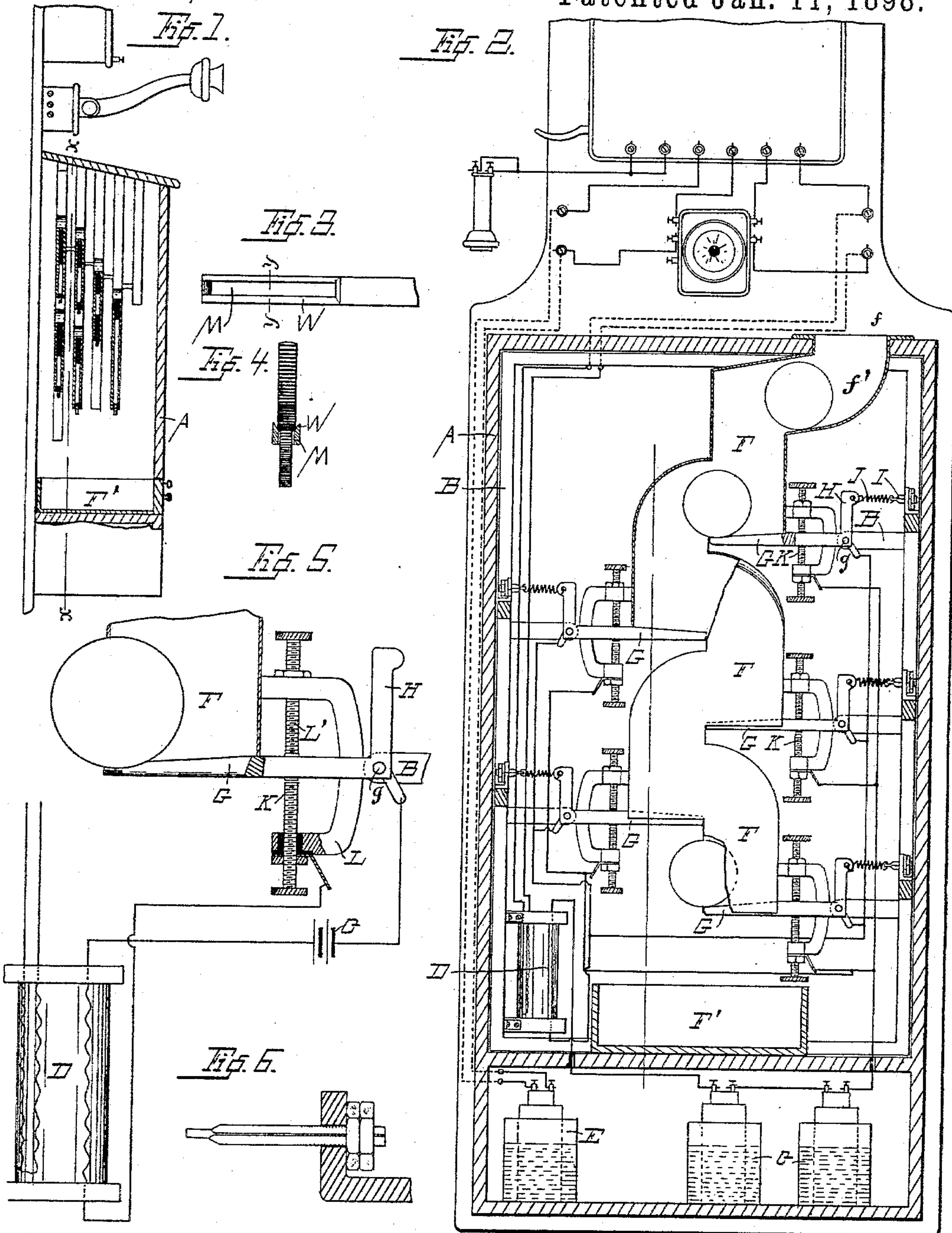


(No Model.)

H. R. MASON.
COIN ACTUATED SIGNAL APPARATUS.

No. 597,362.

Patented Jan. 11, 1898.



Witnesses.

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UNITED STATES PATENT OFFICE.

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COIN-ACTUATED SIGNAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 597,362, dated January 11, 1898.

Application filed June 11, 1897. Serial No. 640,328. (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-actuated signal apparatus in which the payment of the required sum is indicated to the central operator by electrical signals caused by the coin in successively making and breaking an electrical circuit during its passage through the signal-box.

Among the special features of my invention are the provision of means for causing the coin to drop vertically upon the switch-levers, the provision of fixed or stationary chutes for guiding the coin and keeping it on edge, the provision of switch-levers which are adapted to respond instantly to the impact of the coin, the provision of means for the escape of a coin less than the required denomination, and the provision of a primary battery-circuit for the signal mechanism independent of that of the local-telephone station. It will be evident that the principal value of an apparatus of this kind depends on its accuracy in producing the signals and the uniformity of the signals produced. It is therefore essential that the contacts be certain, prompt, positive, and of equal duration; and the primary object of my invention is to provide apparatus for accomplishing these results.

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

Figure 1 is a side elevation showing a portion of the ordinary telephone apparatus to which my invention is applied, with my signal-box drawn in section on a line cutting the left-hand chute-sections. Fig. 2 is a sectional view drawn on the line X X of Fig. 1. Fig. 3 is a top view of the free end of the upper coin-actuated lever. Fig. 4 is a cross-section of the same drawn on line Y Y of Fig. 3, showing a coin of less than the required denomination falling through the rear end of the slot in the lever and a second coin of the correct denomination in position to actuate the lever, the upper portion of the coin being broken away. Fig. 5 is a detail of one of the coin-actuated

levers as viewed from the front and its connections to the induction-coil and battery. Fig. 6 is a detail view of the adjusting-bolt, showing its supporting-bracket in section.

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

A is an inclosing signal-box.

B is an inclosed frame to which the signal mechanism is attached.

C is an ordinary cell-battery.

D is an induction-coil connected with the battery C, and F F are the coin-conveying chute-sections leading from the slots *f* in the top of the box and discharging into a till F'.

Referring now more particularly to Fig. 2, it will be seen that the chutes are permanently located in their respective positions, and the sections are alternately disposed in adjacent columns and are adapted to hold the coin in an upright position—that is, on edge. The sections of each series communicate successively at their overlapped ends, the series shown in said figure being the left-hand series of Fig. 1 and being intended to receive the coins of largest denominations.

G G are coin-actuated levers, each fulcrumed to the frame B at points *g* and provided with elbow-arms H, elastically connected to an adjusting-bolt I by means of a spring J. The free ends of the levers G project between the downwardly-extending sides of the sections and close the latter at their lower ends, the upper surface of each lever being inclined to facilitate the passage of the coin into the next section of the series, and the springs J are each so adjusted by means of the bolts I that the weight of the coin will depress the lever into contact with an adjustable contact-pin K, which is supported by and electrically insulated from a bracket L, extending from any convenient point on the adjacent section. When the coin escapes from the lever, the reaction of the spring J draws the free end of the lever upwardly out of contact with the pin K and into position to be actuated by the next coin.

L' is a stop-pin for limiting the upward movement of the lever. I prefer to use springs for retracting the levers instead of counterweights, owing to the fact that the inertia of the counterweights overcomes the force of the

impact of the coin, while the springs yield readily to such impact and permit of a much more positive and certain contact. Both the contact-pin and the stop-pin are screw-threaded and are therefore easily adjusted in their screw-threaded bearings in the supporting-brackets, thus permitting the lever to be set at the proper angle to receive the impact of the coin and to discharge it into the next section.

The lever G and contact-pins K K are electrically connected with the respective poles of the battery C, and the induction-coil D being included in the circuit it is obvious that as the lever is brought into contact with the pin K by the weight and impact of the coin the primary circuit is completed and a current induced upon the line-wire, the effect of which is to produce a sharp signal or click in all telephones in the circuit as the diaphragm is depressed by the electric magnet. It is obvious that this signal will be repeated by each lever in the series of sections through which the coin passes.

Referring to Fig. 1, it will be observed that I have provided the signal-box with a series of chutes, each series having a different number of sections and leading from different slot-openings in the top of the box through a curved passage-way f' , leading to the initial chute-section, and adapted to prevent the coin from being forced into contact with the initial lever with a greater momentum than that acquired by falling through the section. The right-hand slot is adapted to receive nickels and has but a single chute-section and contact-lever. The next slot is adapted to receive dimes, with a series of two chute-sections leading therefrom, and each succeeding slot is provided with one more section and contact-lever than the one on its right. It is obvious, therefore, that as the coins are dropped into the slots adapted to receive them a nickel will produce a single signal, while a dime will produce two signals in succession, &c., the number of signals increasing with the size of the coins required. In the construction shown the signals produced by a single silver dollar will be five in number. Should a coin of less than the required size be dropped into any of the openings, it drops through the slot M in the front end of the lever G and upon the rounded or inclined surface W of the next section below, from which it escapes directly to the till without actuating any of the levers.

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

1. The combination with the ordinary telephone apparatus, of a signal-box having slots in its upper surface adapted to receive coins of various denominations, a plurality of chutes communicating with the slots and arranged in rigid vertically-disposed sections, each of which is adapted to hold the coins in a vertical or edgewise position while drop-

ping therethrough, coin-actuated switch-levers closing the lower end of the chute-sections, and positioned to discharge the coin therefrom, electrically-insulated contact-pins arranged in the path of said levers, a battery having its poles connected respectively with the switch-levers and contact-pins, and an induction-coil included in circuit with the battery for the purpose set forth.

2. The combination with the ordinary telephone apparatus, of a signal-box having slots in its upper surface adapted to receive coins of various denominations, a plurality of chutes communicating with the slots and arranged in rigid vertically-disposed sections, each of which is adapted to hold the coins in a vertical or edgewise position while dropping therethrough, coin-actuated switch-levers closing the lower ends of the chute-sections and adapted to discharge the coins therefrom, one or more of said levers being slotted to permit the passage of coins of less than the required denomination, electrically-insulated contact-pins located in the path of said levers, a battery having its poles connected respectively with the switch-levers and contact-pins, and an induction-coil included in the battery and secondary telephone circuits, all arranged and operated for the purpose set forth.

3. The combination with the ordinary telephone apparatus, of a signal-box having slots in its upper surface adapted to receive coins of various denominations, a plurality of chutes communicating with said slots, and arranged in vertically-disposed sections, coin-actuated switch-levers closing the lower ends of the chute-sections and adapted to permit the discharge of the coin therefrom, said levers being provided with upwardly-projecting elbow-arms at their rear ends, springs adjustably connecting said elbow-arms with the framework of the signal-box, and adapted to support the free ends of the levers in the path of the coins dropping through the sections, electrically-insulated contact-pins located in the path of the levers, a battery having its poles connected respectively with the switch-levers and contact-pins and an induction-coil included in the battery and secondary telephone circuits, all arranged and operating for the purpose set forth.

4. The combination with the ordinary telephone apparatus, of a signal-box having slots in its upper surface, a plurality of chutes communicating with said slots and arranged in sections adapted to permit the coins to drop vertically therein, coin-actuated switch-levers closing the lower ends of the chute-sections, and adapted to permit the discharge of the coin therefrom, springs for holding said levers in a position to be actuated by the coin, electrically-insulated contact-pins located in the path of the switch-levers, a battery having its poles connected respectively with the switch-levers and contact-pins, and an induction-coil included in the battery and sec-

ondary telephone circuits, said battery being independent of the primary telephone-circuit, substantially as described.

5 In a coin-actuated signal apparatus for pay-station telephones, the combination with a signal-box having a plurality of slots therein, chutes communicating with the slots and arranged in open-ended sections leading vertically downwardly within the signal-box, 10 said chutes being arranged in graduated series with the sections of each series overlapping the other sections thereof, and communicating with such other sections at their edges, spring-supported switch-levers arranged to close the lower ends of the chute-

sections, and a normally open battery-circuit located within said signal-box, and adapted to be closed by said switch-levers, when actuated by the impact of the coin dropping thereon, and an induction-coil included in the battery and secondary telephone circuits, all 20 arranged and operating for the purpose set forth.

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

HEBER R. MASON.

Witnesses:

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W. L. HAMMOND.