

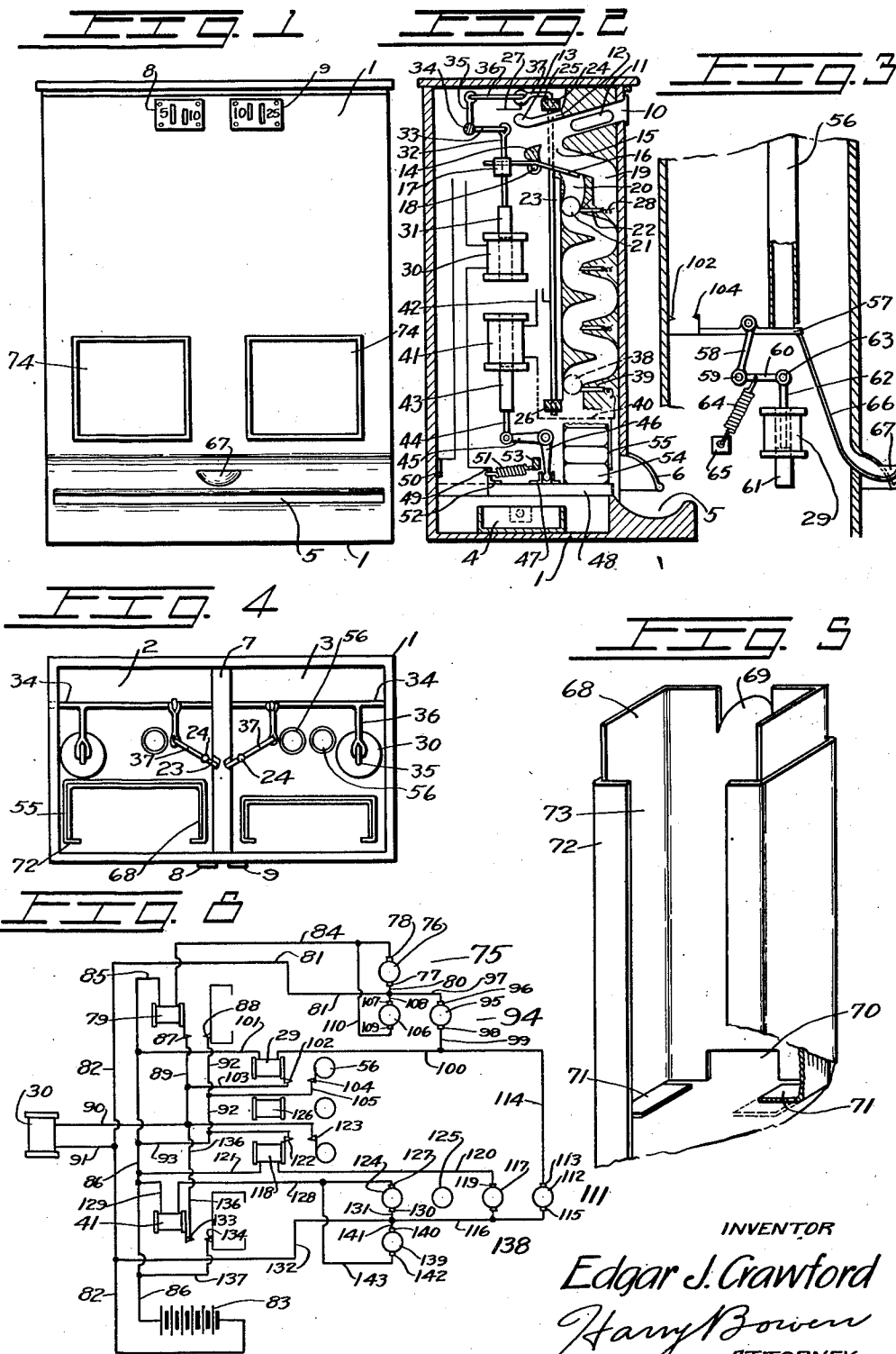
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SLUG PROOF VENDING MACHINE

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SLUGPROOF VENDING MACHINE.

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The invention is a vending machine which will deliver merchandise and change when a coin of the proper denomination is placed in the slot which is provided with a means for discarding slugs or other fake coins.

The object of the invention is to provide a vending machine that will deliver merchandise and change which is constructed so that it will be absolutely impossible to get the merchandise or change out of the machine by sticking objects up the delivery chute and which is also provided with an absolute means for discarding slugs.

With these ends in view the invention embodies a casing having double merchandise chutes therein, other chutes for holding coins, means for ejecting merchandise and coins from the chutes, a coin chute which has contact points in it, and a coin tester above the coin chute.

Other features and advantages of the invention will be seen from the following description taken in connection with the drawings, wherein:—

Figure 1 is a front elevation.

Figure 2 is a cross section showing the coin chute and also a portion of a merchandise chute.

Figure 3 is a section showing the change chute.

Figure 4 is a plan view.

Figure 5 is a view showing the double chute.

Figure 6 is a wiring diagram.

In the drawings I have shown my device as it would appear wherein numeral 1 indicates the casing, which has two compartments 2 and 3, a money drawer 4 in the base, and a trough 5 with a cover 6 over it into which the merchandise may drop.

Between the compartments 2 and 3 is a partition 7 in which are the money slots as shown in Figure 2. The coin passes into the slots through openings in plates 8 and 9 on the front of the machine and enters the slots at a point 10 as shown in Figure 2. Adjacent the point 10, the chute is set at an angle and has an elongated opening 11 in the side of the slot which permits undersized coins to drop out of the slot, and beyond this opening is a magnet 12 which has a brass tip 13 on it which will pick up iron or steel slugs and hold them until they pass

over the lug 14. The proper coins will drop through the opening 15 and onto a door 16 which has an adjustable counter-weight 17 on it and which is pivoted on a pin 18. The counter-weight may be regulated so that coins that are of a lighter weight than a standard coin will roll over the end of the plate 16 and be thrown to one side by the chute 19, while standard coins of the proper denomination will trip the door 16 and drop into the chute 20 and pass to the position shown by the coin 21. In this position it will be seen that the coin will be held between a contact point 22 and a plate 23 which plate is attached to a vertical bar 24 which is held in bearings 25 and 26. To this bar is also connected a wire 27 which is connected to one terminal of a battery and to the contact point 22 is connected another wire 28 which is also connected to the opposite terminal of the battery through a solenoid which may be similar to the one indicated by the numeral 29 in Figure 3, the action of which is hereinafter described. As the solenoid operates it causes two contact points to come into engagement which complete a circuit and energize another solenoid 30 which attracts a core 31 and causes it to move downward. This core is connected to a bar 32 as shown in the upper part of Figure 2 to a lever 33 on a shaft 34 and on the upper side of this shaft is another lever 35 which is connected through a bar 36 to a lever 37 at the top of the bar 24. These levers will turn the bar 24 and cause the plate 23 to move so that it will release the coin as the solenoid 30 operates. The coin as indicated by the numeral 21 will then pass downward to the next position where it will again be held between a contact point and the plate 23 where a similar action will be repeated and the coin will continue to pass from one position to another until it reaches the lower position as indicated by the numeral 38 at which time it will complete a circuit through the contact point 39, the wire 40 which is indicated by dotted lines, and the solenoid 41, and then back to the source of supply through the wire 42. As this solenoid 41 is energized it will draw the core 43 upward which is connected through a bar 44 to the arm 45 of the lever 46, the vertical leg of which projects between clips 47 on a horizontal bar

48, and as the core 43 moves upward it will turn the lever 46 and cause the bar 48 which is slidably mounted in a groove at the top of the base to move backward until the contact point 49 engages another contact point 50 which will energize the solenoid 30 and this will release the coin by turning the plate 23 as hereinbefore described. As soon as the coin is released the circuit through the solenoid 41 will be broken and the plate 48 will be quickly moved to its present position by a spring 51 which may be attached to a clip 52 on the rear end of the bar 48 and also to a member 53 which may extend across the compartment. During this operation the machine will eject a piece of merchandise which is indicated by the numeral 54 and which may be held in a chute 55, as it will be seen that as the bar 48 is moved backward the merchandise will drop downward and then as the bar 48 moves outward to the position shown it will push the merchandise into the trough 5. The flanges at the front of the chute 55 are cut away a short distance from the bottom to permit the merchandise to move outward as the plunger 48 moves forward.

In Figure 3 I have shown a similar operation for the change chute which may be operated by the solenoid 29. The change chute 56 may have coins of any desired denomination in it and may have a plate 57 under it to which a lever 58 may be attached which may be pivoted on a pin 59 and which may have an arm 60, the outer end of which may be pivotally attached to a core 61 of the solenoid 29 through the bar 62 and the pin 63. A spring 64 may be attached to the arm 60 and also to a rigid member 65 which will draw the plate 57 back to the position shown when the circuit through the solenoid 29 is broken. It will be seen that as this solenoid is energized the plate 57 will be drawn backward until contact points at its rear end engage and complete a circuit through the solenoid 30 so that the coin will be released as hereinbefore described for the contact points 49 and 50 in Figure 2. At the same time a coin in the chute 56 will drop down and as the spring 64 brings the plate 57 back to the position shown the coin will drop down the chute 66 to the pan 67 in the center of the front of the machine. It is understood that as many of the chutes 56 as may be desired may be used and each may be operated by a mechanism similar to that shown in Figure 3 so that any desired amount of change may be ejected from the machine as the chutes may be connected so that one may be operated as the coin arrives at different positions in the chute.

The merchandise chutes may be constructed as shown in Figure 5 with an inner chute 68 which may be U shaped with a lip 69 bent backward at the top by which it may

be gripped, an opening 70 in the bottom and at the rear through which the plunger may pass and lips 71 on its lower end upon which the merchandise may be placed. This chute may be held in a casing 72 which may be rectangular shaped and may have an opening 73 in its front through which the merchandise in the chute may be seen through windows 74 in the front of the machine. This casing may be rigidly held in the machine and the inner chute 68 may readily be raised and removed so that it may be easily refilled with merchandise.

The wiring diagram shown in Figure 6 is for a machine having two merchandise chutes, however, it is understood that additional units may be added so that it may be used for a machine with any number of merchandise chutes. The first stage of the diagram or that indicated by the numeral 75 illustrates the operation of the machine when a nickel is inserted in the nickel slot for a five cent piece of merchandise. In this stage the nickel will pass down the coin chute which will be set so that it will only be held in the last position and when the nickel arrives at the last position which would be in the position indicated by the numeral 76 it will be seen that it will engage contact points 77 and 78 and thereby complete a circuit through a solenoid 79 which would eject merchandise with a movement hereinbefore described for the solenoid 41. This circuit would pass through the contact point 77, the wire 80, the wire 81, and the wire 82 to a battery 83 from one side of the coin; and through the contact point 78, the wire 84, the solenoid 79, the wire 85, and the wire 86, to the other terminal of the battery 83. As the solenoid 79 operates it will draw the contact points 87 and 88 which are similar to the contact points 49 and 50 shown in Figure 2, into engagement which will complete the circuit through the solenoid 30 so that the coin will be released by the plate 23 as hereinbefore described. The coin will then drop into the money drawer and break the circuit through the solenoid 79 and a plate similar to the plate 48 will be moved forward by a spring similar to the spring 51 so that the merchandise will be ejected into the trough 5. The circuit to the solenoid 30 will pass from the point 87 through the wire 89, the wire 90, the solenoid 30, the wire 91, and the wire 82, to the battery 83; and from the point 88 to the wire 92, the wire 93, and the wire 86 to the other terminal of the battery.

The second stage of the diagram or that indicated by the numeral 94 will be used when a dime is inserted for a five cent package of merchandise. As the dime arrives at the position indicated by the numeral 95 it will operate the solenoid 29 which will eject a nickel from the change slot 56 as in-

5 indicated and described for Figure 3. The circuit will pass from a contact point 96, through a wire 97, to the battery through the wires 81 and 82, and from the contact point 98 to a wire 99, a wire 100, the solenoid 29, a wire 101, and the wire 86 to the opposite terminal of the battery. As the change is ejected the solenoid 30 will be energized and will release the coin as this circuit will pass from a contact point 102 through a wire 103, the wire 89, the wire 90, the solenoid 30, the wire 91, and the wire 82, to the battery, and also from the contact point 104 through the wire 105, the wire 92, the wire 93, and the wire 86 to the opposite terminal of the battery. As the coin is released it will drop to the next position which I have indicated by the numeral 106 and in this position it will operate the merchandise magnet 79 as the circuit will pass from the contact point 107 through the wire 108, the wire 81, and the wire 82 to the battery, and also from the contact point 109 through a wire 110, a wire 84, the solenoid 79, a wire 85, and the wire 86 to the other terminal of the battery. The coin will then be released as the contact points 87 and 88 will come into engagement as hereinbefore described.

30 The third stage of the diagram or that indicated by the numeral 111 will be used when a twenty-five cent piece is inserted to obtain a ten cent package of merchandise. In this stage the coin will first arrive at the position indicated by the numeral 112 at which time the machine will eject a nickel from the change slot as it will complete a circuit through the contact point 113, a wire 114, the wire 100, the solenoid 29, the wire 101, and the wire 86, to the battery 83, and also from the contact point 115, a wire 116, a wire 132, and a wire 82 to the other terminal of the battery. As the nickel is ejected the contact points 102 and 104 will engage and release the coin as hereinbefore described, and the coin will pass to the next position which is indicated by the numeral 117. In this position it will energize the solenoid 118, which will eject a dime in change as a circuit will be completed through the contact point 119, a wire 120, the solenoid 118, a wire 121, and the wire 86 to one terminal of the battery and from the other terminal of the battery through the wire 82, the wire 132, the wire 116, and through a short wire to a contact point at the opposite side of the coin which is indicated by the numeral 117. The coin will then be released as the solenoid 30 will be energized through the contact points 122 and 123 which will operate it in a manner similar to that of the points 102 and 104. The coin will then pass to the position indicated by the numeral 124 or if desired it may stop at the position indicated by the numeral 125 where it may be connected

through suitable contact points and wires to a solenoid 126 which may eject pennies in change. When it arrives at the position indicated by the numeral 124 it will complete a circuit through the point 127, a wire 128, the solenoid 41, a wire 129, and the wire 86 to the battery 83, from the contact point 130 to the wire 131, the wire 132, and the wire 82 to the other terminal of the battery. As the solenoid is energized it will eject a package of merchandise as hereinbefore described when referring to Figure 2, and the coin will be released by the points 133 and 134 coming into engagement and energizing the solenoid 30 through the wire 136, the wire 90, the solenoid 30, the wire 91, and the wire 82 to one side of the battery, and the wire 137, and the wire 86 to the other side of the battery.

The last stage of the diagram or that indicated by the numeral 138 will be used when a dime is inserted to secure a ten cent package of merchandise. In this stage the dime will arrive at the position indicated by the numeral 139 at which time it will complete a circuit through the solenoid 41 which will eject the merchandise and release the coin as hereinbefore described. The circuit will be completed through the contact point 140, the wire 141, the wire 132, and the wire 82 to one side of the battery, and through the contact point 142, the wire 143, the wire 128, the solenoid 41, the wire 129, and the wire 86 to the other side of the battery. It will be seen that this diagram may be increased or rearranged so that it will be possible to deliver any desired amount of change or any kind of merchandise.

It will be understood that changes may be made in the construction without departing from the spirit of the invention. One of which changes may be in the number, size or shape of the chutes, another may be in the position or arrangement of the solenoids and the slides they operate; and still another may be in the design of the casing.

The construction will be readily understood from the foregoing description. To use the device it may be assembled as shown and when a coin of the proper denomination is placed in the chute 10 it will roll downward and operate the machine as hereinbefore described. It will be seen that it may be operated continuously and the chutes and change tubes may be refilled by removing the cover which may be held in place by a suitable lock or which may have a secret latch which may be operated through the money drawer. As the plungers are placed so that they will normally be under the chutes of merchandise or change it will be impossible to get either merchandise or change out of the chutes without inserting the proper coin as these plungers will actually close the bottoms of the chutes. It will also be seen

that it will be practically impossible to operate the machine with a coin that is not of the proper denomination, as the three different means at the tops of the coin chutes for discarding slugs or coins other than those for which the chute is designed will prevent fake coins from entering the coin chute and operating the different mechanisms.

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

In a slug proof vending machine, a zig-zag chute with contact points arranged at the bends on one side of the chute, an oscillating plate arranged on the other side of the chute so as to support a coin in engagement with the contact points to close a circuit, a circuit for said oscillating plate and contacts, a solenoid in the circuit operating

an ejector for ejecting change when the circuit is closed by the coin supported by the oscillating plate and one of the contacts, a second solenoid for operating the oscillating plate to release the coin and permit it to descend in the chute until stopped by the oscillating plate and a second contact, a circuit for the second solenoid, the second solenoid being operated when the circuit is closed by the operation of the change ejector, a third solenoid for operating an article ejector, a circuit for the third solenoid which is closed by the coin supported by the oscillating plate and the second contact, the article ejector when operated also closing the circuit for the second solenoid to operate the oscillating plate and release the coin from the second contact.

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