

No. 835,851.

L. J. DISSER.

PATENTED NOV. 13, 1906.

COIN CONTROLLED SLOT OR VENDING MACHINE AND COIN TESTING  
MECHANISM THEREFOR.

APPLICATION FILED AUG. 23, 1905.

2 SHEETS—SHEET 1.

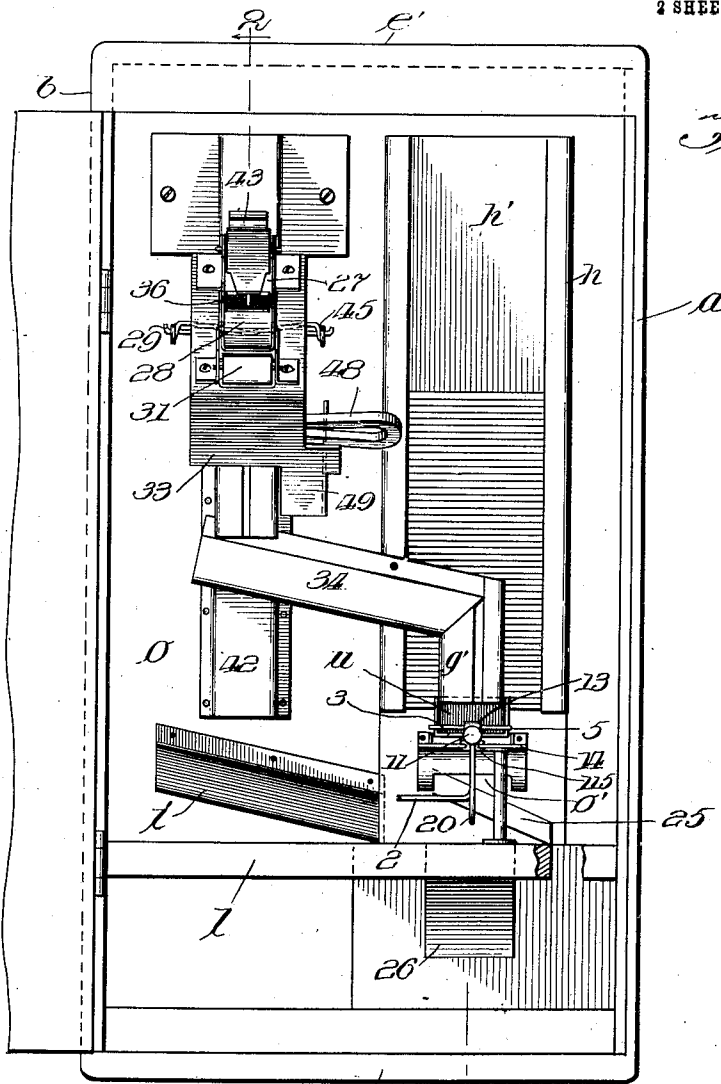
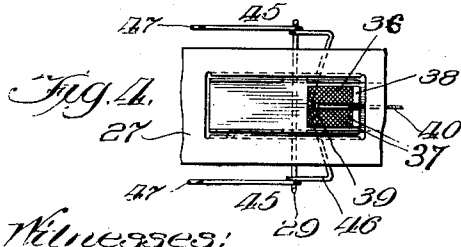
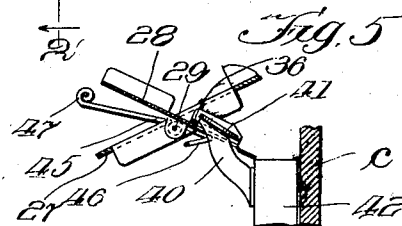


Fig. 1.



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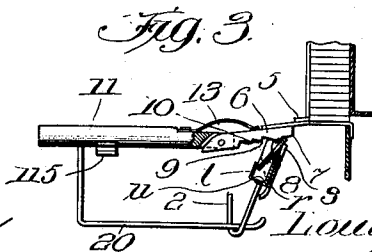
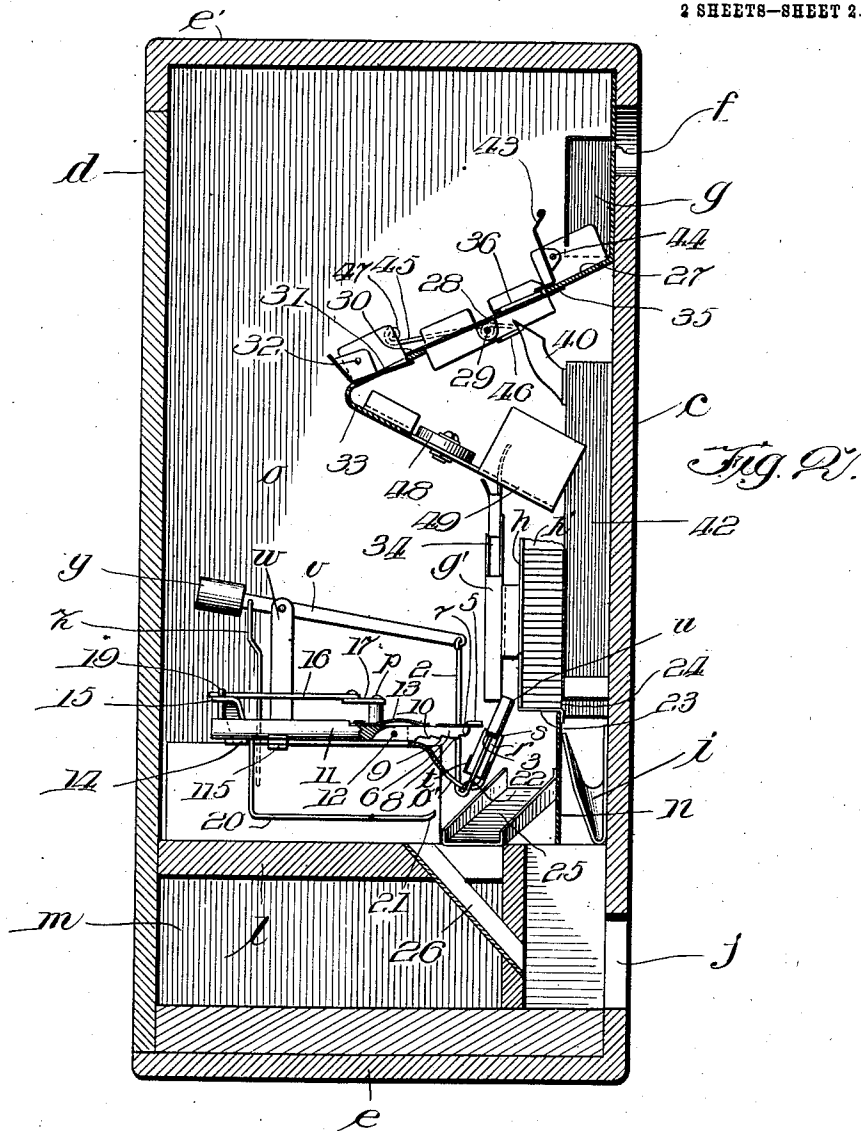
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

LOUIS J. DISSER, OF CHICAGO, ILLINOIS.

COIN-CONTROLLED SLOT OR VENDING MACHINE AND COIN-TESTING MECHANISM THEREFOR.

No. 835,851.

Specification of Letters Patent.

Patented Nov. 13, 1906.

Application filed August 23, 1905. Serial No. 275,334.

*To all whom it may concern:*

Be it known that I, LOUIS J. DISSER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Coin-Controlled Slot or Vending Machines and Coin-Testing Mechanisms Therefor, of which the following is a specification.

My invention relates to that class of vending or slot machines for dispensing confections, gum, candy, or other material having discharging mechanism adapted to be released or set in operation by means of a coin and provided with means for testing the genuineness of the coin. It relates particularly to the means for detecting the genuineness of the coin and for causing the mechanism to discharge the material vended when the coin is genuine and fail to discharge it when the coin is spurious or damaged.

In the art to which this invention relates it is well known that testing devices have been in use which distinguish genuine and spurious coins by the difference, if any, in their size or weight; but it is very desirable that means be provided whereby spurious coins equal to genuine coins in weight or size, or equal thereto in both weight and size, can be distinguished from the genuine coins and the discharging mechanism caused to discharge the article vended only in case genuine coins are used. It is also desirable, however, that means be provided whereby genuine coins which have been worn until their value is diminished or destroyed can be detected and distinguished from coins of full value, and whereby the machine will be caused to operate and dispense the materials to be vended when a genuine coin of value is used and fail to discharge materials when a coin so worn as to destroy its value is used.

The principal object of the invention is to provide a simple, economical, and efficient coin-controlled vending-machine and coin-testing mechanism.

A further object of the invention is to provide means for detecting the genuineness of the coins placed therein, and for discharging the materials vended when the coins received by the machine are genuine and retaining such materials when the coin is spurious.

Other and further objects of the invention will appear from an examination of the drawings and the following description and claims.

The invention consists in the features, com-

binations, and details of construction herein-after described and claimed.

In the accompanying drawings, Figure 1 is a rear elevation of a machine constructed in accordance with my improvements, with the actuating or clock mechanism removed; Fig. 2, a sectional elevation, taken on irregular line 2 of Fig. 1, looking in the direction of the arrow; Fig. 3, a detail view of the coin-discharging arm and coin-testing pocket, showing a discharging-arm in engagement with the gum and with the valid coin supporting such arm; Fig. 4, a fragmentary detail plan view of my improved testing chute or gate; and Fig 5 a detail side view of the testing gate or chute shown in Fig. 4.

While the improvements which constitute my present invention may be employed to advantage with other devices, it is particularly adapted to supplement the invention described in my United States Patent No. 775,671, of November 22, 1904, and when used in combination with the device described in said patent spurious coins or slugs are detected, which it is believed cannot be distinguished with such precision except when the devices are used in combination.

It is therefore deemed advisable to explain the former device somewhat in detail, and the present invention in combination therewith, so as to enable those skilled in the art to fully understand the construction, complete mode of operation, and the advantages of the present invention in itself, and its mode of operation and advantages when used in combination with my prior invention. I will first describe the elements of my prior invention and then those of the present invention and the mode of operation thereof.

In constructing a device in accordance with my improvements and in order to accomplish the foregoing objects, I provide a cabinet or casing formed of inclosing side walls *a* and *b*, front wall *c*, and a rear wall *d*, the latter being in the form of or provided with a door, a bottom *e*, and a top *e'*. The front wall preferably is provided with a coin-receiving slot *f*, which communicates with an inside inclined slot portion *g*, which forms a continuation thereof and conducts the coin to the testing mechanism, hereinafter described. An inner wall *h*, preferably inside the front wall, forms a chamber *h'* for containing the gum or similar material to be vended, and a discharge-slot *i* communicates with the gum-containing compartment and

extends through the front wall, so as to deliver the discharged gum at the opening *j*, where it is accessible to the purchaser.

Clock mechanism (not shown) is mounted inside the casing or cabinet, preferably upon a subbottom *l*, which forms between the subbottom and main bottom a compartment *m* for receiving the genuine coins and in connection with the inner wall *n* forms above such subbottom a compartment *o*, in which the actuating clock mechanism and the coin-testing mechanisms are contained. The actuating mechanism for operating the gum-discharging arm may be of any ordinary and well-known type, having the ordinary rotatable governor or escapement adapted to be stopped and released by a finger *z*, hereinafter described. As the actuating mechanism forms no part of this invention it is not deemed necessary to illustrate or describe it herein.

In order to provide simple, economical, and efficient mechanism for discharging the material to be vended when a valid coin is used and for retaining such materials when a spurious or damaged coin is used I provide a coin-testing pocket *r*, open at top and bottom and formed of an outer ledge or side wall *s* and an inner side wall *t* and having suitable wall portions or guards inclosing the edges of the slot-like space formed between such side walls. This pocket may be termed the "coin-testing" pocket. It is mounted at the inner discharge end of the inclined receiving-slot portion *g'*. A coin-receiving finger *u* is movably mounted in such testing-pocket and connected to a weighted lever *v*, which is pivotally mounted in a standard *w* and provided at one end with a weight *y*, the weighted end being provided with a tripping-finger *z*, which engages the escapement of the driving mechanism. This tripping-finger is movable into engagement with such escapement by means of the weight *y* and out of engagement by means of the weight of the coin. The coin-receiving finger is connected with the light end of the lever *v* by means of a rod 2, so as to permit the coin-receiving finger to move readily in the testing-pocket, and a projecting shoulder 3 upon the coin-receiving finger is provided for holding the coin in place upon the finger, in case the coin is genuine, until such coin is removed and discharged into the genuine-coin compartment. This shoulder forms a movable bottom for the testing-pocket and is so proportioned with relation to the size of the testing slot or pocket that it leaves an opening between it and the inner wall of the pocket of sufficient dimensions to permit a spurious coin to pass between such shoulder and such inner wall. When the shoulder is at the bottom or outside of the stationary portions or walls of the testing-pocket, it will allow this, whether the spurious coin be of excessive

thickness or not, and will allow an excessively-thin coin to pass through the testing slot or pocket, whether the testing-finger be lowered or not by the weight of such coin. By this arrangement it will be seen that a coin placed upon the coin-receiving finger which forms the movable bottom of the testing-pocket will overcome the weight *y* and raise the escapement-controlling finger *z* out of engagement with the escapement, so that the actuating or clock mechanism will be set in motion, and also that when the coin has been removed from the receiving-finger the weight *y* will return the escapement-controlling finger *z* into the path of the escapement, and thus stop and prevent the operation of the actuating mechanism.

A gum-discharging finger 5 and a coin testing and lifting finger 6, having shoulders 7, 8, 9, and 10 upon its under side, are integral or connected together and flexibly mounted upon a main discharging-rod 11, to the end of which such preferably integral gum and coin discharging-fingers are pivotally connected by means of a pivot 12, and a spring 13 is connected to such rod, so as to press the gum-discharging finger and the coin testing and lifting or discharging finger portion yieldingly against the coin when moved forward to the position shown in Fig. 3. This discharging-rod is slidably mounted upon a base 14, which I have here shown in the form of a bracket having an opening *o'* for permitting spurious and damaged coins to drop from the testing-slot into the spurious-coin chute 26. A guide 115 holds the shaft slidably upon the base, and the shaft is operatively connected with the driving-shaft of the actuating-clock mechanism by means of levers 15 and 16 and a crank 17, the lever 15 being pivotally mounted at one end and provided at its outer swinging end with an elongated slot in which the pin 19 upon the sliding discharge-rod, already described, is inserted. A forwardly-projecting guide-rod 20 is mounted upon the sliding discharge-rod 11 and movable therewith, so that its forward upwardly-bent end 21 is free from the curved portion of the coin-receiving finger when the weighted end of the lever *v* is down and the escapement-controlling finger *z* in position to prevent the operation of the clock mechanism. When the coin is dropped upon the coin-receiving finger, however, its weight overcomes the weight *y* and raises the escapement tripping-finger out of engagement with the escapement, so as to permit the operation of the clock mechanism. This moves the sliding discharge-rod 11 and the guard 20 forward, so that the latter extends into the curved portion 22 of the coin-receiving finger, so as to hold it in its lower position, and thereby hold the escapement-controlling finger *z* out of the path of the escapement until the gum-discharging finger and sliding dis-

charge-rod are returned back to initial position by the complete rotation of the crank and consequent movement of the connecting-lever arms.

5 It is well known that coins—such as pennies, nickels, and dimes—have a raised or projecting annular flange or rim on each side at their outer periphery, which projects above the side surface of the coin and that  
10 when this rim has been destroyed by wear or otherwise the coin is either injured or its value entirely destroyed. In operating my improved device, therefore, I take advantage of the roughness and flanges of a valid  
15 coin and of the comparative smoothness of the sides of a spurious or damaged coin, so that only the former will permit the discharge of the gum or similar material to be vended. The gum-containing compartment is provided with a bottom portion 23, which has an  
20 open slot of sufficient dimensions to receive and permit the free movement of the gum-discharging finger 5. When a coin having a rough edge, or, in other words, a valid coin,  
25 is placed on the testing-finger and inside the testing-slot, the shoulder 7 of the testing lug or finger engages the projecting rim of the coin and lifts it slightly, pressing it against the upper edge *s* of such ledge or wall, and  
30 the shoulder 7 thus causes the gum-discharging finger 5 to be raised a sufficient distance, so that it engages the lowermost package 24 of gum or similar material and when moved forward by the clock mechanism discharges  
35 such package of gum into the discharge-chute *i*. During this movement the valid coin is between the ledge or edge of the wall *s* and the lower edge of the testing-finger and is being lifted over the wall of the testing-pocket, so as to drop into the valid-coin slot  
40 25, leading to the valid-coin compartment, already described. The coin thus serves during its passage over the ledge or upper edge of the testing-pocket to hold the gum-discharging finger up until the discharge of  
45 such package is complete.

In case the coin is so worn as to not have a sufficiently projecting rim or rough side to enable the testing-finger to lift or push it  
50 over the wall of the testing-pocket the pressure of the spring upon the shouldered finger will fail to raise it into position between the ledge and such finger and, on the contrary, will press it downward, so that it will fall  
55 through the testing-slot into the spurious-coin compartment. There being no coin between the ledge or upper edge of the outer wall of the testing-slot and the shoulder portion of the coin-discharging finger there is  
60 nothing to hold the gum-discharging finger up sufficiently to engage the gum, and it therefore passes beneath the gum and fails to discharge the same.

Additional shoulders 8, 9, and 10 are provided on the lower side of the coin testing

and discharging lug or finger, so that in case one slips over the edge of a spurious or damaged coin the other will be in position to engage the coin and press it down through the testing-slot into the spurious-coin chute 26.  
70 By this arrangement it will be readily seen that placing either a spurious or genuine coin upon the coin-receiving finger will cause the actuating-clock mechanism to operate and move the gum-discharging finger forward  
75 and backward, but that gum will only be discharged when the coin is genuine or sufficiently rough or flanged, so that the coin will be held or passed between the ledge of the testing-pocket and the coin lifting and testing  
80 finger or lug. It will also be noted that the same movement passes the valid coin into its proper compartment and applies a test to determine its validity. I prefer to make the testing-pocket inclosed on all  
85 sides, so that side guards movable with the coin-receiving finger may be dispensed with, the walls of the pocket in my device serving to prevent the coin from escaping the finger, except as intended.  
90

While the device constructed in accordance with the foregoing description has many advantages, it is found in practice that inexpensive slugs can be made having burs on one side thereof by means of which the machine can be "worked" or operated so as to  
95 discharge material without depositing a genuine coin. When metallic slugs are stamped out in the ordinary manner, a bur is formed on one side thereof and the other side is left  
100 smooth. When such a slug is dropped into the testing-pocket so that the bur extends inward or in the direction of the end of the discharging-finger 5, it will be readily seen that one of the shoulders 7, 8, 9, and 10 is  
105 liable to engage the bur and raise the slug or spurious coin over the ledge or upper edge *s* of the testing-pocket in the same manner in which a genuine coin is operated upon and that the discharging-arm will thus be thrown  
110 into position to discharge a package of gum or other material to be vended. In case the same slug or spurious coin having an annular bur or rim on one side thereof happens to be deposited so that its smooth side is toward  
115 the discharging-finger 5 and shoulder 7 the slug will not work or operate the device. It therefore becomes very desirable to prevent slugs having annular burs on one side thereof from entering the testing-pocket except when  
120 the smooth sides of such slugs are toward the testing-shoulders of the gum-discharging finger 5, and also adapted to entirely prevent slugs having burs or rims on both sides thereof from entering such pocket. In other  
125 words, it is very desirable to provide a coin-testing mechanism adapted to detect spurious coins or slugs having annular burs or rims on either one or both sides thereof and adapted to distinguish such slugs from genu-  
130

ine coins and enable material to be discharged only when a genuine coin is used. In order to accomplish these purposes, an additional coin-testing device is interposed between the coin-receiving chute *g* and the chute portion *g'*, which leads to the testing-pocket above described. This mechanism consists of an inclined chute portion 27, having a smooth upper surface leading to a similarly-inclined chute portion or testing-gate 28, which is preferably movable, being pivotally mounted upon a pivot 29, and having a smooth-surfaced rear portion 30, adapted to permit the coin to pass to a tipping-gate 31, pivotally mounted upon a pivot 32. The gate 31 retards the coin and discharges it upon an inclined chute portion 33, which leads to inclined chute portion 34 for discharging the coin into chute *g'* and testing-pocket *r*, the chute being so disposed that the side of the coin or slug which is down when passing over the chute portion or testing-gate 28 is toward the discharging-finger when in the testing-pocket, so that no flange is presented to the coin engaging or testing finger. The forward end 35 of the testing-gate or movable chute portion 28 is provided with a coin-testing member 36, which when made of metal or other hard substance is provided with a roughened or toothed surface portion 37. I find in practice that a small fine toothed and preferably thin steel file may be employed for this purpose with entire success and is adapted to perform the functions and accomplish the purposes required of this element. I prefer, therefore, to employ a metallic member having a serrated or toothed upper surface substantially resembling the toothed surface of a file, although a piece of sandpaper, emery-paper, cloth, rubber, or similar material, adapted to permit genuine coins to pass thereover and prevent a coin or slug having a bur or flange on its bottom side from passing thereover may be used with more or less satisfactory results. These, however, are less durable and less accurate and are more liable to get out of order. A toothed metallic testing member such as I have described acts with greater precision and is more easily cleaned and kept in perfect working order. The forward end of this toothed metallic member may be provided with a smooth surface portion 38, and a slot 39 may be formed therein adapted to admit the upper end of an arm 40 when the testing-gate is tipped by the weight of the coin to the position shown in Fig. 5. This arm is thus enabled to dislodge the spurious coin or slug 41 by raising it from the relatively rough or adhering surface portion of the testing member 28, so as to permit it to fall into the spurious-coin chute 42, which conducts it to chute *i* and the opening *j* or other suitable spurious coin or slug containing receptacle. The upper surface of the testing member 36

is of such texture or has teeth of such fineness as to permit a valid coin to pass over such testing member and yet engage the more irregular and rough edges of burs or flanges upon the bottom sides of slugs.

In order to limit the speed with which the coin or slug passes upon the coin-testing detent member 36, a retarding-gate 43 may be pivotally mounted upon a pivot 44 and properly balanced, so as to retard the movement of the coin or slug and permit it to pass upon the testing member 36 at such a speed that a genuine coin will pass over such detent member, and a slug or spurious coin having an annular bur or flange on its under side will be stopped by the detent member and dropped into the spurious coin or slug receiving chute or chamber 42.

In order to enable the coin-testing member 36 to discharge a slug or spurious coin into the spurious-coin chute 42, it is necessary that the gate or chute portion 28 upon which such testing member is mounted should be so balanced that the weight of a slug when stationary upon the testing member 36 will tip it to the position shown in Fig. 5. It is found in practice that when a gate is so delicately balanced as to insure this it becomes necessary to provide means for returning the gate, with its coin-testing member, to normal position. For this purpose a counterweight 45 is provided pivotally mounted upon the pivot 29, which supports the gate or chute 28. This counterweight may be in the form of a wire having a forward portion 46 beneath the forward end of the gate and coin-testing member and rear end portions 47 on opposite sides of the chute of sufficient weight to return the gate to normal position. These end portions 47 of the counterweight are bent or wound in the form of a spiral, so as to provide the necessary weight without extending rearwardly to an undesirable length and are thus adapted to be wound or unwound so as to balance the counterweight of the gate with great nicety, as is required.

A magnet 48 may be mounted upon a branch chute portion 49 in any ordinary and well-known manner for drawing slugs of certain descriptions and metallic articles, such as pins, &c., from the chutes leading to the valid-coin-receiving slot.

I prefer to make the box of one integral piece with the exception of the door, which is at the back.

By the above arrangement it will be seen that a valid coin deposited in the slot *f* will pass over the testing member 36 without stopping thereon and will pass on to the coin-testing pocket *r*, causing a package to be discharged. A slug having an annular rim or bur on one side thereof when deposited with the bur uppermost as it passes over the testing member 36 may also reach the pocket *r*, but the chutes, with the tipping gate 31, are

so constructed that the smooth side of such a slug must necessarily be toward the shoulders of the gum-discharging finger 5, so that no material will be discharged by such slug, although it may reach the coin-testing pocket *r*. Such a slug when deposited through the coin-receiving slot so that its bur is down when it passes on to the testing member 36 will stop upon such member and be discharged thereby into the spurious-coin or slug-receiving chute 42. It is thus prevented from reaching the coin-testing pocket *r*, where its flange would be in position to work or cheat the machine. Slugs having flanges or burs on both sides will likewise be stopped by the testing member 36 and prevented from reaching the testing-pocket *r* by being discharged into the slug-receiving chute 42. It thus becomes impossible to work the machine by means of a slug without flanges or by means of a slug with a flange either on one or both sides thereof unless such flanges or burs are made with such nicety as to have true or flat uniform outer edges, such as are on genuine coins, presenting a smooth flat surface to the testing member, and this would require so much time and labor and expense as to be unprofitable and impracticable.

The testing member above described is adapted to prevent the passage of slugs made of lead by reason of their adherence thereto and will also prevent the passage of perforated slugs adapted to operate or work the machine with lead to reach the coin-testing pocket.

I claim—

1. In a coin-controlled apparatus, a normally continuous coin-passage having a pivoted coin-testing member mounted therein and forming a part of the passage, said member being adapted to permit the uninterrupted passage of a genuine coin, and provided with means for engaging the projecting flange

portions of slugs having irregular flanges and thereby diverting them from the coin-passage. 45

2. In a coin-controlled apparatus, a normally continuous coin-chute having a pivoted coin-testing member mounted therein and forming a part thereof, said member being adapted to permit the passage of a genuine coin, and having a rough upper surface portion for engaging the irregular surfaces of slugs and thereby diverting them from the coin-passage. 50

3. In a coin-controlled apparatus, a normally continuous coin-chute having a pivoted coin-testing member mounted therein and forming a part thereof, said coin-testing member being adapted to permit the passage of a genuine coin, and provided with means for stopping a spurious coin, whereby the pivoted supporting member is tipped to divert the spurious coin from the coin-chute, and means for returning the pivoted member to initial position. 65

4. In a machine of the class described, the combination of a coin-testing member adapted to stop a spurious coin thereon while permitting the passage of a genuine coin, a pivoted supporting member upon which such coin-testing member is mounted adapted to be tipped to discharging position by the weight of a stationary coin or slug and to permit the passage of a coin or slug not stopped by such testing member, and a counterweight mounted adjacent to such pivoted supporting member out of engagement therewith when the supporting member is in normal position and adapted to return the supporting and coin-testing members to initial position from their discharging position. 80

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