

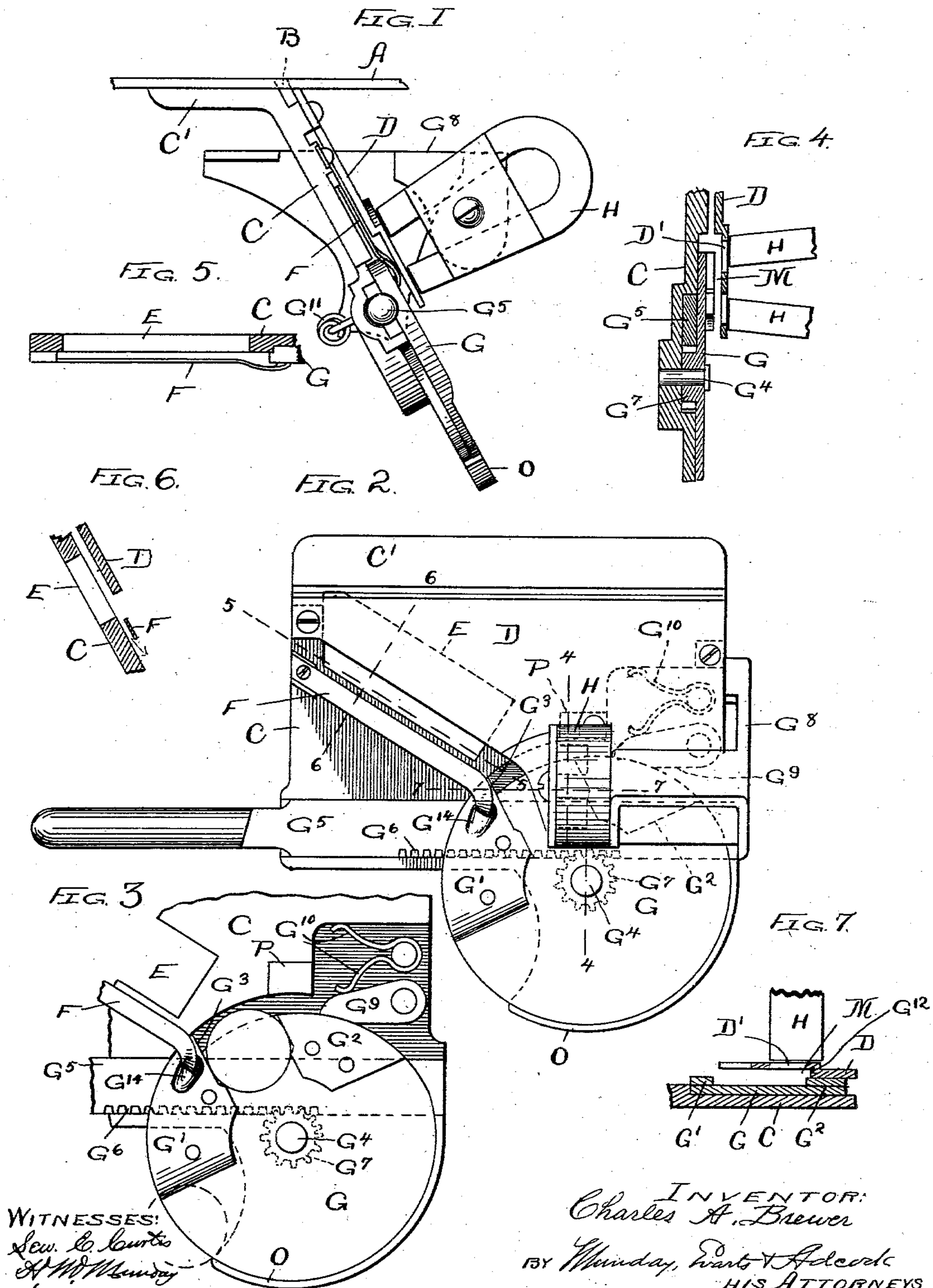
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Patented July 25, 1899.

C. A. BREWER.
COIN CONTROLLED MACHINE.

(Application filed Jan. 16, 1899.)

(No Model.)



UNITED STATES PATENT OFFICE.

CHARLES A. BREWER, OF CHICAGO, ILLINOIS.

COIN-CONTROLLED MACHINE.

SPECIFICATION forming part of Letters Patent No. 629,334, dated July 25, 1899.

Application filed January 16, 1899. Serial No. 702,244. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. BREWER, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Coin-Controlled Machines, of which the following is a specification.

This invention relates to the construction of machines for automatically vending merchandise, and more especially to the construction of the coin-detaching features of the chute, the main object of the invention being the providing of the chute with means whereby it may detect and reject any spurious coin inserted in it.

In my improved machine the chute is inclined laterally and provided with an opening upon its under side sufficiently large to permit the coin, if less than the proper diameter, to fall through before it reaches the operative parts of the machine. It is also provided in its bottom with a spring arranged longitudinally of the chute and adapted to form a support over which the genuine coin will roll, but arranged at such a distance from the lower side of the race as will permit a coin thinner than the genuine to enter between it and the side of the race. If a coin should lodge between the spring and the side of the race, I provide means whereby the spring may be opened to release it, and it then falls into the receptacle below without having entered the operating part of the machine. As a still further precaution I provide an open space lateral to the path of the coin, preferably beyond the spring and side opening above mentioned, and a magnet adapted to draw a spurious piece of metal into said space and thus prevent it from operating the machine, so that should a spurious piece of a thickness and diameter corresponding to the genuine coin succeed in passing the spring and open side it will if of a metal attracted by the magnet be arrested by the latter and drawn into said space, from which it falls inoperative into the coin-receptacle. These and other features of my invention are fully explained below and are also illustrated in the accompanying drawings, in which—

Figure 1 is a front view of the parts of the machine containing my invention. Fig. 2 is a view of the upper side of the same. Fig. 3

is a view with the upper plate removed. Figs. 4, 5, 6, and 7 are sectional views on the lines 4 4, 5 5, 6 6, and 7 7, respectively, of Fig. 2.

In said drawings, A represents the part of the frame or exterior of the vending-machine to which my improvement is attached, and B is the chute-opening therein.

C is a plate having a flange C', whereby it may be attached to the part A and by which it is supported in an inclined position, such as that shown at Fig. 1. This plate preferably forms the frame and support of the chute and the mechanism for discharging the merchandise into the delivery chute or passage.

D is a covering-plate secured to the upper side of the plate C and forming with the latter the opposite sides of the chute. In plate C near the mouth of the chute is an opening E, inclined downward to correspond with the chute and of sufficient height to permit a fictitious coin of less than the proper diameter to fall through it. The coin has a tendency to do this because of the lateral inclination of the chute, as will be understood from Figs. 1 and 6, and any coin leaving the chute at this opening is of course rejected, as it fails to reach the delivery mechanism.

The bottom of the chute is formed by a spring F, attached at its upper end to plate C and arranged with its edge uppermost and controlled at its lower end by the wheel G of the delivery mechanism, as hereinafter stated. The spring is arranged with a vertical space between it and plate C, such space being too narrow to admit the genuine coin, but wide enough to take in a coin only slightly less than the proper thickness. If the coin enters this space at all, it will fail to reach the point where it can assist in operating the delivery mechanism, because if very thin it drops entirely through the space into the receptacle below and if only slightly thinner than the genuine coin it will lodge in the space and be released and dropped when the wheel G is turned, the wheel having a recess G¹⁴, in which the end of spring F normally rests, but which is inclined at one side, so that any movement given to the wheel will cause said end to ride on the incline, and thus move the spring away from plate C, thereby widening said vertical space and allowing the coin to fall through.

In addition to the means above described

for rejecting inferior and spurious coin and metal pieces I also employ a magnet H; but its operation will be better understood as described later on.

5 Supposing the coin inserted in the machine to be genuine, it rolls down the chute, past the opening E, and over the spring F and into a space formed between the plates G' G², attached to the side of the wheel G, and is arrested thereby in a position wherein its crown projects beyond the periphery of the wheel. This will be understood from Fig. 3. The rim of the wheel is cut away for part of its circumference, leaving a shoulder at G³ with
15 an abrupt face toward the coin. The wheel is pivoted at G⁴ and is operated by the hand-plunger G⁵, having rack-teeth G⁶, meshing with the pinion G⁷, fast with the wheel. The plunger is intended to be operated by the person patronizing the machine and to act as the medium through which he secures the delivery of the article bought, the discharging device being attached to or operated from this plunger. I have shown a device G⁸ attached
25 to the inner end of the plunger and adapted to engage and push the bottom package from under a pile of packages—such, for instance, as the packages in which chewing-gum is customarily sold. I do not illustrate either the packages or their holder or the chute into which they fall when discharged by the device G⁸; but those features are well understood by makers of vending-machines and may be greatly varied in construction, as may also
35 the discharging device. With the coin thus lying between the plates G' and G² it will be seen that if the plunger is pushed in and the wheel turned the rounded top or crown of the coin will soon encounter the pawl G⁹, attached to plate C and depressed by a spring G¹⁰, and lift said pawl, so that the latter, instead of arresting the wheel, as it would do if not thus lifted, will pass over the shoulder G³ without engagement, and thus allow the wheel to continue turning until the limit of the stroke of the plunger is reached. During this continued portion of the wheel's movement the merchandise is discharged and the coin drops from the wheel by gravity, and at its conclusion the plunger is returned by the spring G¹¹, and in so doing the wheel is moved back to its starting position, which is that shown at Figs. 2 and 3.

If a spurious instead of a genuine coin is inserted and successfully passes the opening E and spring F, I cause its rejection through the medium of the magnet H, if the coin is of a metal susceptible to the magnet. The magnet is preferably supported from the plunger in some suitable way, with its points normally over the openings D' in plate D, such openings being nearly opposite the point at which the coin enters between the plates G' and G². A vacant space M exists between the plate D
60 and the wheel large enough to receive the coin, and the coin is moved laterally into this space by the magnet, and thereby it is freed

from the plates G' and G² and prevented from acting on the pawl. It is now allowed to fall into the receptacle below without having
70 caused any movement of the delivery mechanism, being released from the magnet by the shoulder G¹², formed in plate D and located in the plane through which any coin held under the attraction of the magnet will be carried by the latter, or being released by reason of the fact that the magnet soon moves beyond the openings D', so that its power over the coin is destroyed.

The plunger is under my construction permitted a partial but idle stroke whenever the coin inserted is spurious and is rejected in any of the ways described, and, indeed, it may be thus operated at any time without the insertion of any coin whatever or substitute
85 therefor; but the full stroke of the plunger is necessary to secure the delivery of the article sold, and that can only be obtained by the use of a genuine coin or a substitute which is not intercepted by any of the detecting
90 means employed in the machine.

While I have shown the invention as applied to a vending-machine, it will be understood that some of its features are well adapted to use in other descriptions of coin-controlled machines.

The space on the side of the wheel into which the coin falls from the chute may of course be formed in different ways from that shown, it being only necessary that some sort
100 of a pocket or recess be formed in or attached to the wheel which will afford lodgment to the coin and allow it to be displaced by the magnet.

It will be noticed that the plunger is adapted to discharge the article sold at about the same instant the coin falls by its gravity from the wheel. This result is insured by the circular guard O, which surrounds the wheel and confines the coin until the latter has moved to the point indicated by the dotted
110 line, Fig. 3, and is of great value in preventing the operating of the plunger more than once with a single coin.

As a preventive of fraud I have applied a projection P to the plate D just above the
115 pawl, which stands across the slot and compels any wire inserted in the slot for the purpose of raising the pawl to pass under the projection. Owing to the presence of this projection, therefore, the shoulder on the wheel
120 will necessarily encounter the wire when the plunger is pushed in and either cut it off or stop the wheel. If an attempt is made to rob the machine by attaching a thread or twine to the coin, as soon as the coin has passed the
125 guard O it will drop from the wheel and hang vertically down by the thread, and as the wheel is inclined it will be impossible to draw it back again into the wheel. It will be noticed also that the spring F is opened at every
130 actuation of the plunger, whether the latter is given an idle movement or a full movement, and inasmuch as the spring opens so that the space between it and the plate C is about dou-

ble the thickness of any coin admissible through the mouth of the slot it is rendered practically impossible to clog the slot.

As will be seen from Fig. 6, the chute has only one side at the bottom. In other words, there is nothing upon the upper side of the chute opposed to the side C along the plane of the rail F, so that such coins as are small enough to tip out at the opening E are free to do so without resistance. If the coin were confined at its bottom upon both sides, there might be some resistance to its leaving the track through the opening.

I claim—

1. The coin-controlled machine, the coin-chute whereof is provided with a longitudinal opening in its bottom adapted to intercept coin of less than the proper thickness, one side of said opening being movable so as to enlarge the opening and discharge any coin lodging therein, and said movable side being opened by the patron when he operates the delivery apparatus of the machine, substantially as specified.

2. The combination in a coin-controlled vending-machine of a coin-chute having a longitudinal opening in its bottom for intercepting coin of less than the proper thickness, and a device to be operated by the patron for causing the delivery of the article sold, one side of said chute-opening being movable and being actuated by power from said device, whereby any coin lodging in said opening is discharged by the patron, substantially as specified.

3. The coin-controlled machine, the coin-chute whereof is provided with a vertical opening in its bottom adapted to intercept coin of less than proper thickness, one side of said opening being formed by a spring-rail arranged longitudinally of the chute and adapted to open at its lower end to release any coin lodging in the opening, substantially as specified.

4. The coin-chute provided with a spring-rail forming the bottom of the chute and with an opening at the side of the rail for intercepting thin coins, in combination with means other than the coin itself for bending said rail to effect the discharge of any coin lodging in said opening, substantially as specified.

5. The coin-chute provided with a spring set edgewise in the bottom of the chute and forming a support for the coin, and means for deflecting the lower end of said spring to permit the discharge of any coin which may lodge between it and the wall of the chute, substantially as specified.

6. The coin-chute provided with a longitudinal opening for the discharge of coin of inferior thickness, one side of said opening being formed by a longitudinally-arranged spring adapted to open at its lower end to discharge the intercepted coin, substantially as specified.

7. The coin-chute provided with a longitudinal opening for the discharge of coin of in-

ferior thickness, one side of said opening being formed by a longitudinally-arranged spring, and said spring being set edgewise and serving as a rail over which coin of proper thickness will pass said opening in combination with means other than the coin for opening said spring, so as to discharge any coin lodged in the opening, substantially as specified.

8. The coin-chute provided with a longitudinal opening for the discharge of coin of inferior thickness, one side of said opening being formed by a longitudinally-arranged spring, in combination with a wheel G adapted to bend said spring and thus to widen said opening at each operation of the delivery mechanism, whereby the lodging of inferior coin in the opening is prevented, substantially as specified.

9. The combination with the wheel having an open-sided coin-recess, of a movable magnet normally arranged opposite said recess, and a stationary plate acting to strip the coin from the magnet as the latter leaves its normal position, substantially as specified.

10. The coin-controlled machine wherein are combined a coin-chute, an inclined wheel operated by the patron and located at the bottom of the chute and also having a coin-recess on its side face adapted to arrest the coin and a magnet positioned to act on the coin while in the recess and to draw it sidewise therefrom, if of inferior metal, substantially as specified.

11. The coin-controlled machine wherein are combined a coin-chute, an article-discharging mechanism operated by the purchaser and embodying an inclined wheel having an open coin-recess on its side face, and a magnet positioned to act on the coin while in the recess and to draw it sidewise therefrom if of inferior metal, substantially as specified.

12. The coin-controlled machine wherein are combined a coin-chute, a wheel having a coin-recess connecting with the chute, and a shoulder or projection, a pawl positioned normally to engage said shoulder and adapted to be lifted by the coin in said recess, a plunger geared to the wheel and operated by the purchaser, and a magnet drawing inferior coin from the recess and preventing them from lifting the pawl, substantially as specified.

13. The coin-controlled machine wherein are combined a coin-chute, a wheel having a coin-recess connecting with the chute, and a shoulder or projection, a pawl positioned normally to engage said shoulder and adapted to be lifted by the coin in said recess, a plunger geared to the wheel and operated by the purchaser, and a magnet mounted upon the plunger and serving to draw inferior coin from the recess and prevent them from lifting the pawl, substantially as specified.

14. The coin-controlled machine wherein are combined a coin-chute, a wheel having a coin-recess connecting with the chute and open upon one side, and also having a pro-

jection engaged by a pawl and serving to lock the wheel against operative rotation, said pawl being lifted above the projection by the coin when in the recess, a sliding rack geared to the wheel, and a magnet drawing inferior coin from the recess, and preventing them from lifting the pawl, substantially as specified.

15 15. The combination in a coin-controlled machine, of the chute, controlling the delivery mechanism, and the wheel having a coin-holding recess open at one side and receiving the coin from the chute, and a magnet drawing the coin out of the recess through the open side, substantially as specified.

16. The combination with the article-discharging device and a wheel receiving the coin from the coin-chute, of a plunger operating both said device and said wheel, and a

guard O around the wheel acting to retain the coin so that both coin and article may be discharged simultaneously, substantially as specified.

17. The combination of a coin-chute having a movable bottom rail between which and the side of the chute is an opening for the discharge of coin of an inferior thickness, an article-discharging device operable by the purchaser, and means whereby said discharging device each time it is actuated operates said movable portion of the chute and thus opens the latter for the discharge of any coin or substitutes for coin which may lodge therein, substantially as specified.

CHARLES A. BREWER.

Witnesses:

EDW. S. EVARTS,
H. M. MUNDAY.