different number of sections from that of any of the others the denomination of the coin can readily be determined by the number of the signals produced. It is obvious that a coin of smaller size than that for which the chute is intended will produce no signals whatever, as it will be impossible for such a coin to simultaneously touch the electrodes on both sides.

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

1. The combination with ordinary telephone apparatus, of a cash-receptacle, one or more coin-conveying chutes leading thereto, a battery, conductors therefor in normally open circuit, with terminal electrodes disposed along said chute or chutes and arranged for the simultaneous contact of a coin passing through each chute, with the opposing terminals of said battery-circuit, together with an induction-coil included in said circuit and in the secondary telephone-circuit.

2. The combination, with ordinary telephone apparatus, of a cash-receptacle, one or more coin-conveying chutes leading thereto, a battery, conductors therefor in normally

open circuit, with terminal electrodes disposed along said chute or chutes and arranged for the simultaneous contact of a coin passing through each chute with the opposing terminals of said battery-circuit, said electrodes being provided with a plurality of contact-points, whereby the circuit is closed and opened successively by the successive contacts of the coin in passing a single pair of electrodes, together with an induction-coil included in said circuit and in the secondary telephone-circuit.

3. The combination, with ordinary telephone apparatus, of a cash-receptacle, one or more coin-conveying chutes leading thereto, and arranged in sections, communicating with each other through lateral discharge-openings, a battery, conductors therefor in normally open circuit, with terminal electrodes exposed along said sections, and arranged for the simultaneous contact of a coin passing through each section with the opposing terminals of said battery-circuit, together with an induction-coil included in said circuit, and in the secondary telephone-circuit.

4. The combination, with ordinary telephone apparatus, of a cash-receptacle, one or more coin-conveying chutes leading thereto, and arranged in sections closed at their lower ends by an inclined bar of non-resonant material, and communicating with each other through lateral discharge-openings, a battery, conductors therefor in normally open circuit, with terminal electrodes disposed along said chute or chutes and arranged for the simultaneous contact of a coin passing through each chute with the opposing terminals of said battery-circuit, together with an induction-coil included in said circuit and in the secondary telephone-circuit.

5. The combination, with ordinary telephone apparatus, of a cash-receptacle, one or more coin-conveying chutes leading thereto, and arranged in sections closed at their lower ends with an inclined bar of non-resonant material, and communicating with each other through lateral discharge-openings, means for adjusting said bar, a battery, conductors therefor in normally open circuit, with terminal electrodes disposed along said chute or chutes and arranged for the simultaneous contact of a coin passing through each chute, with the opposing terminal of said battery-circuit, together with an induction-coil included in said circuit and in the secondary telephone-circuit.

6. The combination, with ordinary telephone apparatus, of a cash-receptacle, one or more coin-conveying chutes leading thereto, and arranged in sections communicating laterally with each other, yielding contacts arranged in pairs at the sides of the respective sections, and adapted to be struck or grazed by a coin of proper size passing there-through, a normally open circuit of which said contacts constitute the polar extremities, and an induction-coil included in said



battery-circuit and the secondary telephone-circuit.

7. The combination with ordinary telephone apparatus, of a cash-receptacle, one or more coin-conveying chutes leading thereto, and arranged in sections communicating laterally with each other, with apertures in the sides thereof, two or more elastic bars attached to each chute-section, but insulated therefrom, and with their free ends projecting into the path of a coin of proper size passing through the sections, a battery having a normally open circuit, of which said bars constitute the polar extremities, and an induction-coil included in the battery-circuit and the secondary telephone-circuit.

8. The combination with ordinary telephone apparatus, of a cash-receptacle, one or more coin-conveying chutes leading thereto, and arranged in sections communicating laterally with each other with apertures in the sides thereof, two or more elastic bars attached to each chute-section, but insulated therefrom, and with their free ends projecting into the path of a coin of proper size passing through the sections, means for adjusting said bars to increase or decrease their resistance to the impact or weight of the coin, a battery having a normally open circuit in which said bars constitute the polar extremities, and an induction-coil included in the battery-circuit, and the secondary telephone-circuit.

9. The combination with ordinary telephone apparatus, of a cash-receptacle, one or

more coin-conveying chutes leading thereto, and arranged in sections communicating laterally with each other, with apertures in the sides thereof, two or more elastic bars attached to each chute-section, but insulated therefrom, and with their free ends projecting into the path of a coin of proper size passing through the sections, said bars being bent at their free ends to form a plurality of contact-points, a battery having a normally open circuit of which said bars constitute the polar extremities, and an induction-coil included in the battery-circuit, and the secondary telephone-circuit.

10. The combination, with ordinary telephone apparatus, of a cash-receptacle, one or more coin-conveying chutes leading thereto, electrodes disposed in pairs along said chute or chutes, with each pair arranged for simultaneous contact with a coin passing therethrough, and a signaling-battery having a normally open circuit of which said electrodes constitute the polar extremities, said battery having its conductors connected with the conductors of the primary telephone-circuit, at opposite extremities of the induction-coil of the telephone, whereby the induction-coil is also included in the circuit of the signaling-battery.

In testimony whereof I affix my signature in the presence of two witnesses.

HEBER R. MASON.

Witnesses:

J. D. BUCKINGHAM,  
E. C. ROHN.