Sept. 8, 1942. W. A. TRATSCH ET AL 2,295,493

COIN TESTER

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Fig. 1.

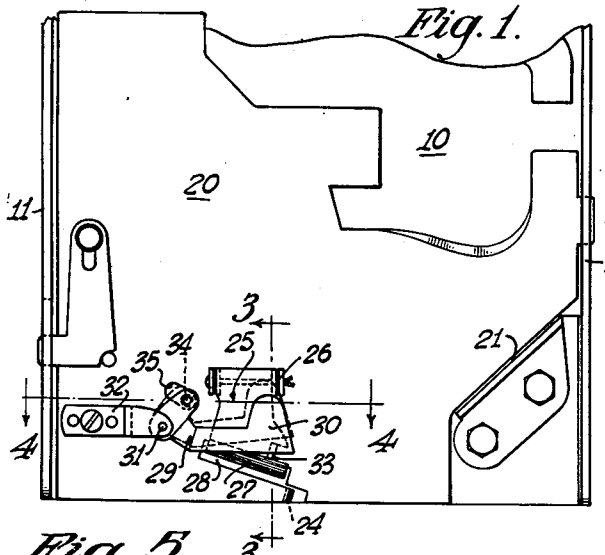


Fig. 2.

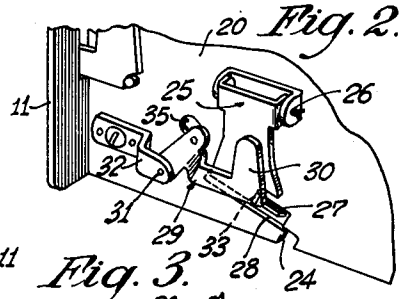


Fig. 3.

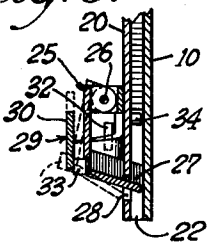


Fig. 5.

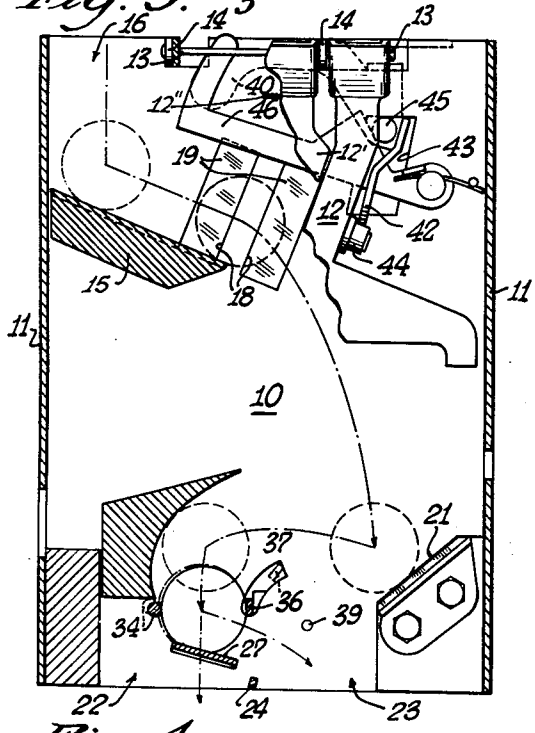


Fig. 6.

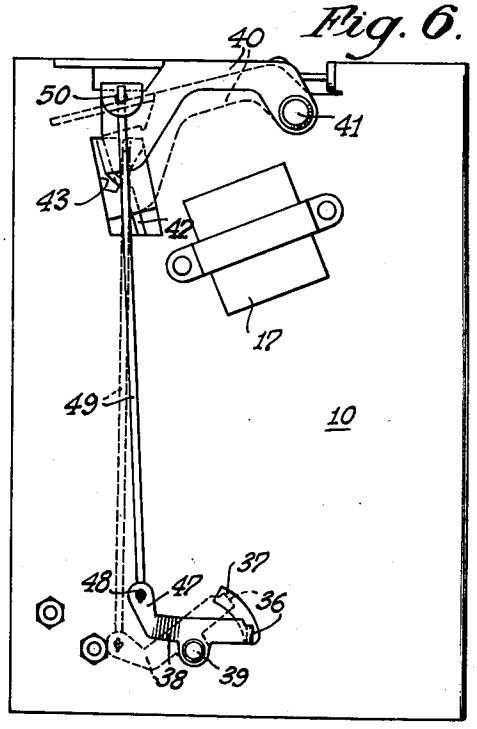
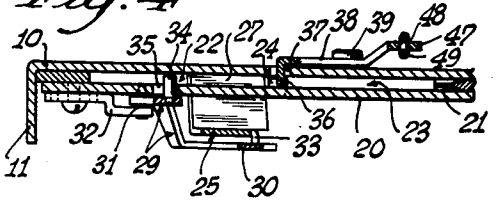


Fig. 4



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Fig. 7.

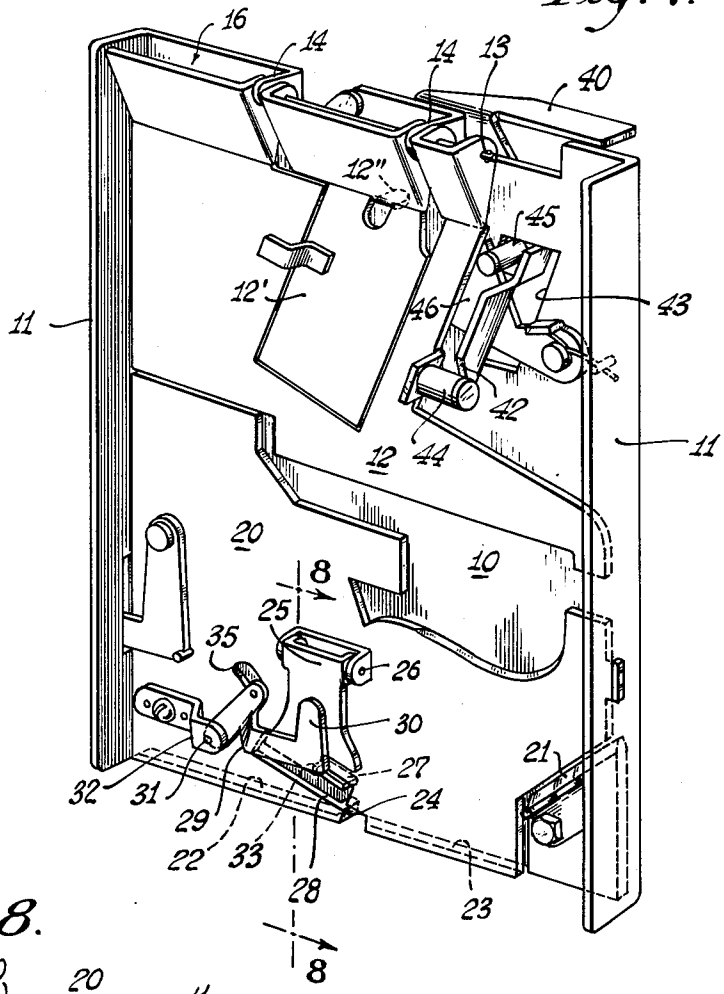
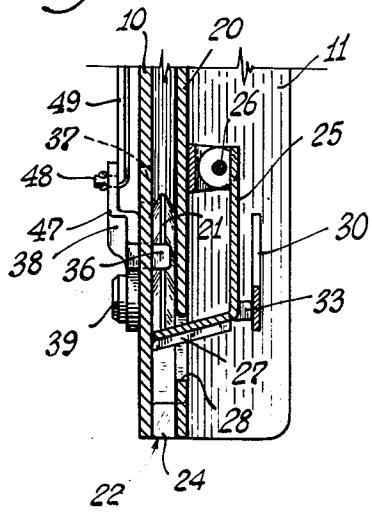


Fig. 8.



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COIN TESTER

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Chicago, Ill.

Application February 3, 1941, Serial No. 377,110

6 Claims. (Cl. 194—102)

This invention relates to coin testing devices and more particularly to coin and slug separating means and has for its principal object the provision of a coin testing unit which will be simple in construction, economical in manufacture and highly efficient in use.

It is another object of this invention to provide in coin testing devices a means for separating coins of a proper diameter from those having a lesser diameter.

A further object of this invention is to provide a means in coin chutes of the gravity type whereby coins of a predetermined size and character will by their own movement clear the way for passage into an acceptance opening, whereas said means will prohibit coins of a lesser diameter from passing into the acceptance opening.

It is a further object of this invention to provide means cooperable with the usual manually controlled scavenger operating leverage for releasing slugs or tokens of a spurious nature from the testing means in the event such slugs or tokens fail to effect operation of the testing mechanism.

Other objects and advantages will appear more fully as the description progresses in view of the drawings in which:

Fig. 1 is a fragmentary elevational view of the lower portion of a gravity type coin chute showing our coin testing unit associated therewith;

Fig. 2 is a fragmentary perspective view of the coin testing unit as seen in Fig. 1;

Fig. 3 is a vertical sectional detail as seen along line 3—3 of Fig. 1;

Fig. 4 is a horizontal sectional detail as seen from line 4—4 in Fig. 1;

Fig. 5 is an elevational view partly in section of a gravity type coin chute with which our new testing unit may be associated and is of a slightly smaller scale with respect to the view of Fig. 1;

Fig. 6 is a rear elevational view of the chute shown in Fig. 5;

Fig. 7 is a perspective view of the entire coin testing unit looking at the face thereof seen in Figs. 1, 2 and 5; and

Fig. 8 is a vertical sectional detail as seen along line 8—8 in Fig. 7.

The new testing unit comprising our invention is best adapted for use in gravity type chutes and is preferably suitable for use in the type illustrated in the drawings, wherein 10 is a main plate having its side edge portions bent at right angles to provide side walls 11 and having a movable wall portion 12 pivotally mounted as at 13 on ears 14 struck up from the main plate 10. This pivoted wall 12 is of a shape illustrated in Fig. 7 and includes a steel plate 12' which coacts with magnetic means hereinafter explained and is spaced slightly from the main plate 10 and carries a ledge 15 at a point beneath an entrance opening 16. The ledge 15 is pitched to direct coins through a magnetic flux provided by the U-shaped magnet 17 arranged on the back of the main plate 10 with its free end portions extending through openings 18 formed in the plate 10 so that the face portions 19 of the magnet will lie flush with the inner wall of the plate 10. The face portions 19 are positioned directly opposite the steel plate 12' which concentrates the magnetic flux of the magnet 17 in that area of the chute passage. The plate 12' is held in spaced relation with respect to the plate 10 by a lug 12'' bent inwardly from the plate 12' and abutting the plate 10.

The lower region of the chute is provided with a front wall 20 (Figs. 1 and 7) spaced substantially from the main plate 10 to provide passage for coins, etc., which gravitate off the ledge 15. The lower right-hand portion of the chute, as seen in Figs. 1 and 5, is provided with an anvil 21 against which coins will gravitate for rebound as illustrated by the dot-dash trajectory (Fig. 5).

The chute has an open bottom end which is divided into an acceptance opening 22 and a reject opening 23 by a laterally extending portion 24 struck inwardly from the front wall 20. A trap 25 is pivotally arranged as at 26 on the wall 20 exteriorly of the coin passage and has a ledge portion 27 which extends through an opening 28 formed in the wall 20 so as to provide a rest for coins and the like which may be directed toward the acceptance opening 22.

This ledge 27 is constructed so as to be normally displaced when the weight of a coin is disposed thereon so that coins may pass beyond the ledge into the acceptance opening 22. However, there is provided a latch means 29 for the trap 25 to normally hold the latter in coin supporting position as shown.

The latch 29 consists of a lever 30 pivotally mounted as at 31 on a bracket 32 fixed to the wall 20 and has the lever end 30 weighted or balanced so as to normally be disposed in blocking relation for abutment by an extension 33 struck outwardly from the trap member 25. Arranged on the latch 29, at a distance from the pivotal mounting 31 is a pin member 34 which extends through an opening 35 formed in the wall 20

into the coin passage above the acceptance opening 22. The pin 34 bearing against the lower right-hand wall of the slot 35 (Fig. 1) holds the latch 29 in its normal position as shown.

The acceptance opening 22 and reject opening 23 are further separated by a detent 36 which is substantially in the same horizontal plane with respect to the pin 34, and this detent extends through an arcuate slot 37 formed in the main plate 10. The detent 36 is formed as an integral part of a lever 38 pivotally mounted as at 39 on the rear face of the main plate 10 for reasons to be hereinafter explained.

As seen in Fig. 5, coins deposited in the entrance opening 16 are required to pass the test for magnetic quality as they leave the lower end of the ledge 15, and only such coins as follow substantially the trajectory shown in dot-dash lines will rebound over the detent 36 into a position for support on the ledge 27, other coins passing directly out of the reject opening 23.

In the use of gravity type chutes with rebound testing means like 21 illustrated herein, it has been found that certain spurious coin elements are capable of making the final rebound for direction into the acceptance opening. Spurious coins like five-centavos issued by the Mexican government have been found to follow substantially the same trajectory as valid U. S. five-cent pieces or nickels. The same is true of any spurious coin element which has a nickel-silver content sufficient to pass the heavy magnetic flux provided at the magnet 17 and sufficient resiliency to make the final rebound into the acceptance opening.

To this end the detent 36 provides a fixed blocking means and with the pin element 34 provides a coin gauging mechanism whereby coins of a diameter of a valid U. S. five-cent piece will enlarge the clearance between the pin 34 and the detent 36. This enlarging of the clearance aforesaid causes a movement of the pin 34 about the pivotal mounting 31 on the latch means 29 and likewise causes the latter to swing counterclockwise as seen in Fig. 1, to raise the lever 30 out of engagement with the offset arm 33 on the trap 25, whereupon the weight of the valid five-cent coin resting on the ledge 27 will be sufficient to pivot the trap 25 into dotted line position, as seen in Fig. 3, so that the valid five-cent coin may pass into and through the acceptance opening 22. However, coins or tokens having a lesser diameter than valid U. S. five-cent coins will not urge the pin 34 counterclockwise sufficiently to raise the lever 30 out of its latching relation with the arm 33 on the trap 25, and for that reason the trap will remain with its ledge 27 in coin supporting position as shown in Figs. 3 and 5.

In order to free spurious coins from supported position on the ledge 27, there is provided a scavenger control best illustrated in Fig. 6. The scavenger consists of a manually controlled lever 40 pivotally mounted as at 41 on the rear wall of the main plate 10. This scavenger lever 40 has a cam portion 42 which extends through an opening 43 formed in the main plate 10, (as shown in Fig. 7) which cam portion 42 engages a roller 44 carried by the pivoted front wall 12 of the chute, there being roller means 45 carried by the lever 40 and engaging a cam portion of a sweep arm 46 as seen in Fig. 5, whereby to clear the upper end of the chute of any foreign matter, refuse or the like. The substance of the scavenger mechanism relating to the upper end of the coin chute is described and claimed in our application, Serial No. 266,582, filed April 7, 1939, and while it does not form a part of the present invention it is linked with the clearing means of our coin testing device of this present application in the manner now to be described.

The lever 38 pivoted at 39 on the plate 10 has an extension 47 to which there is connected as at 48 a connecting rod 49, the upper end of this rod 49 being pivotally connected as at 50 to the scavenger lever 40. When the lever 40 is depressed into dotted line position (Fig. 6), the rod 49 urges the lever 38 counterclockwise into dotted line position, thus raising the detent 36 in a direction away from the supporting ledge 27 of the trap 25. With the detent 36 raised into its uppermost position (dotted lines, Fig. 5), such coins as are trapped or supported on the ledge 27 will be free to move by gravity toward and into the reject opening 23 for return to the depositor by return means not shown.

In the present application we have described our new coin testing unit in conjunction with a five-cent coin chute. We do not desire to limit ourselves to the particular denomination of coin for which a chute may be adapted, but desire to avail ourselves of all modifications and equivalents coming within the call of our invention.

While we have illustrated and described the preferred form of construction for carrying our invention into effect, this is capable of variation and modification without departing from the spirit of the invention. We, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail ourselves of such variations and modifications as come within the scope of the appended claims.

Having thus described our invention, what we claim as new and desire to protect by Letters Patent is:

1. In a coin and slug separator comprising a body portion having a coin passage formed therein divided into an acceptance passage and a reject passage, the combination of a movable ledge normally positioned above said acceptance passage and pitched in a direction toward said reject passage, said ledge being adapted to move by the weight of a coin thereon, means for latching said ledge in normal position to effect gravitation of coins toward said reject passage, said latch means being pivotally arranged on one wall of said body portion and blockingly engaging said movable ledge, pin means carried by said latch means and extending into said passage above said ledge and adapted to be engaged by coins of a predetermined diameter gravitating into said passage to move said latch means and free said ledge for movement by the weight of a coin thereon.

2. In a gravity type coin chute comprising a body portion having a coin passage formed therein with an entrance opening arranged in its upper region and an acceptance and a reject opening in its lower region, means for directing coins deposited in said chute toward said acceptance opening, trap means pitched in a direction toward said reject opening and arranged above said acceptance opening and adapted to receive coins from said directing means to direct them toward said reject opening, said trap means being normally disposed to move out of coin supporting position by the weight of a coin thereon, means for latching said trap means in coin supporting position, said latch means normally supporting said trap means and including a detent extending into the passage above said trap means and

adapted to be engaged by a coin having a predetermined diameter to release said trap means for movement as aforesaid, gauge means extending across said passage opposite said detent for gauging coins as they pass therebetween, and manually operated lever means for displacing said gauge means to permit coins of less than a predetermined diameter to gravitate along said trap means toward said reject opening.

3. In a coin chute of the class described, a body portion including a coin passage having an entrance opening and an acceptance and a reject opening, means for directing coins toward said acceptance opening, a trap positioned above said acceptance opening to receive coins directed as aforesaid, said trap being pivotally carried by said body portion and providing a ledge pitched toward said reject opening and adapted to be swung from coin supporting position by the weight of a coin thereon, a latch lever on said body arranged to engage said trap to keep the latter in coin supporting position, pin means on said latch lever and normally disposed in said coin passage above said ledge, gauge means extending across said passage at a point opposite said pin means and providing a blocking means for preventing coins from gravitating toward said reject opening, said last-named means cooperating with coins of a predetermined diameter to urge said pin means in a direction away from said gauge means whereby to release said latch means with respect to said trap, a hand-operated scavenger mechanism for said coin chute, means connecting said scavenger mechanism to said gauge means and adapted, when the scavenger mechanism is operated by hand, to move said gauge means out of said blocking position opposite said pin means whereby coins are free to gravitate toward said reject opening.

4. In a coin chute of the class described, a body portion including a coin passage having an entrance opening and an acceptance and a reject opening, means for directing coins toward said acceptance opening, a trap positioned above said acceptance opening to receive coins directed as aforesaid, said trap being pivotally carried by said body portion and providing a ledge pitched toward said reject opening and adapted to be swung from coin supporting position by the weight of a coin thereon, a latch lever on said body arranged to engage said trap to keep the latter in coin supporting position, pin means on said latch lever and normally disposed in said coin passage above said ledge, gauge means extending across said passage at a point opposite said pin means and providing a blocking means for preventing coins from gravitating toward said reject opening, said last-named means cooperating with coins of a predetermined diameter to urge said pin means in a direction away from said gauge means whereby to release said latch means with respect to said trap, said gauge means being pivotally supported on said body portion, a manually operable lever and means connecting the latter to said gauge means for raising the latter out of coin blocking position.

5. In a coin and slug separator comprising a body portion having a coin passage formed therein divided into an acceptance passage and a reject passage, the combination of a movable ledge normally positioned above said acceptance passage and pitched toward said reject passage, said ledge being adapted to move out of the acceptance passage by the weight of a coin thereon, means for latching said ledge in normal position, said latch means being pivotally arranged on one wall of said body portion and blockingly engaging said movable ledge, pin means carried by said latch means and extending into said passage above said ledge and adapted to be engaged by coins of a predetermined diameter gravitating into said passage to move said latch means and free said ledge for movement by the weight of a coin thereon, and blocking means dividing said acceptance passage from said reject passage and arranged to prevent coins from gravitating toward the latter passage, and manual means operatively connected with said blocking means for withdrawing said blocking means out of blocking position.

6. In a coin and slug separator comprising a body portion having a coin passage formed therein divided into an acceptance passage and a reject passage, the combination of a movable ledge normally positioned above said acceptance passage and pitched toward said reject passage, said ledge being adapted to move out of said acceptance passage by the weight of a coin thereon, means for latching said ledge in normal position, said latch means being pivotally arranged on one wall of said body portion and blocking said movable ledge by engaging the same, pin means carried by said latch means and extending into said passage above said ledge and adapted to be engaged by coins of a predetermined diameter gravitating into said passage to move said latch means and free said ledge for movement by the weight of a coin thereon, and gauge means normally positioned above said ledge and spaced from said pin means for directing coin elements toward said pin means for the purpose aforesaid, said gauge means being pivotally arranged on said body portion, manual means operatively connected to said gauge means for swinging the latter out of normal position whereby to permit coin elements of less than a predetermined diameter to gravitate toward said reject opening.

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