

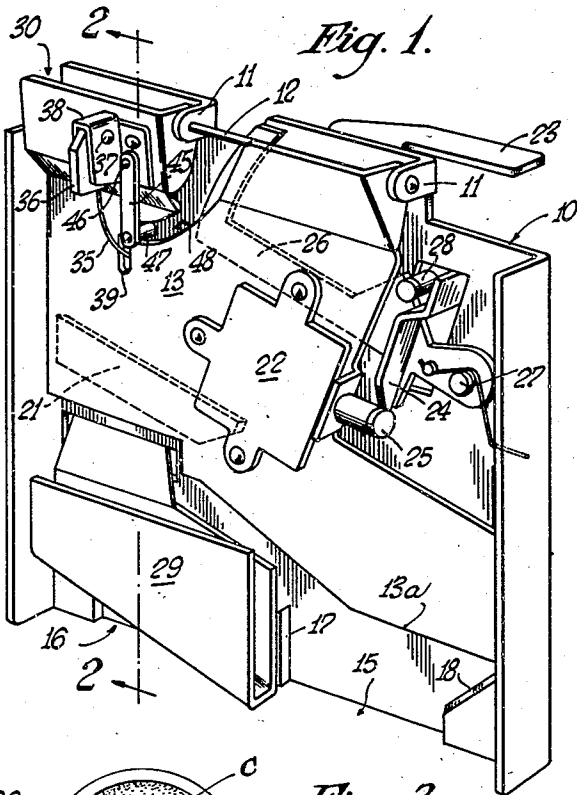
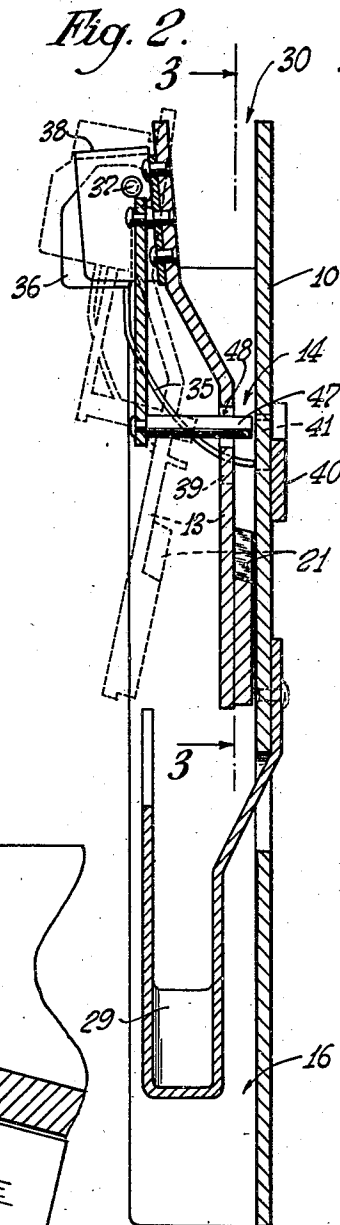
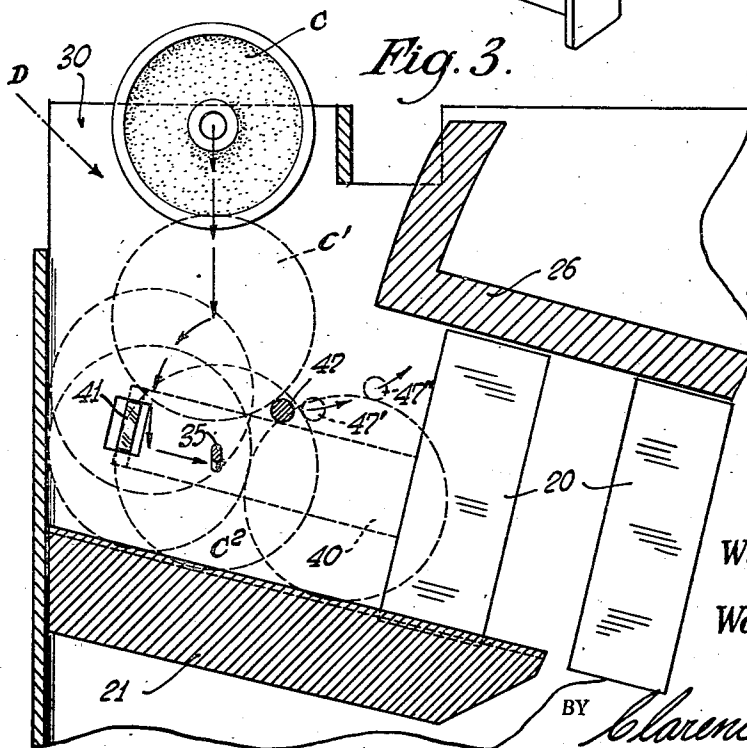
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W. PATZER ET AL

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COIN CHUTE

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William Patzer
and
Walter A. Tratsch
INVENTORS.

BY

Clarence E. Threedy
HIS ATTORNEY.

UNITED STATES PATENT OFFICE

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COIN CHUTE

William Patzer and Walter A. Tratsch,
Chicago, Ill.

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4 Claims. (Cl. 194—97)

This invention relates to improvements in coin testing devices, particularly the type in which there is provided a descending coin passage down which coins may roll, and having testing means disposed adjacent the entrance to said passage, one of the principal objects being the provision of blocking means for momentarily preventing entrance of coins into the passage and causing such coins to be deflected or guided into positive testing relationship with said testing means.

A further and more particular object is the combination with a coin chute, of a pivoted blocking member disposed in advance of the entrance to the coin passage so as to be engaged by coins deposited in the chute and effective to deflect such coins into a certain position from which they may thereafter gravitate down the chute and push the blocking member out of the way, there being testing means arranged adjacent said predetermined position and all coin elements being directed into testing position relative to the testing means by action of the blocking member.

Other objects and novel aspects of the invention relate to certain details of construction as well as the cooperative arrangement of the component parts of the illustrative embodiment set forth herein in view of the annexed drawing, in which:

Fig. 1 is a perspective view of a coin chute;

Fig. 2 is a vertical cross section to enlarged scale along line 2—2 of Fig. 1;

Fig. 3 is a fragmentary longitudinal and vertical section looking in the direction of line 3—3 of Fig. 2, and likewise to enlarged scale.

Referring to Fig. 1, a preferred chute structure with which the invention may be used comprises a main plate member 10 having offset ears 11 along its upper edge and in which is seated a pintle rod 12 from which is pivotally suspended a side-opening or scavenging gate 13. This gate hangs normally in spaced parallelism relative to the inner surface of the plate 10 and defines therewith a coin passage generally indicated at 14 in Fig. 2. The coin passage, however, continues on beneath the lower edge 13a of the gate and, properly speaking, terminates in a plurality of exits 15 and 16 at the bottom edge of the main plate. These latter exits are defined by a separator 17 disposed approximately midway between the opposite sides of the plate. The anvil 18 flanks the side passage 15 opposite the separator 17, and in the normal operation of the chute, coins passing the testing means

successfully will strike the anvil 18 and, if legitimate or acceptable, rebound over the exit 15 and the separator 17 into the passage 16 which constitutes an acceptance opening or exit. If the coin is not a proper one, it will drop into the exit 15 which constitutes a reject exit.

Other testing means include the provision of a permanent magnet which may have poles 20 (Fig. 3) positioned close to the plate 10, as shown, opposite the gate so as to propagate a strong magnetic field across the passage 14. A downwardly inclined runway ledge 21 is secured to the inner side of the gate and guides gravitating coin elements through the field of the permanent magnet for testing purposes. A keeper plate 22 of magnetic material (Fig. 1) is secured on the gate opposite the poles 20 of the magnet to further concentrate the field of the latter and lengthen the life thereof. The keeper plate also provides an additional means for properly closing the gate since it is attracted by the magnet.

The gate is adapted to be opened by a lever 23 which may be depressed to cause a cam arm 24 to bear against a roller 25 on the gate and pivot the latter into open position for the purpose of withdrawing the support of the ledge 21 from any coins arrested in the passage. A sweep 26, pivoted as at 27, is also engaged by a cam roller 28 actuated by lever 23 to cause the sweep to move from its normally raised unobstructing position (Fig. 3), past the poles 20 of the magnet to dislodge any magnetically attractable objects or coins arrested by the magnet, the sweep acting simultaneously with the opening of the gate.

Coin elements and other objects dislodged by operation of lever 23 in opening the gate and actuating the sweep may drop into the reject exit 15 or into a reject apron 29 which terminates at its lower end opposite the exit 15.

Coin elements are deposited for testing in the apparatus through an entrance opening 30 (Figs. 1 and 3) at one upper corner of the chute above the upper reaches or level of the runway 21, and as observed in Fig. 3, it will appear that the coins may be moved into the entrance at several angles of approach, that is, they may be dropped straight into the entrance as illustrated by the coin C in Fig. 3, or they may be delivered into the entrance at various angles, one of which is indicated by the tracer arrow D. The entrance 30 is enlarged for cooperation with various vending machines and coin-controlled devices having coin delivery guideways which may deliver the

coins into the chute at different angles of approach.

The main coin passage being regarded as the space between the gate 13 and plate 10 as well as the space above the exits 15 and 16 along the path of coins toward the latter, the entrance to the passage is the opening 30. However, the region of the passage below the entrance 30 and to the left of the sweep 26 above runway 21 may be said to constitute a sort of antechamber to the principal passage portions, and in this sense, therefore, it could be said that the real entrance to the coin passage is disposed in the region beneath the left-hand extremity of the sweep 26 above runway 21 and just to the left of the magnet pole.

Adjacent the entrance to the coin passage and particularly the antechamber portion thereof, is disposed a testing means in the nature of a feeler 35 (Figs. 1 and 2) secured to a pendent weight member 36 pivoted as at 37 in a bracket member 38 attached to the gate adjacent the chute entrance 30. This testing means is shown in our copending application, issued on July 7, 1942 as Patent No. 2,288,835, filed July 27, 1939, directed to an adjustable edge in coin chutes, and also in our copending application, issued on March 17, 1942 as Patent No. 2,277,018, filed October 2, 1939, drawn to means for concentrating the magnetic field on the main testing magnet. The lower end portion of the finger 35 projects through a vertically elongated opening 39 in the gate and across the path of coins gravitating from the upper reach of the runway. The weight member 36 is a means for yieldingly urging the finger into position to engage the side portions of the coins for projection into any aperture or enlarged depressions therein, to arrest such coins and hold the same until the gate is opened, the gate when thus moved ultimately engaging the nearer edge of weight 36 to rock the same and move the finger 35 out of engagement with the coin, such coin dropping onto the discharge apron 29 for ultimate rejection through exit 15, it being observed that because of inertia the weight tends to remain stationary as the gate opens.

Another preliminary testing means which is likewise disposed adjacent the entrance portions of the coin passage is a magnetic arm 40 having one end disposed close to one of the poles 20 of the permanent magnet so as to be magnetized by the latter, and having an opposite end portion 41 situated at one side of the feeler remote from the magnet to provide a localized magnetic field for arresting pins and miscellaneous magnetic substances, including magnetic coin elements, with the object of preventing movement of such objects into the field of the principal magnet. Such an auxiliary magnetic field localizing means is particularly described and claimed in our copending application, Serial No. 291,804, filed August 25, 1939, and issued as Patent No. 2,279,488 on April 14, 1942, and also in our copending application, Serial No. 291,805, filed August 25, 1939 and issued as Patent No. 2,278,129 on March 21, 1942. In general, the testing means 40-41 is intended to prevent certain kinds of fraudulent operation of this type of coin chute as, for example, by deliberately loading the chute with pins or a plurality of magnetically attractive coin elements.

The present invention is concerned principally with the provision of movable blocking means for assuring that coin elements will move into position to be tested properly and positively by

any preliminary testing means such as the feeler 35 or the auxiliary magnetic means 41, and to this end the invention provides a deflecting or blocking member in the form of an arm 45 pivoted as at 46 on the feeler bracket 38 for movement about an axis extending transversely of the plane of the coin passage.

Coin engaging means is provided in the form of a laterally projecting stud 47 on the lower end portion of the arm 45 and which extends through an arcuate slot 48 in the gate into the coin passage at a point (Fig. 3) above the level of the feeler 35 and between the latter and the nearest pole 20 of the permanent magnet. Accordingly, the coin engaging member 47 is disposed in the path of coin elements moving in the passage in the region adjacent the entrance 30, that is, in the antechamber portion of the passage between the chute entrance 30 and the magnet poles 20, and it will be apparent that the coin engaging member 47 blocks movement of coin elements into the main portions of the coin passage so long as the arm 45 is in its normally pendent position.

The several positions successively assumed by the coin C upon being dropped vertically into the entrance 30, are illustrated in dotted lines in Fig. 3, and it will be apparent from the indication C¹ that the coin will strike the member 47 and thus be blocked from entering into the main portions of the passage, such coin being deflected toward the higher end of the runway 21, and hence toward a higher level of the passage in the antechamber into a predetermined testing position indicated by the position C² of the deposited coin. In this latter position, the coin is caused to hesitate momentarily, during which time the testing means 41, for example, may better perform its testing functions, and the coin is thus prevented from escaping the influence of the testing means altogether and moving directly into the main passage portions.

It thus appears that the member 47 constitutes a form of blocking means or deflector effective to cause movement of the newly deposited coin into a testing space or other predetermined position opposite the testing means near the upper end of the runway or coin passage. However, unless the coins thus deflected are arrested by the preliminary testing means 35 or 41, they will begin to gravitate down the runway upon striking the same, and at this time the deflecting or blocking means 47 is usually pivoted a small amount to the right from its normal position as indicated at 47', and the gravitation of such coins down the passage ultimately pivots the member 47 completely out of its path as indicated at 47'', so that the coin may pass freely beneath the same on down the passage. It will also be apparent that the action of the coins in deflecting from the member 47 and subsequently moving the same out of its way, is the same regardless of the angle of approach of the coins within the limits possible in the illustration of Fig. 3.

The importance of the foregoing arrangement will be obvious in so far as it prevents the coins from evading the preliminary testing means altogether. A further consideration of importance resides in the fact that since certain fraudulent coins are not only apertured in their central regions but are also frequently provided with radially extending slots, it is necessary that the coins to be tested by the feeler 35 should be positioned to roll past the same a distance approxi-

mately equal to the diameter of the coin so that they will turn into a position in which the feeler may most effectively engage in said slots. Much the same thing is true of coins which are centrally apertured, since such coins must either be positioned with their centers exactly opposite the feeler or so that the center of the coins will roll past the feeler.

The various advantages and objects of the invention may be accomplished by modifications of the particular embodiment specifically described herein, and it is intended that the appended claims shall include all equivalent arrangements fairly coming within their call.

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

1. In a coin chute including an inclined coin passage down which coin elements gravitate, the combination of an entrance passage having its lower end terminating at the upper end of said coin passage, testing means at the juncture of said entrance passage and said coin passage, a pendently pivoted deflector having a coin engaging portion disposed in said coin passage on a side of said testing means toward the lower levels of said coin passage and in a vertical plane within the side margins of said entrance passage for normal engagement by coins in advance of gravitation thereof onto said inclined coin passage to deflect coins toward said testing means and being swingable in a direction away from said testing means to permit gravital movement of coins down said inclined coin passage.

2. In a coin chute having a descending coin passage, an entrance passage terminating at the upper reach of said descending passage, coin testing means positioned at the point of convergence of said descending passage and said entrance passage and below the latter, the combination with said testing means of a deflector pivotally arranged on said coin chute and normally disposed at that side of the testing means which is toward the descending levels of the passage and also at a level above said testing means within the vertical plane of said entrance passage and engageable by coins gravitating from the latter toward said descending coin passage to deflect coins into testing position opposite said testing means and swingable out of deflecting position

by coin elements descending down said descending coin passage.

3. In a coin testing device including a coin chute having a runway down which coins may roll, an ante chamber formed in said coin chute at the upper region of said runway, coin testing means in said coin chute and exposed to said ante chamber for affecting certain coin elements passing therethrough, a pendently supported blocking means arranged on said coin chute and having a lateral portion normally disposed in the path of movement of coins through said ante chamber and said runway and engageable by coins gravitating toward said runway to deflect such coins toward said coin testing means and swingable out of normal position by coins of a predetermined weight and diameter descending along said runway.

4. A coin testing device comprising, in combination, a coin chute formed to define a descending coin passage, an inclined runway in said descending coin passage, a coin entrance formed in said coin chute in a vertical plane above the upper region of said inclined runway and spaced from the latter by a vertical coin passage formed therebetween, coin testing means arranged in said coin chute at the point of juncture of said vertical coin passage with said inclined runway, means adapted to deflect coins positively into a predetermined testing position relative to said testing means during descending movement of said coins from said coin entrance toward said inclined runway, said means including a deflector member mounted to pivot about an axis transverse to said coin passage, said deflector member having a coin engaging part disposed in said coin passage in the region of the vertical margin of said vertical coin passage farthest removed from said coin testing means in the path of movement of coins from said entrance toward said inclined runway to cause said coins to move into position opposite said testing means, said coin engaging part being normally disposed above said inclined runway and engageable by certain coins descending along the latter for swinging movement out of the way of such certain coins whereby the latter will continue to descend down said inclined runway.

WILLIAM PATZER.

WALTER A. TRATSCH.