

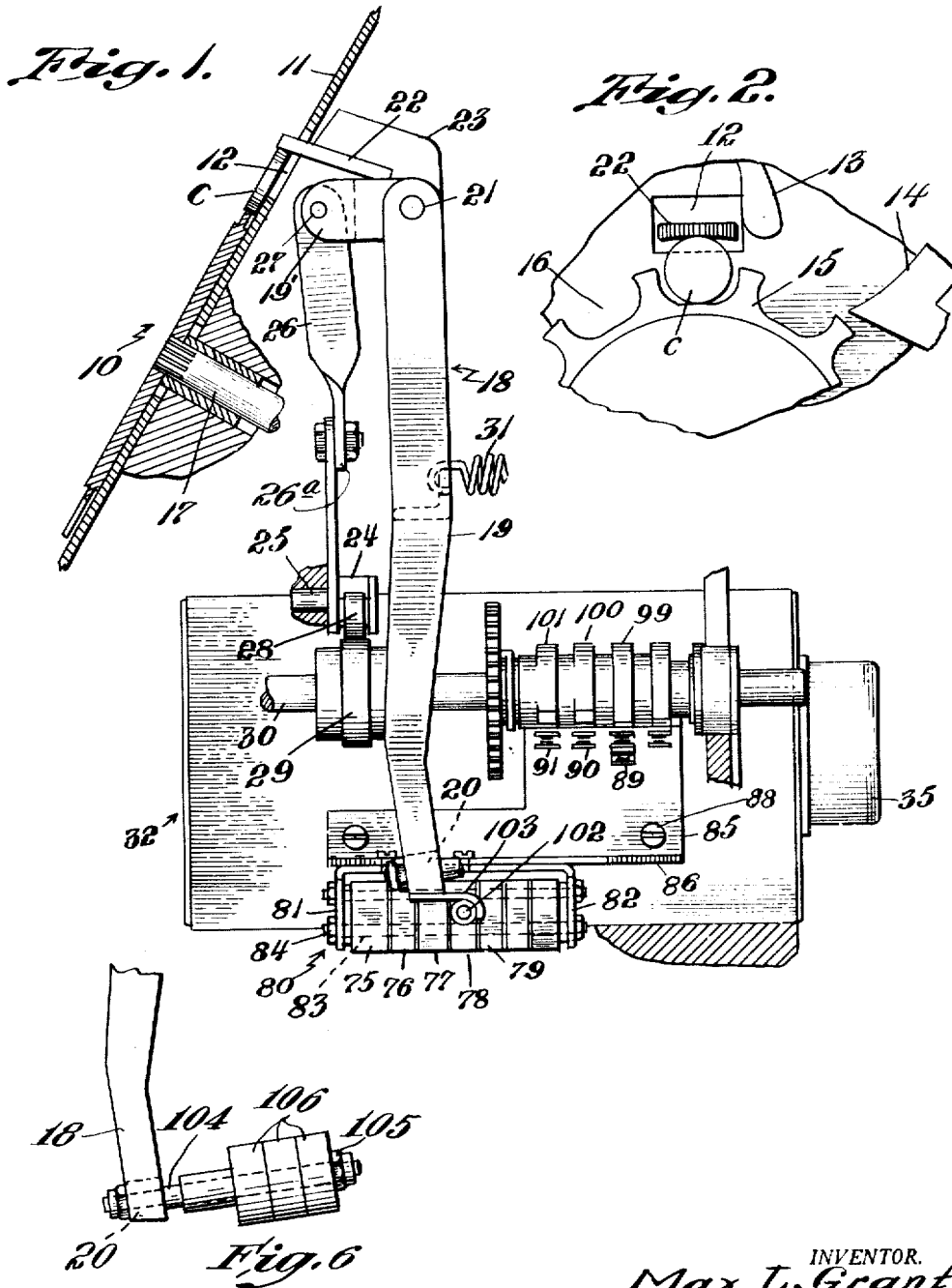
Sept. 10, 1957

M. L. GRANT
AUDIBLE INDICATING APPARATUS FOR
COIN COLLECTING APPARATUS

2,805,746

Filed March 21, 1951

2 Sheets-Sheet 1



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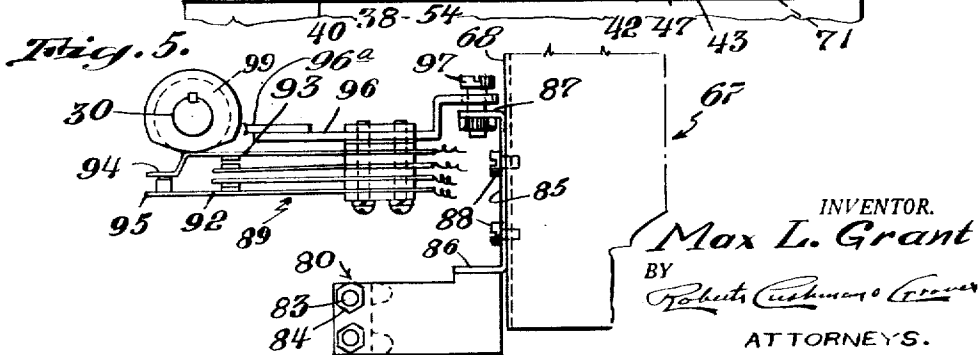
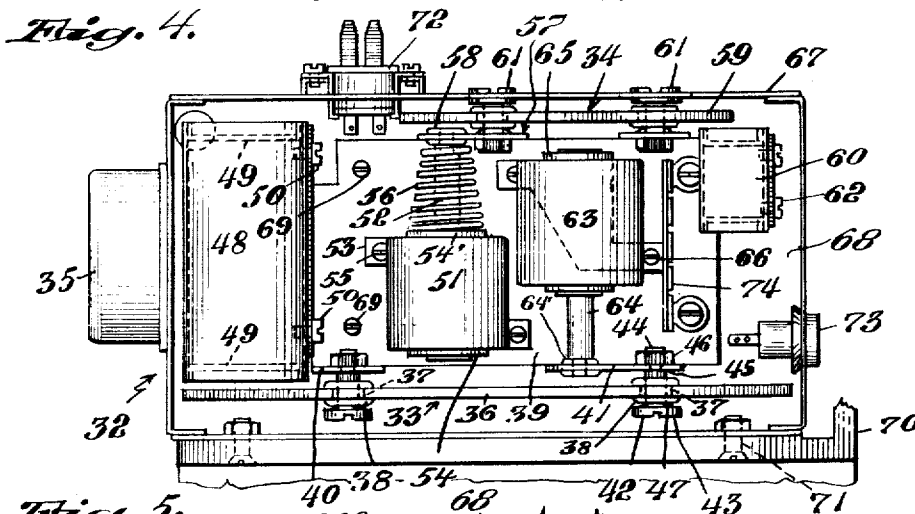
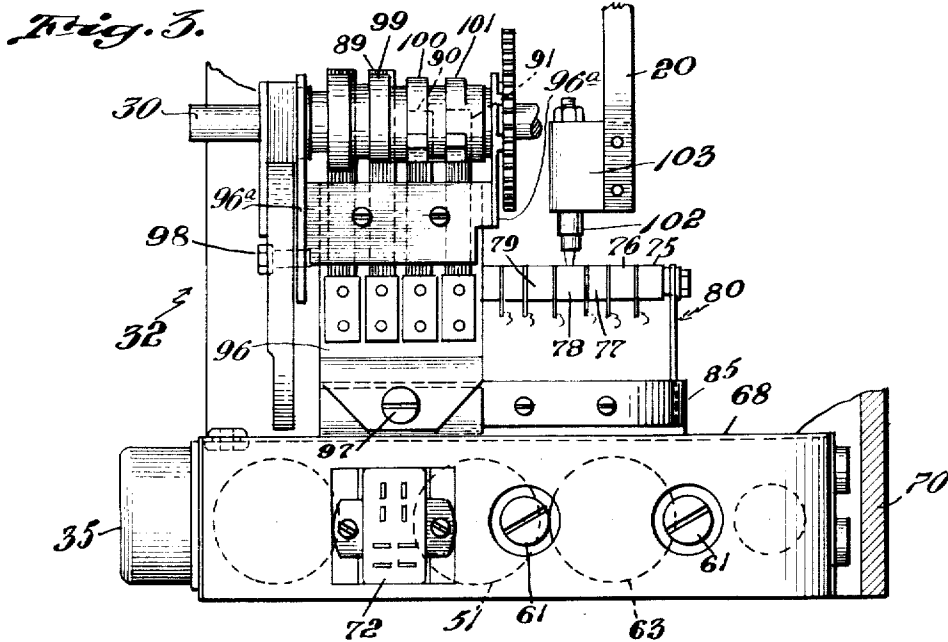
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2 Sheets-Sheet 2



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AUDIBLE INDICATING APPARATUS FOR COIN COLLECTING APPARATUS

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Application March 21, 1951, Serial No. 216,764

17 Claims. (Cl. 194—16)

This invention relates to improvements in a fare collecting machine, particularly a machine for collecting a so-called multiple-coin fare which may be paid with a plurality of coins of different denominations.

In public transportation such as is provided by buses, trackless trolleys and like vehicles, fares are commonly collected while the vehicle is in motion and in order to make it easier for the operator to count the fare, it is desirable that some means other than mere visual inspection be provided to assist the operator in determining what particular coins and how many of each kind are deposited and that such information be so imparted with a minimum of distraction of the driver's attention from the road ahead.

The general object of the invention is to provide, in a machine of the above character, means which will operate to produce a characteristic sound for a coin of each respective denomination so that by listening, and without removing his attention from the road, the operator of the vehicle may know what coins have been deposited in the machine. Another object is to provide sound-producing means so devised that the sounds corresponding to coins of different denomination are of a different timbre or quality.

A further object is to provide means operative, at the high speeds required in modern coin collecting apparatus, to emit tones which are substantially free from confusing overtones and which are thus individually recognizable, even by the untrained ear.

A more specific object of the invention is to provide, in a machine of the above character, an electrically operated sound producing device of such a construction that it will occupy a minimum of space within the machine.

Another object of the invention is to provide, in a machine of the above character, an electrically operated sound producing device of such construction as to be operable with a minimum of power input to project a maximum of volume of sound under all conditions of road travel of the vehicle.

Another object of this invention is to provide, in a machine of the above character, a sound producing device in which the movable parts thereof will be arranged so as to be unaffected by vibration or shaking of the machine.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings:

Fig. 1 is a vertical sectional view of a portion of a fare collecting machine embodying my invention;

Fig. 2 is a fragmentary front view of a portion of the structure shown in Fig. 1;

Fig. 3 is a fragmentary plan view, partly in horizontal section, showing the sound producing device of the present invention together with certain associated parts;

Fig. 4 is a rear elevation of the device shown in Fig. 3;

Fig. 5 is a fragmentary, diagrammatic view illustrating

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ing switch mechanism employed in the actuation of the sound producing device; and

Fig. 6 is a fragmentary side elevation, illustrating a rebound damping device forming a desirable element of the mechanism.

In accordance with the invention, the sound producing device emits a different and distinct type of sound or sounds in response to the deposit of a coin of each respective denomination. For example, one such sound may be a buzz, as contrasted with the tone of a bell or gong; it may be a click such as that of a castanet, as contrasted with the sound of a bell or gong; or it may be the sound of an actual bell as contrasted with that of a resonant bar. For instance, suppose the deposit of a one-cent piece causes a buzzer to sound, and the deposit of a nickel causes a bell tone to sound. Then if the fare deposited were eight cents, that is to say three one-cent pieces and a nickel, its amount would easily be determined by mere listening to the corresponding three buzzes and one bell tone.

Referring to the drawings for a more detailed description of the invention, the numeral 10 (Fig. 1) designates, in general, fare collecting mechanism, with only so much of the structure illustrated as is essential to a clear understanding of the present invention. The fare, which may consist of a single coin or a plurality of like or different coins, is so deposited as to drop onto an inclined support 11. The coins slide down along this support 11 and are directed by guides 13 and 14 (Fig. 2) toward a rotor 15 which overlies, in close proximity, the coin-supporting surface of the support 11 and which has a plurality of equally spaced radial pockets 16 in its periphery. The rotor is carried by a shaft 17 which is turned intermittently by mechanism (not shown), one step for each cycle of operation of the machine, through a distance equal to the distance between the centers of adjacent pockets 16. The turning of the rotor advances a coin directed into its pocket by the guides 13 and 14 to a position in which the center of the coin C (Fig. 2) is in the vertical plane of the axis of the rotor and where its upper portion overlies an opening or window 12 in the support 11. Within this opening there is arranged a movable caliper or gauging finger 22 which is brought into contact with the edge of the coin, as hereafter more fully described and which, by contact with the edge of the coin, sets into operation coin-registering mechanism (not shown) for counting the coin according to its diameter and thus according to its denomination.

The gauging finger 22 is carried by a lever 18 having a forwardly directed arm 19 at its upper part and a transversely extending foot 20 at its lower end. The lever 18 is carried by a rock shaft 21 and comprises a substantially vertical arm 19 depending from the rock shaft. The gauging finger 22 is located above the shaft 21 and is carried by a projection 23 integral with the lever 18. The finger 22 projects through the opening 12 so that its under surface may engage the edge of a coin which is held in the rotor pocket with its center on a line extending through the center of rotation of the rotor and through the middle of the window 12. The pockets 16 are of a width, circumferentially of the rotor, greater than the diameter of any coin which is to be gauged, the bottom of the pocket being a circular arc, and the underside of the finger 22 is preferably upwardly concave so that when it contacts a coin it tends automatically to center the coin.

The distance between the point of engagement of the caliper finger 22 with the edge of a coin C which is being gauged is so much less (here shown by way of example as in a ratio of approximately one to five) than the distance between the axis of the shaft 21 and the foot 20 that a relatively small movement of the finger

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22 about the axis of the shaft 21 will produce a relatively large movement of the foot portion 20 of the lever. The lever 18 is rocked in a clockwise direction, as viewed in Fig. 1, by a link 26, the lower end 26^a of which is pivotally connected to the free end of a lever 24 (Fig. 1) which is pivotally mounted at 25 at the left-hand side of the machine and which extends transversely and whose free end, near the right-hand side of the medium, carries a roller 28 which engages a cam 29 on the main shaft 30 of the machine. The main shaft is rotated one revolution for each cycle of operation of the machine by mechanism not here shown. A tension spring 31 is suitably anchored at one of its ends to the machine frame and is attached at its other end to the lever arm 19 and resiliently urges the lever to swing in a counterclockwise direction as viewed in Fig. 1. At each cycle of operation of the machine, the lever 24 is rocked in a clockwise direction by the cam 29 thereby moving the gauging finger 22 in an upward direction so as to be out of the path of movement of a coin in the pocket 16 of the rotor as the latter is turned to bring the coin to the gauging position. When the rotor has brought the coin into the gauging position shown in Fig. 2, the rotation of the rotor ceases and the coin dwells in this position while the cam 29 turns sufficiently to allow the lever 24 to move downwardly, thereby permitting the spring 31 to move the caliper or gauging finger 22 into engagement with the coin and thus to a position which is determined by the diameter of the coin. Since the coin limits counterclockwise motion of the lever 18 in response to the urge of the spring 31, the arm 19 will be located at different angular portions with respect to the vertical, depending on the diameter of the coin being gauged. Thus a dime, which is the coin of smallest diameter, will position the arm 19 at one angular distance from the vertical while the largest coin being gauged, for example a quarter, will position the arm 19 at a different angular distance from the vertical and intermediate sized coins will locate the arm 19 at intermediate distances from the vertical.

According to the present embodiment of the invention, the electrically actuated sound producing device, here designated generally by the numeral 32 (Figs. 3, 4 and 5), is designed to emit a plurality of sounds or tones of different types or qualities or a combination of such tones. For this purpose, and as here illustrated, the sound producing device comprises a chime unit 33, a second chime unit 34, and a buzzer unit 35. The chime unit 33 comprises a chime bar 36 provided with spaced openings 37, each opening receiving a grommet 38 or the like of resilient material, for example rubber. The bar 36 is supported on a bracket 39 which has spaced horizontal shelf portions 40 and 41 respectively. A shoulder screw 42 extends up through each grommet 38, each screw having a head 43 and a screw threaded shank portion, which passes through an opening in the corresponding shelf 40 or 41 with its shoulder engaging the underside of the shelf, and which receives a nut 46 for securing the screw to the shelf. A spring washer 47 is interposed between the head 43 of each screw and its corresponding grommet 38. The bar 36 is thus rockably supported by the bracket 39. A resonator 48 of tubular form and closed at each end by a cap 49 is attached to a vertical flange of the bracket 39 by means of cap screws 50, the resonator being so located as to overlie one end portion of the bar 36 and with its axis perpendicular to the upper surface of the bar, and operating in well known manner to intensify the sound emitted from the bar when the latter is struck. The cylindrical type of resonator here illustrated has a very definite fundamental frequency so that only the fundamental of the chime is reinforced, the result being a substantially pure tone devoid of confusing overtones. Thus, even though the two chimes be sounded in very rapid succession, the individual tones are readily distinguishable by the ear. Obviously the sound emitted by the buzzer unit 35 is of a wholly different type from the sound

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emitted by the chimes, and thus is readily distinguishable from the chime tones.

A solenoid 51 having a core or plunger 52 is positioned above the bar 36 with its plunger 52 so located as to strike the bar when the solenoid 51 is energized. A support 53 having vertically spaced arms 54 and 54', between which the solenoid 51 is received and secured, is attached to the bracket 39 by screws 55. A compression spring 56 encircles the plunger 52. One end of the spring rests on the arm 54' while its upper endmost coil is received in an annular groove in the plunger. The spring 56 normally yieldingly holds the plunger out of contact with the bar 36 and against a resilient abutment 58 carried by a support 57 fixed to the bracket 39.

The chime unit 34 is similarly constructed, but has a chime bar 59 of much less length than the bar 36 and its resonator 60 is of correspondingly smaller dimensions. The bar 59 is rockably supported by shoulder screws 61 which pass through openings in the top wall 67 of a housing which encloses the chime units, and the resonator 60 is secured to a vertical flange of the bracket 39 by means of screws 62, being so located that it is beneath one end portion of the bar 59. The solenoid 63 of the chime unit 34 is mounted on the bracket 39 and so located that its plunger 64 will strike the bar 59 when the solenoid 63 is energized. The plunger 64 is normally retracted by gravity and rests upon a resilient stop 64' carried by the shelf 41. The solenoid 63 is carried by a support 65 which is similar to the support 63 and which is fastened to the bracket 39 by screws 66.

The housing which encloses the chime units comprises a rear wall 68 to which the bracket 39 is attached by screws 69. The housing is attached to the frame 70 of the machine by bolts 71 and may be removed bodily from the machine, if desired. The housing of the sounding device is provided with electrical sockets as indicated, for example, at 72 and 73 and with a bus bar 74 by means of which the coils of the solenoids 51 and 63 are connected to the various branches of the electrical circuit (not here shown in detail). The external electrical circuit may be connected to the internal circuit of the sounding device by usual plug connections engageable with the sockets 72 and 73. The bell or buzzer 35, if employed, may be attached to the outside of the housing in any convenient manner.

The electrical circuit for supplying energy for the operation of the sounding device includes a plurality of selector contacts 75, 76, 77, 78 and 79 (Figs. 1, 2 and 3). These contacts are insulated from each other and are carried by a yoke 80 which has arms 81 and 82 (Fig. 1) between which the contacts are positioned in alignment with each other, with interposed insulation, and held in place by means of rods 83 which pass through openings in the contacts and which are threaded at their opposite ends to receive nuts 84. A bracket 85, having right-angularly extending flanges 86 and 87 (Fig. 5) is secured to the outer side of the rear wall 68 of the housing by screws 88.

The electrical circuits also include a plurality of cam-actuated switches 89, 90 and 91 (Figs. 1, 3 and 5), the switch 89 (Fig. 5) comprising a pair of contacts 92 (Fig. 5) which are supported by resilient arms and normally in closed position. A second pair of contacts 93 supported by resilient arms are normally in open position. One of the arms which support the contacts 93 has a part 94 which extends into engagement with a part 95 carried by one of the arms which support the contacts 92, and when the contacts 93 are closed, the part 94 presses against the part 95, thereby to open the contacts 92. The switch 89 is so connected into the electrical circuit as to control the operation of the buzzer 35 and the chimes 33 and 34, thereby to produce a single sound from each of said sounding devices. Each of the switches 90 and 91 (Fig. 1) has but a single pair of contacts supported by resilient arms and which are normally held

in open position. Switch 90 is in circuit with the solenoid 51 while switch 91 is in circuit with the solenoid 63. Each of the switches 89, 90 and 91 is carried by a bracket 96 (Fig. 5), the switches being mounted on said bracket side by side and extending horizontally (Fig. 5) beneath the main shaft 30. The bracket 96 has parallel, vertical flanges 96^a having aligned openings for the passage of the shaft 30. A bolt 98 extends through the main frame and through the rear flange 96^a. A bolt 97 passes through an opening in the bracket 96 and through an opening in the upper flange 87.

The switches 89, 90 and 91 are cam operated. For this purpose cams 99, 100 and 101 are fixed to the shaft 30 so as to rotate therewith. In rotating, the cams engage the arms of the several switches to close the latter in properly timed relation. Each of the cams 100 and 101 has two lobes arranged to close the switches 90 and 91 twice for each revolution of the shaft 30, whereas the cam 99 has but a single switch-closing lobe.

The spring pressed brush contact 102 (Figs. 1 and 3) is mounted on the foot 20 of the lever 18 by means of a bracket 103, and this brush contact moves with the arm 19 as the latter is rocked so as to sweep along the several selector contacts 75 to 79 inclusive. The brush 102 is connected into the electrical circuit. At times it dwells in contact with one or another of the selector contacts 75 to 79, depending upon the diameter of the coin which is being gauged by the finger 22, thereby closing the particular branch of the electrical circuit for operating that one of the sound emitting elements which corresponds to the denomination of the coin being gauged. The contact 78 is electrically connected in the circuit of the buzzer 35, while the contacts 77 and 79 are electrically connected into the circuit of the solenoid 51 and contacts 75 and 76 are connected in circuit with the solenoid 63. Thus, for example, if a one-cent piece is being gauged, the brush contact 102 will dwell in engagement with the contact 78, thereby closing the circuit through this contact. While the parts are thus positioned, if switch 89 be closed by the action of the cam 99, the buzzer 35 will be energized to produce the sound which identifies the one-cent piece. When a nickel is being gauged, the brush contact 102 will dwell in engagement with the contact 77 and when the circuit is closed through the switch 89, the solenoid 51 of the chime unit 33 will be energized to produce a single chime tone. In a similar way, when a dime is being gauged, the brush contact 102 will dwell in engagement with the contact 79 and the solenoid 51 of chime unit 33 will be energized through the electrical circuit controlled by switch 90 and closed by cam 100 to produce a double chime tone from the chime unit 33 by reason of the two lobes of the cam 100. In similar manner, either of contacts 75 or 76 may be engaged by the brush contact 102 and through switches 89 or 91 will energize the solenoid of chime unit 34 to sound the latter the proper number of times, depending upon the denomination of the coin being gauged.

In the operation of the machine, the last coin gauged is retained beneath the gauging finger 22, but when the machine receives another fare the shaft 30, through the mechanism (not here shown) will be set into motion and the gauge lever 18 will be rocked clockwise and the rotor will be turned to advance the coin C which has previously been gauged out of the field of action of the finger 22 and to advance another coin, just directed by the guides 13 and 14 into a pocket 16 of the rotor, to the gauging position beneath the finger 22. The cam 29 will then rotate sufficiently to bring its low side opposite to the roller 28 so that the lever 18, under the urge of the spring 31, will be moved to contact the gauging finger 22 with the coin held in the uppermost pocket of the rotor. The movement of the lever 18, as limited by contact of the finger 22 with the coin, carries the brush contact 102 into engagement with the particular selector contact (of the group of contacts 75 to 79) corresponding to the coin

being gauged. The rotation of the shaft 30 turns the cams 99, 100 and 101 thereby closing the circuit through that particular selector contact which is engaged by the brush contact 102, thereby energizing the sounding device corresponding to the particular denomination of coin being gauged.

Since the gauging operation must be performed with great rapidity, there is a tendency for the lever to rebound when the finger 22 contacts the edge of the coin. As coins of certain denominations differ very slightly in diameter, it is extremely important that the gauging means come to rest without rebound in order to avoid error in gauging the coin. To counteract this tendency to rebound, there has been provided damping means comprising an approximately horizontal rod 104 (Fig. 6) fixed at its forward end to the foot 20 and having a stop nut 105 at its rear end. On this rod there is mounted to slide a weight 106 (or a plurality of weights) having freedom to slide along the rod for a substantial distance, for example three-eighths of an inch. This movement is limited in one direction by the foot 20 and in the other by the stop nut 105. With this arrangement, the inertia of the freely sliding mass 106 tends to nullify any tendency of the lever to rebound, although it does not impede the normal operation of the lever to any substantial extent. Thus by the employment of this inertia element, the rebound of the gauging lever is prevented and extreme accuracy in gauging is assured.

I claim:

1. In power-actuated, multiple-coin fare collecting and registering apparatus of the kind wherein the denomination of a coin is determined by contact of a movable gauging element with the edge of the coin, in combination, means for audibly indicating the denomination of a gauged coin comprising a plurality of devices operative respectively to emit tones of different timbre, the tone-emitting devices being electrically actuated, an energizing circuit for each tone-emitting device, a plurality of fixed contacts, one in each of said circuits, a movable contact engageable with any one of said fixed contacts, connections between the coin-gauging element and said movable contact whereby the movable contact is selectively engaged with a certain one of the fixed contacts in accordance with the diameter of the respective coin being gauged, a normally open switch in each of said circuits, and means for closing each of said switches one or more times during each cycle of operation of the machine.
2. In motor-driven, multiple-coin fare collecting and registering apparatus of the kind wherein the motion of a movable gauging element is limited by contact with the edge of a coin being gauged and wherein sound-emitting means audibly indicates the denomination of the coin being gauged, a plurality of electrically energized sound-emitting devices designed to emit sounds of different qualities respectively, in combination, a row of fixed electrical contacts each corresponding to one of said sound-emitting devices, a brush contact engageable with any one of said fixed contacts, means responsive to the motion of the movable gauging element to determine which of the fixed contacts shall be engaged at any time by the brush contact, a plurality of normally open switches, each corresponding to one of the respective sound-emitting devices, and means for closing said switches during each cycle of operation of the machine.
3. In fare collecting and registering apparatus of the kind wherein the motion of a movable gauging element is limited by contact with the edge of a coin being gauged and wherein sound-emitting means audibly indicates the denomination of the coin being gauged, a plurality of electrically energized sound-emitting devices designed to emit sounds of different qualities respectively, in combination, a row of fixed electrical contacts each connected in circuit with one of the respective sound-emitting devices, a brush contact which moves into engagement with one or another of said fixed contacts

according to the position of the coin-gauging element, a normally open switch in the circuit which connects each fixed contact with one of the sound-emitting devices, a motor-driven rotatable shaft, and cams on the shaft operative to close said normally open switches, certain of said cams being shaped to close the switch once for each cycle of operation of the machine, and certain of said cams being shaped to close the switch a plurality of times during each cycle of operation.

4. In motor-driven, multiple-coin fare collecting and registering apparatus of the kind wherein the motion of a movable gauging element is limited by contact with the edge of a coin being gauged and wherein sound-emitting means audibly indicates the denomination of the coin being gauged, a plurality of electrically energized sound-emitting devices designed to emit sounds of different qualities respectively, in combination, a plurality of fixed electrical contacts each connected in circuit with one of the respective sound-emitting devices, a brush contact which is engageable with one or another of said fixed contacts, a lever having a short arm which carries the gauging element and a long arm which carries the brush contact, a spring tending to move the lever so as to engage the gauging element with the edge of a coin, means for moving the gauging element away from the coin, an electrical circuit for controlling the operation of each sound-emitting device, the brush contact and one respectively of said fixed contacts being included in each of said circuits, a normally open switch in each of said circuits, and means for closing each of said switches a predetermined number of times during each cycle of operation of the machine.

5. In motor-driven, multiple-coin fare collecting and registering apparatus of the kind wherein the motion of a movable gauging element is limited by contact with the edge of a coin being gauged and wherein sound-emitting means audibly indicates the denomination of the coin being gauged, a plurality of electrically energized sound-emitting devices designed to emit sounds of different qualities respectively, in combination, a plurality of fixed electrical contacts each connected in circuit with one of the respective sound-emitting devices, a brush contact which is engageable with one or another of said fixed contacts, a lever having a short arm which carries the gauging element and a long arm which carries the brush contact, a spring tending to move the lever so as to engage the gauging element with the edge of a coin, means for moving the gauging element away from the coin, and inertia-type damping means operative to oppose rebound of the lever.

6. In motor-driven, multiple-coin fare collecting and registering apparatus of the kind wherein the motion of a movable gauging element is limited by contact with the edge of a coin being gauged and wherein sound-emitting means audibly indicates the denomination of the coin being gauged, a plurality of electrically energized sound-emitting devices designed to emit sounds of different qualities respectively, in combination, a plurality of fixed electrical contacts each connected in circuit with one of the respective sound-emitting devices, a brush contact which is engageable with one or another of said fixed contacts, a lever having a short arm which carries the gauging element and a long arm which carries the brush contact, a spring tending to move the lever so as to engage the gauging element with the edge of a coin, means to move the gauging element away from the coin, a rigid rod projecting from the lever adjacent to the brush contact, and a weight freely slidable on said rod between spaced stops and which is operative by its inertia to oppose rebound of the lever.

7. In combination, in a motor-driven multiple coin fare collecting and registering apparatus of the kind in which a plurality of coins are simultaneously dropped and conveyed one-by-one in succession to a gauging station, means for advancing coins one at a time and regardless

of denomination to the gauging station where each respective coin dwells temporarily in plain view while being gauged, a movable gauging element, yieldable means for moving the gauging element into contact with the edge of a coin while the latter dwells at the gauging station, motor-driven means for moving the gauging element in the opposite direction, a plurality of devices operative respectively to emit sounds of such distinctive types that they are audibly distinguishable even when occurring in rapid succession, one of such sounds being a musical tone of the type emitted by a chime and another being an unmusical noise, each of said sounding devices corresponding respectively to a particular denomination of coin, means sensitive to different positioning of the gauging element as determined by coins of different denominations respectively, to select that one of said sound-emitting devices which shall be actuated and means operative while the coin continues to dwell at the gauging station for actuating the selected sound-emitting device.

8. In combination a multiple coin fare collecting and registering apparatus of the kind in which a plurality of coins are simultaneously conveyed one-by-one in succession to a gauging station at which each coin dwells while it is being gauged and registered, coin identifying means which includes a gauging element which is moved by means, independent of the coin, back and forth along a predetermined path once for each coin which passes through the apparatus and whose movement in one direction is effected by a spring and limited by contact with the edge of a coin and in accordance with the denomination of the respective coin, independent sound emitting devices of which one is operative to produce a substantially pure musical tone and another of which is operative to produce an unmusical noise, a single lever which supports the gauging element and a selecting device, the position of the selecting device resultant from engagement of the gauging element with the coin determining which of said sound-emitting devices shall be actuated, and means operative while the coin continues to dwell at the gauging station for actuating the selected sound-emitting device.

9. In combination in a multiple coin fare collecting and registering apparatus of the kind in which a plurality of coins are simultaneously dropped and conveyed one-by-one in succession to a gauging station where each coin dwells temporarily while being identified and registered, coin identifying means at the gauging station which includes a part which is moved by means, independent of the coin, back and forth along a predetermined path once for each coin which passes through the apparatus and whose movement in one direction is of resiliently yieldable character and limited by contact with the coin and in accordance with the denomination of the respective coin, independent sound emitting means one of which is a chime provided with a resonator and which is operative to produce a substantially pure musical tone and another of which is a buzzer operative to produce a non-musical noise, means operative, in response to the position of said movable part as determined by its contact with a coin, for selecting that one of said sounding devices which shall be actuated, means for actuating the selected sounding device while the coin continues to dwell at the gauging station, said actuating means being operative to cause one of said sounding devices to sound more than once in response to the contact of an individual coin by the coin-identifying part.

10. A multiple coin fare collection apparatus of the kind in which a plurality of coins are simultaneously dropped into a coin receiver, and conveyed, one after another, in succession, to a gauging station, a coin gauging element at the gauging station, a motor-driven, intermittently rotating shaft, means actuated by said shaft for conveying the simultaneously dropped coins one-by-one to and for temporarily holding each successive coin stationary at the gauging station, a plurality of electrically

actuated devices, an energizing circuit for each of said devices, a row of fixed contacts, one in each of said circuits, respectively, a rigid bell crank lever pivoted to rock about a horizontal axis and which comprises one short arm and a relatively long arm, the coin gauging element being carried by the short arm, spring means tending to move said lever thereby to contact the gauging element with the edge of a coin which is dwelling at the gauging station, means actuated by said intermittently rotating shaft for rocking the lever thereby to move the gauging element out of the path of a coin approaching the gauging station, a brush contact fixed to the longer arm of the bell crank lever near the free end of the latter and which is engaged with one or another of said fixed contacts according to the position of the long arm of the lever as determined by the size of a coin contacted by the gauging element, a plurality of normally open switches, each corresponding to one of the respective electrically actuated devices, a plurality of cams which turn in time with said intermittently rotating shaft, each cam being operative to close one of said normally open switches, respectively, certain of said cams being shaped to close the corresponding switch once for each intermittent rotation of the shaft and certain of said cams being shaped to close a corresponding switch a plurality of times during each rotation of said shaft.

11. A multiple coin fare collecting apparatus according to claim 10 wherein the sounding devices are electrically actuated and the selecting means comprises an electrical contact carried by the long arm of the lever and a series of independent fixed electrical contacts with any one of which the contact carried by the long arm may engage according to the position of the long arm as determined by the size of a coin contacted by the gauging element, each of said fixed contacts being in circuit with one respectively of said sounding devices.

12. In fare collecting and registering apparatus of the kind in which a plurality of coins are simultaneously dropped and conveyed one-by-one in succession to a gauging station where each successive coin dwells temporarily while its denomination is determined by contact of a movable gauging element with the edge of the coin, in combination, means for audibly indicating the denomination of a gauged coin comprising a plurality of selectively operable electrically energized devices designed, respectively to emit sounds of different timbre, an electrical circuit for each of the respective sounding devices, each circuit comprising two independent, normally open switches, means responsive to the movement of the coin gauging element for closing one of the switches in a selected one of said circuits as determined by the position of the coin gauging element, and power driven means operative to close the other switch in the selected circuit one or more times, while the first switch remains closed, according to the particular circuit which has been selected.

13. A motor driven fare collecting and registering apparatus according to claim 2, wherein one at least of said sound-emitting devices is a chime bar having a resonator associated therewith in such a way as to reinforce the fundamental of the bar and thereby produce a substantially pure tone devoid of confusing overtones.

14. A motor driven fare collecting and registering apparatus according to claim 2, wherein the gauging element is supported by a lever and the brush contact is supported by the same lever, the brush contact being at a greater distance from the pivotal axis of the lever than is the gauging element.

15. In a motor-driven, cyclicly operating fare-collecting and registering apparatus of the kind in which a plurality of coins are simultaneously dropped and conveyed, one-by-one, in succession, to a gauging station at which they dwell while being calipered and registered, and wherein the denomination of a coin is determined by contact of a movable gauging element with the edge of the coin, and wherein the gauging element is moved toward the coin by a spring and away from the coin by motor-actuating means, in combination, means for audibly indicating the denomination of a gauged coin comprising at least two sounding devices, one of which is a chime provided with a resonator and which is operative to emit a sound of one quality; while another of said sounding devices is operative to emit a sound of different quality, a plurality of instrumentalities, each corresponding to one, respectively, of the sounding devices and each of which performs one functional cycle during each cycle of the collecting and registering apparatus, actuator means, responsive to the functioning of each, respectively, of said instrumentalities thereby to cause the corresponding sounding device to function, one of said instrumentalities being so constructed and arranged as, during a single cycle of the fare-collecting and registering apparatus to cause the sounding device which corresponds to said respective instrumentality to function a greater number of times than does the sounding device which corresponds to another of said instrumentalities, and means responsive to the movement of the coin-gauging element for selecting that one of said instrumentalities which shall be effective during a given cycle of the fare-collecting and registering apparatus.

16. A motor-driven, fare-collecting and registering apparatus as set forth in claim 15, wherein a shaft, motor driven, makes one revolution for each cycle of operation of the fare-collecting and registering apparatus, further characterized in that the instrumentalities which cause the actuator means for the sounding devices to operate are cams fixed to said shaft, one of said cams having a plurality of actuator-operating lobes while another of said cams has but a single actuator-operating lobe.

17. A motor driven fare-collecting and registering apparatus according to claim 2 wherein one of said sound emitting devices comprises a chime and another of said devices comprises a buzzer.

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