F. J. SCHUMANN.

VENDING MACHINE.

APPLICATION FILED MAR. 28, 1911.

**1,048,103.** Patented Dec. 24, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

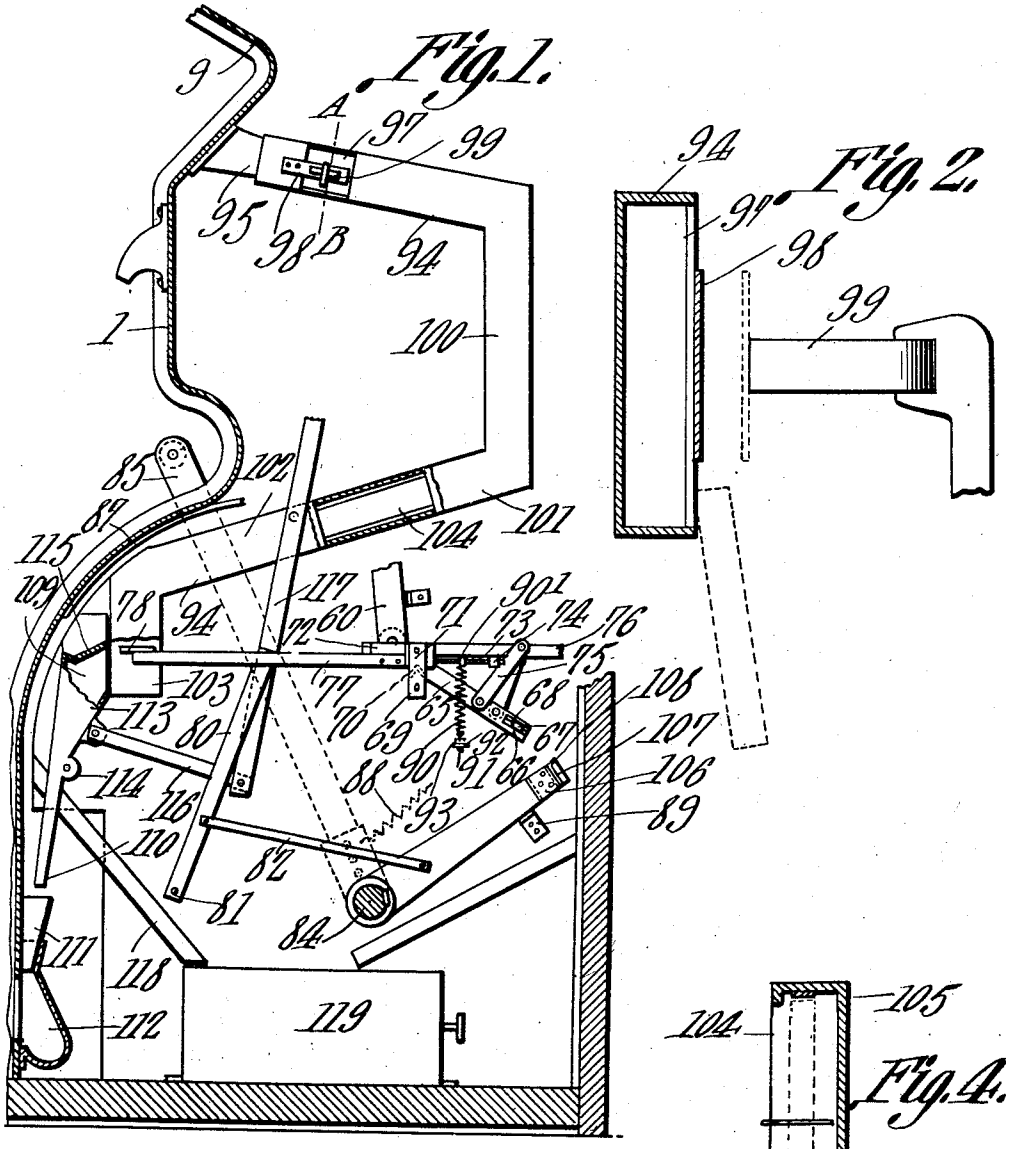


Fig. 2.




Fig. 4.




Witnesses

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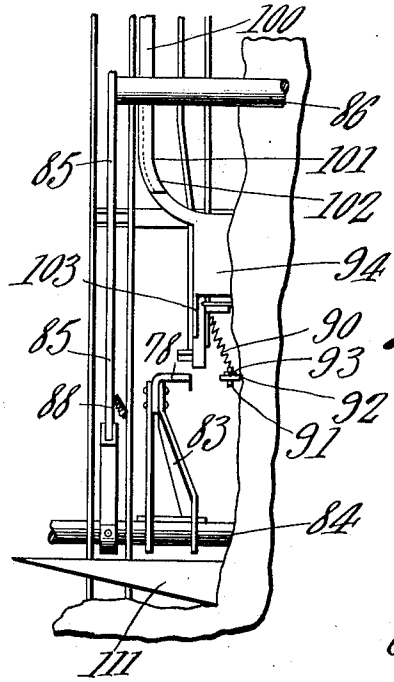



Fig. 3.

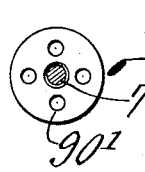



Fig. 6.

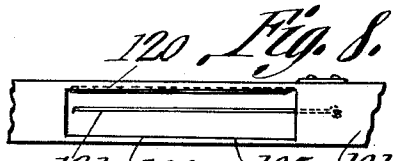



Fig. 8.

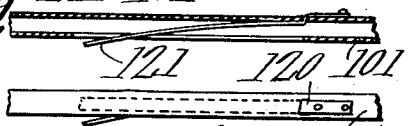



Fig. 9.




Fig. 10.

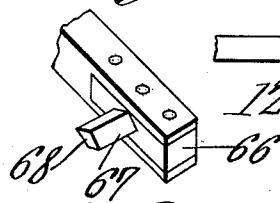
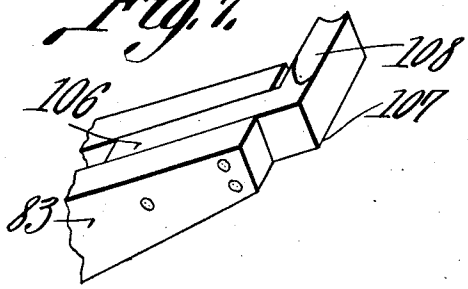



Fig. 7.



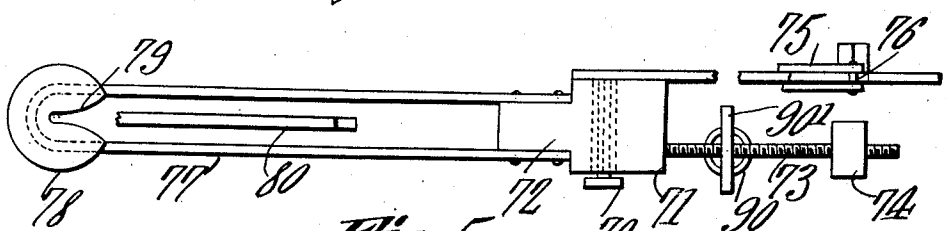




Fig. 5.

Witnesses

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# UNITED STATES PATENT OFFICE.

FRANK J. SCHUMANN, OF BETHLEHEM, PENNSYLVANIA.

## VENDING-MACHINE.

1,048,103. Specification of Letters Patent. Patented Dec. 24, 1912.

Original application filed May 7, 1910, Serial No. 560,055. Divided and this application filed March 28, 1911. Serial No. 617,394.

*To all whom it may concern:*

Be it known that I, FRANK J. SCHUMANN, a citizen of the United States, residing at Bethlehem, in the county of Northampton and State of Pennsylvania, have invented a new and useful Vending-Machine, of which the following is a specification.

This invention relates to vending machines and is more particularly an improvement upon the structure disclosed in an application filed by me in the United States Patent Office on May 7, 1910, said application bearing Serial No. 560,055.

The invention has reference more particularly to means for detecting and discarding spurious coins or coins of improper denominations.

One of the objects of the invention is to provide improved means of simple construction whereby iron slugs will be withdrawn from the coin chute upon passing a given point, means being utilized for holding the slug out of direct contact with the attracting means so as to permit the slugs to fall by gravity as soon as they leave the chute.

A further object is to provide additional means whereby coins or slugs of incorrect sizes will be automatically discharged from the chute before reaching the mechanism of the vending machine.

With the foregoing and other objects in view the invention consists of certain novel details of construction and combination of parts hereinafter more fully described in the claims.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is an elevation of that portion of the mechanism constituting the present invention, a portion of the casing being shown in section. Fig. 2 is an enlarged section on the line A—B Fig. 1. Fig. 3 is a front elevation of a portion of said mechanism. Fig. 4 is an enlarged section on the line C—D Fig. 1. Fig. 5 is a plan view of the lever for controlling the actuating and delivering mechanisms. Fig. 6 is a view showing a detail of the lever shown in Fig. 5. Fig. 7 is a perspective view showing the engaging portions of the actuating and delivering mechanisms. Fig. 8 is an enlarged side elevation of a portion of the chute and showing means for automatically ejecting under sized coins. Fig. 9 is a transverse section on the line E—F Fig. 8. Fig. 10 is a plan view of the structure shown in Fig. 8.

Referring to the figures by characters of reference 1 designates a portion of the casing of the machine. And arranged within this casing is a delivery mechanism such as disclosed in the application above referred to of which this case is a division. A portion of this delivery mechanism, in the form of a lever 60, has been shown in the present case. Pivoted to the extremity of the lever 60 is a bar 65 carrying, at its free end, a block 66 having a lateral extension 67 provided with oppositely disposed beveled edges 68 which may form substantially knife edges. A block 69 is fast within the machine and carries a knife edge 70 adapted to a suitable notch in a block 71 carried by a lever 72 near one end of the latter. This lever 72 also carries a threaded rod 73 on which may be mounted a counterweight 74. The bar 65 is supported from the rod 72 by spaced strap members 75 connected at the upper ends by a pin 76 in overriding relation to the upper edge of the lever 72 so that the bar 65 is not only supported by the lever 72 but will participate in movements of the latter.

The end of the lever 72 remote from that carrying the bar 65 is provided with an extension 77 formed of two spaced members or a single strip bent on itself and united in spaced relation to the lever 72. The outer end of the strip 77 carries a plate 78 provided on the end toward the strip 77 with a recess 79 having approaching walls. Lodged within the extension 77 between the two side members thereof is the free end of a lever 80 pivotally supported as at 81. The lever 80 is connected at an intermediate point to a link 82 which in turn is connected to a rock arm 83 on a rock shaft 84. Fast to the shaft 84 are spaced arms 85 extending to the exterior of the casing through suitable slots formed therein and outside the casing joined by the handle bar 86 within easy reach of the customer.

In practice the slots through which the arms 85 extend are closed against access by suitable guard plates 87 carried by the arms 85 and any of the usual full stroke insuring devices may be employed, but since the structure of such devices forms no part of the present invention no showing thereof is made in the drawings. The arms 85 are

maintained in the normal position by a spring or springs 88 coacting with a stop member 89 for each rock arm 83. Since the lever 72 with its extension 77 is designed to respond to the weight of a deposited coin, the extension 77 is maintained normally in the elevated position by a spring 90 fast at one end to the lever 72 by a nut 90′ on the screw 73, which nut has a series of holes near its edge to receive the end of the spring so that its relation to the fulcrum of the lever may be adjusted. The other end of the spring is fast to an adjusting screw 91 extending through a bracket 92 and locked in position by a lock nut 93. The adjustable spring 90 and the adjustable counterweight 74 constitute a very delicate means for adjusting the lever 72.

Each vending apparatus is provided with a coin conduit or chute 94 having a mouth end 95 for the reception of the appropriate coin and this mouth end may be located at an inset portion 96 of the casing, this inset portion having the face carrying the mouth end of the conduit inclined to the vertical so as to facilitate the introduction of the coin into the coin chute. The first portion of the coin chute is provided on one side with a side opening 97 normally closed against escape of coins by a light leaf spring 98 having near the end a magnet 99 so that should an iron or steel disk or like object be introduced into the coin chute the attractive force of the magnet will be sufficient to draw the iron disk toward it against the action of the spring and the movement is sufficient to permit the disk to escape through the opening 97 and so fall into a suitable conduit returning such disk to the exterior of the machine. Since such a return conduit is common in machines of this character the showing thereof has been omitted from the drawing. While the spring 98 is a delicate spring it will readily retain a coin of non-magnetic or weak magnetic qualities in the conduit or chute and thus prevent its escape through the side opening 97. That portion of the chute containing the side opening 97 is downwardly inclined so that the coin acquires a certain momentum and the end of this inclined portion leads into a substantially vertically disposed portion 100 down which the coin may gravitate rapidly and this vertical portion leads into another inclined portion 101 which at the lower end close to the front of the casing is turned laterally as indicated at 102 and terminates in a divergent part 103 into which the extension 77 of the lever 72 enters, this divergent portion retaining the plate 78 in position to receive a coin flatwise.

The portion 101 of the conduit has an opening 104 in one side thereof and flanges 105 are formed along the top and bottom of this opening, the distance between the flanges being slightly less than the diameter of a proper coin. A light spring 120 is secured at one end within the upper portion of the conduit and extends longitudinally within the upper portion of said conduit and serves yieldingly to hold the coin upon the bottom of said conduit as it passes the opening 104. A hair spring 121 is secured to that wall of the conduit opposite the opening 104 and extends partly across the opening from end to end thereof, this spring serving to hold the coin against the open side of the conduit as it passes the opening 104. It will thus be seen that if the diameter of the coin passing the opening is less than the distance from the bottom of the conduit to the lower edge of the top flange 105, the hair spring 121 will throw the coin outwardly through the opening 104. If, however, the diameter of the coin is greater than the distance from the bottom of the chute to the lower edge of the top flange 105 said coin will continue across the opening 104 and will press the spring 121 back against the closed side of the conduit. Therefore coins which reach the plate 78 are of non-magnetic character or substantially so and are of proper diameter. But there still remains worn coins and slugs or coins of too heavy a character to properly operate the machine and this is taken care of by the lever 72 when the coins fall on the plate 78. If the coins be too light then the lever 72 maintains its normal position. If the coins be too heavy then the lever is rocked a commensurate distance. If the coins be of the proper weight the lever stops at the proper intermediate distance.

At the end of the arm 83 there is secured a block 106 having one edge 107 beveled or inclined and the other edge 108 shaped to engage the beveled or knife edge 68 of the block 66 when this block or its extension 67 is in the path of the block 106. Under the normal condition of the parts, that is when no coin is present the extension 67 of the block 66 is sufficiently depressed to be out of the path of the block 106. When a coin of too heavy a character is on the plate 78 then the block extension 67 is elevated to too great an extent to be engaged by the block 106 when the arm 83 is rocked. It is only when a coin of proper weight is lodged on the plate 78 that the lever is moved to a position causing the locating of the block extension 67 in the path of the end 108 of the block 106.

Coincident with the lower end 103 of the coin chute and in position to receive a coin from the plate 78 is another coin chute 109 having a spout 110 leading to a conduit 111 which in turn discharges into a receptacle 112 preferably located at the center of the casing 1 near the bottom of the latter and freely accessible to the customer. This re-

ceptacle 112 may be common to all the vending machines in the one casing when more than one machine is lodged in a single casing. The coin chute 109 is provided on its inner face with a plate hinged at its lower edge to the coin chute as indicated at 114 while the upper edge of this plate 113 is normally close to the lower end of the extension 103 and below the lowermost position of the plate 78. Near the upper portion of the chute 109 there is an overhang 115 which when the plate 113 is turned toward the front of the chute 109 about the hinge 114 is in close relation to the upper edge of the plate. At an intermediate point the plate 113 is connected to one end of a link 116, the other end of which is connected to the lower end of the lever 117 suitably supported by a pivot connection to the supporting frame while the upper end of this lever is pivotally connected to operating means not shown.

The plate 113 when its upper edge is beneath the overhang 115 will divert a coin from the plate 78 onto a guide 118 leading to a receptacle 119 within the casing and accessible to authorized persons only.

What is claimed is:—

1. In a vending machine a coin chute having a side opening, there being longitudinal upper and lower flanges extending throughout the length of the opening, elastic means for pressing a coin upon the bottom of the chute as it passes the opening, and elastic means for expelling a coin through the opening unless lapped by both of the flanges.

2. In a vending machine a coin chute having a side opening, retaining flanges extending longitudinally of the opening at the top and bottom thereof, a spring secured within the chute and extending in the direction of the length of the opening, said spring constituting means for expelling a coin through the opening when not retained by the upper flange, and a spring within the upper portion of the chute for pressing a coin yieldingly upon the bottom of the chute as it passes the opening.

3. In a vending machine, a coin chute having a side opening, retaining flanges extending longitudinally along the top and bottom of the opening, an ejecting element within the chute and opposite the opening, and yielding means extending longitudinally of the chute and above the opening for pressing a coin upon the bottom of the chute while passing the opening.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

FRANK J. SCHUMANN.

Witnesses:
GEO. H. YOUNG,
H. A. BECKER.