No. 686,074. Patented Nov. 5, 1901.

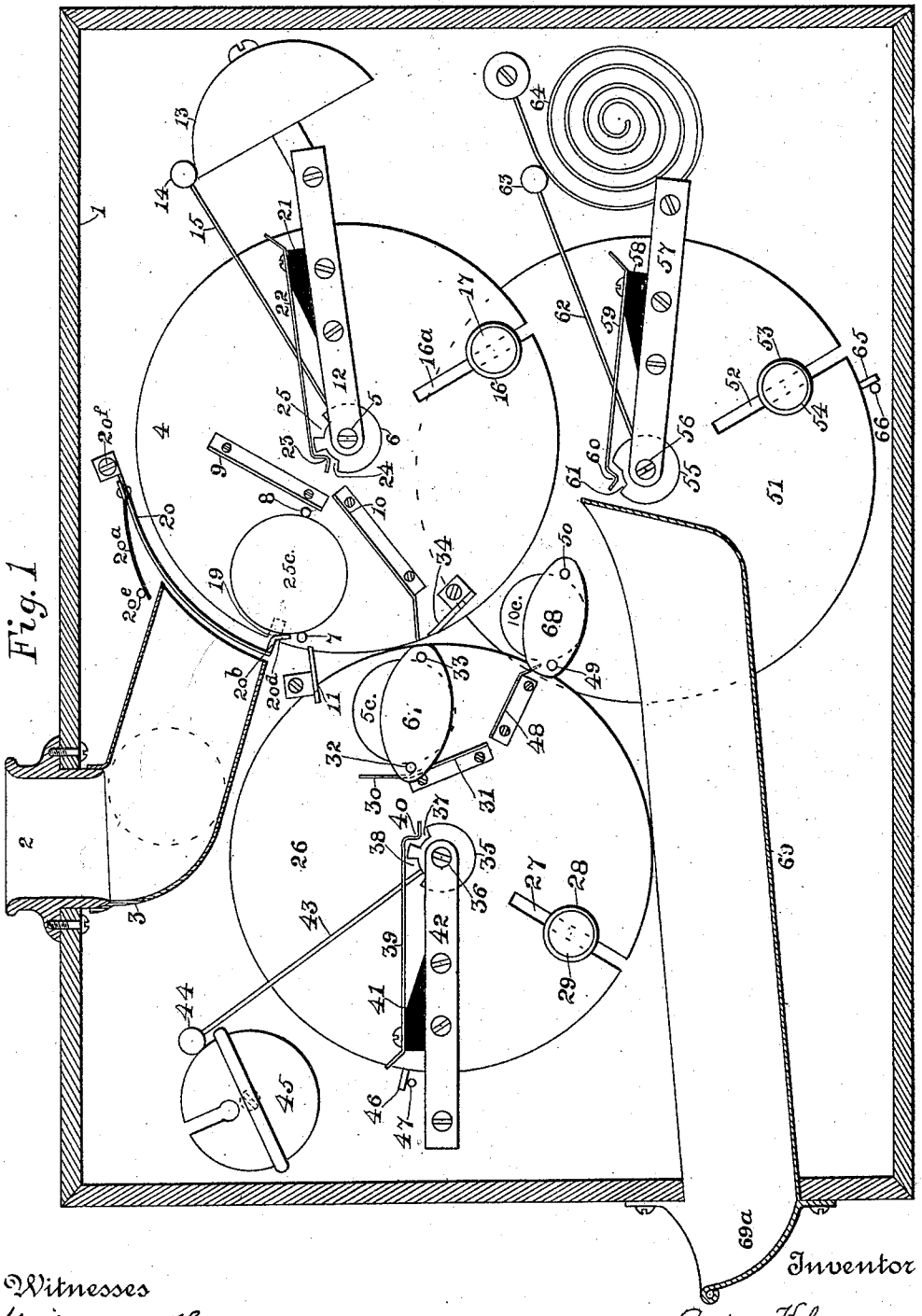
A. HOLZMANN.

TELEPHONE TOLL SIGNAL AND COLLECTOR.

(Application filed Apr. 8, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1



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Fig. 3

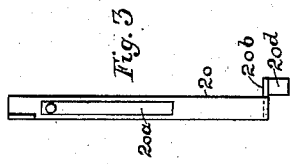


Fig. 4

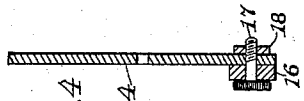


Fig. 5

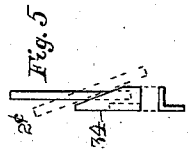
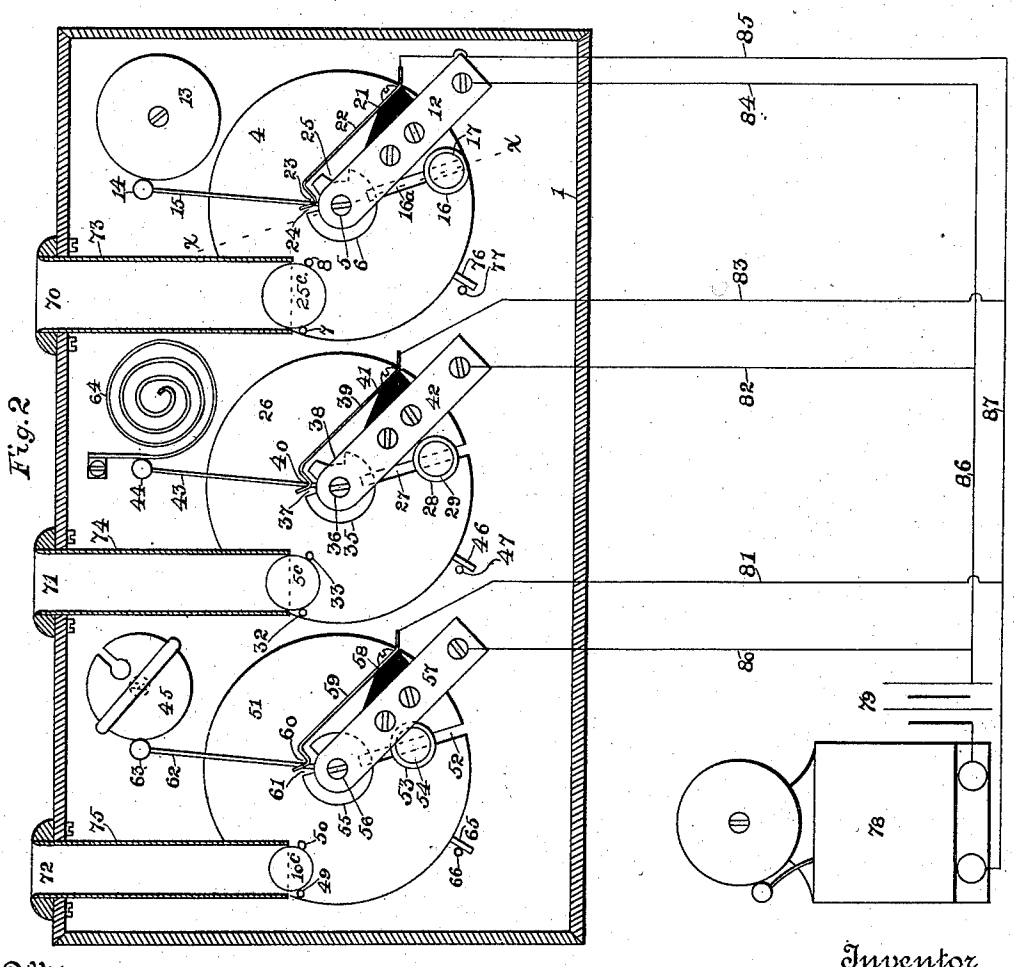


Fig. 2



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UNITED STATES PATENT OFFICE.

ANDREW HOLZMANN, OF BROOKLYN, N. Y.

TELEPHONE TOLL SIGNAL AND COLLECTOR.

SPECIFICATION forming part of Letters Patent No. 686,074, dated November 5, 1901.

Application filed April 8, 1901. Serial No. 54,883. (No model.)

To all whom it may concern:

Be it known that I, ANDREW HOLZMANN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Telephone Toll Signals and Collectors; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to telephone toll signals and collectors, more particularly to that class of devices constructed to receive coin in prepayment for the use of telephonic apparatus and to announce the deposit of the toll both to the person desiring to use the instrument and to the attendant at the central or switching station.

The object of my invention is to produce a toll receiver and annunciator of the nature stated comprising improved mechanical parts having special form and arrangement and adapted to signal the deposit of the coin and the denomination of the same to the central-office operator and also to notify the payer that the money has passed through the collecting machinery in the proper way, and, further, to call attention of a third party, separated from the others, that the instrument is being used.

Each constituent element of my invention is described in detail and its individual office, together with the mode of operation of the whole, fully explained hereinafter.

Of the accompanying drawings, throughout which like numerals are introduced to designate like parts, Figure 1 is a side view of my invention, showing the arrangement of the parts when but a single slot is provided in the top of the receiving box or chamber and but a single coin-chute leads downwardly therefrom. Fig. 2 represents, on a reduced scale, a side view similar to the first, showing the construction and arrangement of the parts when three coin-receiving slots and chutes are provided. In Fig. 2 the electrical signal devices, omitted in Fig. 1, are shown. Fig. 3 is a plan view of the spring-catch. Fig. 4 is a section of wheel 4 on line $x\,x$ of Fig 2, showing one method of constructing and securing the adjustable balance-weights. Fig. 5 represents a plan and end view of the "throw-outs."

Considering Fig. 1, numeral 1 marks the box or covering, of any material or form, which incloses the apparatus. The slot or mouth of the coin-chute is designated by numeral 2 and the chute itself by 3. The chute may be supported from the mouth, as shown, or upheld in any other convenient way. It is directed toward a wheel 4, which is revoluble upon a center screw 5 and possesses a hub or cylindrical extension 6, that will be again referred to. In addition to the attachments mentioned wheel 4 has two pins 7 and 8, one near its periphery and one farther toward its center. These pins, it will be observed, are placed at such a distance apart as to allow both the five-cent piece and dime to pass freely; but the distance is less than the diameter of a twenty-five-cent piece, which upon leaving the chute would be retained on the wheel. As any coin leaves the chute it strikes the barrier 9, borne by wheel 4, and in the cases of the nickel and dime it rolls downwardly against the guide 10, also borne by wheel 4, and between it and the throw-out guide 11, secured to the box, toward the next wheel, to be referred to below. Center screw 5, upon which wheel 4 revolves, is supported by the bracket-arm 12, suitably secured to the box. At its outer end arm 12 is furnished with a proper attachment for holding a gong 13 in a convenient position, and a hammer-head 14 rests against the gong. The wire or rod 15, to which the head 14 is secured, extends to and is fixed in or upon the hub-extension 6 of wheel 4. Toward the right hand the lower part of wheel 4 is radially slotted, and a weight 16 is adjustable toward or from the center along the slot 16^a by means of a small bolt 17, the head of which is against the surface of the weight, and a nut 18 on the bolt, which clamps the weight in its adjusted position. (See Fig. 4.) I do not confine myself to the particular form of the weight or to the means of attaching it described, as these elements are common in other mechanisms and

have varied shapes. It will now be understood that the weight will hold the unweighted part of wheel 4 uppermost and bring the hammer-head 14 against the gong. Let it be assumed here that a twenty-five-cent silver piece is deposited in the slot and passing through the chute comes to rest upon the pins 7 and 8 as drawn and that the weight of the coin overbalances the gravity of weight 16. Wheel 4 will turn on its center until a point is reached by the coin at which it can no longer be retained by and between the pins. The mechanism is arranged in such manner that as the coin falls it is caught in the bottom of the box. So soon as the wheel 4 is freed from the control of the coin the weight 16 returns it to its original position; but in doing so the hammer-head is brought sharply against the gong, which sounds accordingly. In order to avoid vibratory swings of the wheel as it returns to its normal attitude and to insure the presentation of the pins 7 and 8 always in exactly the same way to an entering coin, I provide the periphery with a notch 19, which engages a spring-catch 20, having its outer extremity pivoted to the box as drawn. The precise forms of the notch and catch may be modified. Usually the catch-arm (marked 20) is curved. 20^a marks the spring element, bent by contact with the fixed pin 20^e. The pivotal screw for arm 20 is referred to by 20^f. In Fig. 1 will be noted the bent portions 20^b and 20^d at the end of arm 20, and in Fig. 3 it is shown that portion 20^b is wider than the arm and that terminal portion 20^d does not directly continue the arm, but is offset as drawn. It will now be understood that the twenty-five-cent piece on leaving chute 3 rolls over portion 20^b (see Fig. 1) and, striking barrier 9, is returned and falls upon pins 7 and 8, at the same time meeting portion 20^d, as above stated, forcing it outwardly and freeing the portion 20^b, which is the actual catch, from notch 19. On its return movement after dropping the coin the wheel is halted and held by reëngagement of notch and catch.

On the bracket-arm 12 is fixed a block of insulating material 21, and to the block a conducting-spring 22 is secured. At its free end the spring possesses an angular bend 23 or equivalent termination, and this bend of spring 22 enters a recess 24 cut in the periphery of the hub 6 of wheel 4. It will be noted that in the usual or receiving positions of the parts delineated the bend 23 while extending into the recess 24 does not touch its sides. A second recess in the hub is marked 25. Hub 6 and bracket-arm 12 being of metal may form parts of an electric circuit.

Ordinarily I employ three wheels, one for the twenty-five-cent piece, another for the nickel, and a third for the dime. A fourth wheel could be introduced for the fifty-cent piece, but it is not needed. The structural peculiarities of all the wheels are the same—that is to say, the description of wheel 4 and its operation and special construction is equally applicable to either of the other wheels.

As a coin leaves guide 10 of wheel 4 it is directed toward the second wheel, (marked 26.) This is the five-cent wheel, and a coin of that value only is retained. The radial slot in wheel 26 is marked 27, the balance-weight 28, and its bolt 29. On reaching the wheel a five-cent piece strikes against barrier 30, formed by bending the upper portion of the guide 31 toward the vertical, as shown. Guide 31 and, in fact, all the guides mentioned are angular pieces of metal of greater or less length, the bend extending midway longitudinally, and they are screwed upon the wheels, as indicated. The five-cent piece, however, does not reach the guiding portion of guide 31, but is caught and held by and between the projecting pins 32 and 33, located less than its diameter apart.

Number 34 refers to the second throw-out, which is secured upon wheel 4 near the outermost pin 33 of wheel 26.

The hub of wheel 26 is designated by number 35, its pivot-screw by 36, and its recesses by 37 and 38. The conducting-spring is marked 39, its free end bend 40, the insulating-block to which the spring is fixed is designated 41, and the bracket-arm supporting the whole is 42. The number 43 refers to the hammer-rod; 44, the hammer-head; 45, the sounding-body, in this instance a sleigh-bell. I do not always provide a peripheral notch in the edge of each coin-wheel and a spring-catch, as in the case of wheel 4, although each wheel could be obviously so equipped. Ordinarily it is sufficient to introduce a projecting pin 46 on the edge of the wheel 26, arranged to contact with a pin 47, projecting from the wall of the box. These pins arrest the return of the wheel and insure its proper receiving position.

Let it be assumed that a dime is deposited in the mouth 2. It passes through the chute, strikes barrier 9, rolls between pins 7 and 8, along guide 10, between pins 32 and 33, along guides 31 and 48, coming to rest finally upon the pins 49 and 50 of the dime-wheel 51. The radial slot of this wheel is numbered 52, the balancing-weight 53, and the bolt securing it 54. The hub of the wheel 51 is marked 55, the pivot-screw 56, the supporting bracket-arm 57, the insulating-block 58, the conducting-spring 59, its free end bend 60, and the recess in the hub 55 is designated 61. It is customary to provide but a single recess in this lowest hub; but there is no reason other than economy of construction for forming it differently from hubs 6 and 35. It is not absolutely essential that either of the hubs should possess more than a single recess, excepting that the contacts of hubs and conducting-springs involve some frictional retardation, and by limiting the contacts to a small surface this effect is minimized. Number 62 is the hammer-rod, extending from hub 55,

number 63 the hammer-head, and 64 the sounding-body peculiar to this wheel, in this instance a coil. The edge pin 65 and its neighbor 66 limit the return of wheel 51, as usual.

Each of the three coin-receiving wheels has its individual sounding device in addition to the common electrical signal hereinafter mentioned, one being a gong, the other a coil, and the third a sleigh-bell. When a coin has been dropped into the mechanism, the instrument is is condition to be spoken through, and the attendant at the central station hears the sound made and by its quality learns the denomination of the coin deposited. The payer also hears the signal, and thus knows that his money has been properly received. The order of arrangement given the sounding devices in Fig. 1 has no special significance. The coil may be sounded by the five-cent wheel and the sleigh-bell by the dime-wheel, as shown in Fig. 2. Some settled rule on this point would be adopted.

It will be noted in Fig. 1 that the pins 32 and 33 have an elliptical plate 67 fixed to their outer ends in such manner as to leave an interval between the plate and the surface of the wheel something more in width than the thickness of a coin. Plate 67 is a coin-guard, and its office is to prevent the coin from toppling forward out of its seat upon the pins. Coin-guards, either elliptical or circular, are provided for each pair of coin-catching pins. The dime-wheel coin-guard is numbered 68.

The trough 69, (shown in Fig. 1,) with its externally-situated end pocket 69^a, will be again referred to in this description.

Fig. 2 shows a modified arrangement of the wheels 4, 26, and 51, the first being located upon the right. In this figure the electric bell appears. The twenty-five-cent mouth is marked 70, the five-cent mouth 71, and that for the dime 72. The respective chutes are numbered 73, 74, and 75. Instead of the catch-arm 20, as in the first figure, the wheel 4 is now provided with the edge pin 76 and adjacent box-pin 77 for the same purpose as already explained. An electrically-operated signal, which may be a bell 78, and a battery 79 are shown in Fig. 2, and local wires 80 and 81, leading to bracket-arm 57 and conducting-spring 59 of the dime-wheel, and the local wires 82 and 83 for the five-cent wheel, and local wires 84 and 85 for the twenty-five-cent wheel, each pair of wires suitably connected with the main battery-wires 86 and 87, bring each wheel in circuit with the bell as drawn. If either wheel is turned, the bell 78 sounds, and it may be placed at a point remote from the telephone instrument or central office when a third person is to be notified.

It will be readily understood by inspection that no change in the operation occurs in Fig. 2 so far as the rotations and returns of the wheels are concerned, and merely the paths of the coin are changed, each chute being straight and of such size as to transmit only the coin for which it is adapted.

In Fig. 1 will be noted the two throw-out guides, that marked 11 being attached to the box and held free from contact with but very near wheels 4 and 26. The office of the throw-outs is to reject two-cent pieces or pennies placed in slot 2. Assume that a coin smaller than a quarter yet larger than the nickel be inserted. It would pass between pins 7 and 8 and on toward wheel 26; but its top edge meeting the throw-out would be turned aside by its inclines (see Fig. 5) and directed as indicated by the broken lines. Finally such improper coin would topple over outside of coin-guard 67 and fall into trough 69, by which it would be directed into exterior pocket 69^a, where the depositor could recover it. Throw-out 34, which represents the form commonly given these pieces, expels pennies on their way to the dime-wheel. This throw-out is secured to wheel 4 in the place shown. Coins of appropriate sizes and properly received between the pins and beneath the coin-guards are discharged by the turning wheels behind trough 69 into the bottom of the box 1, from which they are removed by an authorized collector.

I am aware that toll signals and collectors have been constructed and that in one or more coin-controlled apparatus a weighted wheel receives, rotates, and dumps the coin, and I do not claim that feature solely or broadly.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In a telephone toll signal and collector, a coin-receiving wheel having projecting pins arranged near its periphery adapted to catch a coin, the said wheel being provided with balance-weight, substantially as described.

2. In a telephone toll signal and collector, the combination of a coin-receiving wheel having projecting pins arranged near its periphery adapted to catch a coin, and a coin-guard secured to the outer ends of the pins, the said wheel being provided with an adjustable balance-weight, substantially as described.

3. In a telephone toll signal and collector, the combination of coin-receiving wheels provided with coin-catching devices and balance-weights, means for supporting the said wheels rotatively, bodies emitting sounds of differing quality when struck, and hammer heads and rods attached to the said wheels and moving therewith and arranged to strike the sounding-bodies when the said wheels return under the influence of the balance-weights, substantially as described.

4. In a telephone toll signal and collector, the combination of coin-receiving wheels provided with coin-catching devices and adjustable balance-weights, means for supporting the said wheels rotatively, sounding-bodies suitably supported, hammer heads and rods attached to the said wheels and moving therewith and arranged to strike the sounding-

bodies when the wheels return under the influence of the balance-weights, an electrically-operated signal and a normally open circuit, and devices whereby the said circuit is temporarily closed during the movement of either wheel, substantially as described.

5. In a telephone toll signal and collector, the combination of an upper revoluble coin-receiving wheel having a coin-catching device adapted to retain a larger coin and to permit the passage of smaller coin, a coin-chute directed to the coin-catching device of said wheel, a second revoluble coin-receiving wheel placed lower than the first wheel and having a coin-catching device adapted to retain a larger coin and to permit the passage of smaller coin, the said upper wheel being provided with guides arranged to direct a coin to the coin-catching device of the second wheel, a revoluble coin-receiving wheel placed lower than the others and having a coin-catching device, the said second wheel being provided with guides arranged to direct a coin to the coin-catching device of said lower wheel, each of said wheels being provided with a balance-weight and means for limiting rotation, and signal devices actuated by the movement of the said wheels, substantially as described.

6. In a telephone toll signal and collector, the combination of an upper revoluble coin-receiving wheel having a coin-catching device adapted to retain a larger coin and to permit the passage of a smaller coin, a coin-chute directed to the coin-catching device of said wheel, a second revoluble coin-receiving wheel placed lower than the first wheel and having a coin-catching device adapted to retain a larger coin and to permit the passage of smaller coin, the said upper wheel being provided with guides arranged to direct a coin to the coin-catching device of the second wheel, a revoluble coin-receiving wheel placed lower than the others and having a coin-catching device, the said second wheel being provided with guides arranged to direct a coin to the coin-catching device of said lower wheel, each of said wheels being provided with a balance-weight and means for limiting rotation, and sounding devices each emitting a different sound and actuated by the movements of the said wheel, substantially as described.

7. In a telephone toll signal and collector, the combination of a series of revoluble coin-receiving wheels having coin-catching devices, means for directing coin to the said catching devices, each of the said wheels having balance-weights, throw-out devices constructed and arranged to overturn coin of certain diameters, and a trough 69 having a pocket 69^a, substantially as described.

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

ANDREW HOLZMANN.

Witnesses:

RAYMOND DUGEL,

OTTO LOENICKER.