April 22, 1941. W. PATZER ET AL 2,239,050

COIN CHUTE

Filed Jan. 13, 1939

Fig. 3.

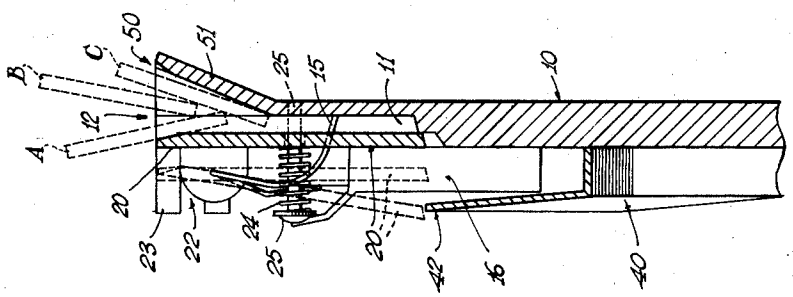


Fig. 2.

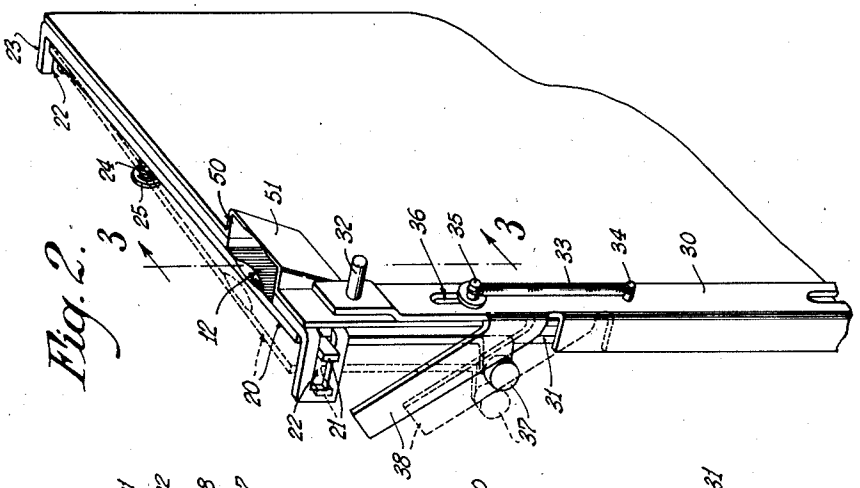
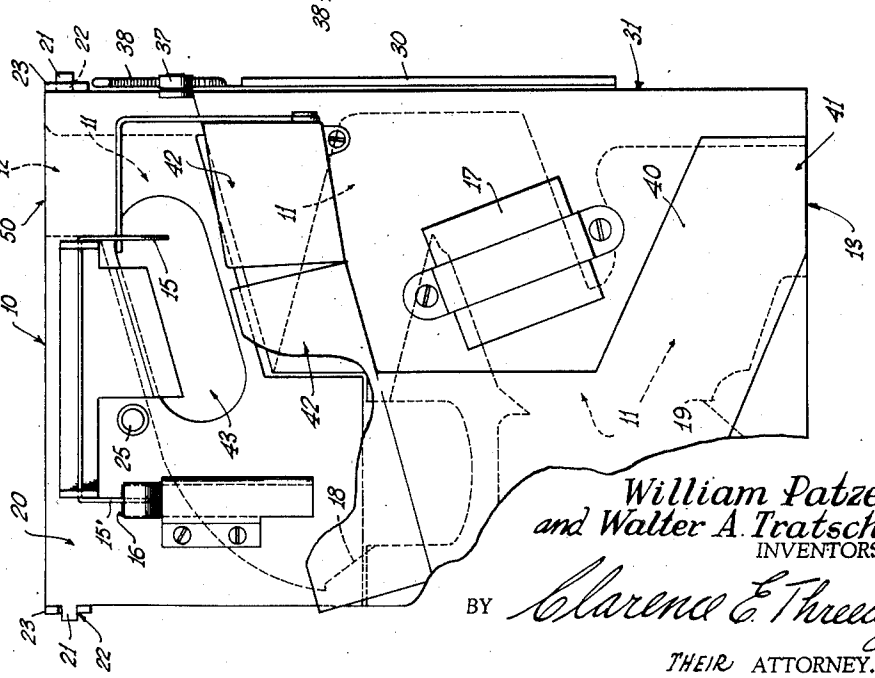


Fig. 1.



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COIN CHUTE

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2 Claims. (Cl. 194—97)

This invention relates to coin testing apparatus and has as one of its particular objects the provision of means for discharging a plurality of coin elements from the device by a single scavenging operation.

Viewed from another aspect, it is an object of the invention to provide means for preventing defrauding of coin chutes by the expediency of inserting a slug therein which it is known in advance will be stopped by the primary testing means, and then loading a number of additional slugs into the machine in an effort to cause one or more of the additional slugs to pass into the machine when the first slug is discharged therefrom by operation of the scavenging or clearing mechanism.

Other objects and novel aspects of the invention reside in certain details of construction as well as the mode of operation of the various parts of the illustrative embodiment set forth herein and described in conjunction with the annexed drawing, in which:

Fig. 1 is a side elevation of a coin chute incorporating the improvements of the present invention;

Fig. 2 is a fragmentary perspective of the chute showing the coin collecting receptacle near the entrance thereof and the gate operating means; while

Fig. 3 is a fragmentary vertical section through the coin collecting means as viewed in the direction of line 3—3 of Fig. 2, on slightly enlarged scale.

Referring to Fig. 1, a preferred embodiment of the invention includes a chute body 10 constituting a means providing a descending coin passage 11 having an entrance opening 12 at its upper end (Fig. 2 also) and a plurality of discharge openings in its lower region, one of these, a reject exit, being indicated at 13 in Fig. 1.

The chute body preferably is comprised by a pair of cast plates which are recessed to define the passage 11 when fitted together. A plurality of testing devices such as the pivoted feeler 15, the primary testing magnet 16 and the secondary testing magnet 17, a rebound anvil 18, and a pointed selecting deflector 19 are all arranged to engage a deposited coin element and test the same for various qualities with the ultimate object of causing unacceptable or spurious coin elements to be directed toward the exit 13 and acceptable or legitimate coin elements to be directed into an acceptance exit (not shown), situated to the left of the pointed selector 19.

An important feature of the chute structure is the scavenging or discharge gate 20 which constitutes a movable side wall section of the coin passage in the region adjacent the deposit opening 12. This gate is pivotally mounted by means of a pair of lugs 21 extending from its opposite upper edges into elongated slots 22 provided in laterally projecting ears 23 on the chute body. As a result of the lateral elongation of the slots 22, the gate 20 may be shifted laterally away from the coin passage to open the side of the latter and may also be pivoted away from the chute passage for the same purpose.

The gate is normally held closed, that is, flush against the side of the chute and passage, by the operation of a coil spring 24 on a headed pin 25 which extends through an enlarged opening in the gate and has its opposite end anchored suitably in the chute body. A lateral gate structure of analogous design is described and claimed in our copending U. S. applications, Serial No. 223,585, and Serial No. 241,114, the latter of which was issued as Patent No. 2,215,673, on September 24, 1940.

Means for effecting opening or scavenging movement of the gate includes a reciprocable operating member 30 (Fig. 2) which is in part of V-shaped cross section and which is fitted onto an edge portion 31 of a chute body for sliding movement along the latter by action of a suitable manual control or other means engaging a lateral pin 32 thereon for the purpose of sliding the member 30 downward against the tension of a coil spring 33 secured thereto as at 34, the latter being anchored to a headed pin member 35 working in an elongated solt 36 and serving to secure the member 30 in mounted relation to the chute. The gate has an offset cam roller 37 which is engaged by an offset cam arm 38 on the operating member 30 so that when the latter is moved downwardly, an effort is exerted on one end of the gate to move the same outwardly of the chute, and the first movement of the gate when thus actuated by depression of the member 30, is laterally away from the chute into the dotted line position of Figs. 2 and 3.

Attention is called to the fact that the coil spring 24 for the gate is mounted at one side of a vertical center line between the pivot points 21 and remote from the gate operating cam arm 38. As a result of this arrangement, the end of the gate nearest the cam operating arm 38 and nearest the coin entrance 12, is moved bodily or laterally away from the chute passage before,

and to a greater extent than, the portions of the gate toward the opposite edge thereof. When the spring 24 is more or less tensioned, the lateral or bodily movement of the gate is transformed into pivotal movement about the lugs 23 as illustrated by the outermost dotted line representation of Fig. 3. This action of the gate quickly provides a wide sidewise discharge opening permitting any coin elements arrested in the region adjacent the coin entrance 12 and the feeler 15 to drop sidewise out of the chute and into an outside discharge chute 40 having a lower discharge end 41 terminating alongside the discharge exit 13 of the main coin passage at the bottom of the chute and having an outwardly flared, downwardly inclined mouth portion 42 at its upper end, arranged to be aligned with the gate 20 when the latter is in open position, so that all coin elements which are discharged sidewise out of the passage move into the mouth 42 of the outside discharge chute and pass out of the same and the coin testing device through the opening 41 into some kind of receptacle (not shown) accessible to the patron.

The feeler 15, it may be observed, is of magnetically attractable material and projects through an elongated drop-out opening 43 provided in the gate and through which undersized and certain other coin elements are automatically discharged without any scavenging operation of the gate mechanism, an opposite end portion 15' of the feeler being attracted by the magnet 16 to urge the feeler yieldingly into the chute passage. Other primary testing means are sometimes employed in the region of the opening 43 and the deposit or coin entrance opening 12, and it has been possible to defraud this class of testing device by inserting a slug or other coin element in the opening 12 with the certain knowledge that it is to be stopped by the primary testing means, such for example, as the feeler 15. Thereafter, a plurality of other spurious coin elements or slugs are loaded into the device behind the first slug and caused to pile up behind the latter preparatory to the operation of the scavenging means which will open the gate 20. Due to the presence of so many coin elements behind the first slug, it is frequently possible that one of the several slugs will be enabled to continue on down through the passage while the preceding and remaining slugs are moving through the open gate, or the gate may be opened and closed so quickly that not all of the slugs have time to gravitate sidewise out of the passage, one or more of the same being able to move past the initial testing means or feeler 15 a distance sufficient to permit continued movement in the passage when the gate is closed.

The same thing may occur when legitimate coins are inadvertently loaded into the chute, and in order to avoid the consequences of both fraudulent and inadvertent overloading, the present invention provides a means for collecting a plurality of deposited coins in the region above the primary testing means and the gate 20, this collecting means in the present embodiment being in the form of a flared coin receiving mouth or receptacle 50 in register with the coin entrance 12 and having one of its side walls formed by the gate 20 and its opposite side wall 51 slanted downwardly toward the gate and its juncture with the chute body. When a plurality of coin elements are deposited for operation of the device or vending machine with which it is associated, these coin elements A, B and C will collect in the collecting means or receptacle 50, as illustrated in Fig. 3, particularly should a preceding coin element (not illustrated) be arrested by a primary testing means such as the feeler 15.

In the usual chute structure, the coins would be lined up serially, one above another, but in the present arrangement the coins are collected more or less in a group, and it will be apparent that when the gate 20 is moved sidewise or laterally away from the passage, the entire group of arrested coin elements will gravitate simultaneously out of the passage and into the mouth 42 of the outside discharge chute 40, and no coin elements, whether legitimate or spurious, will be permitted to continue down the passage. In the case of spurious coins, the advantages are obvious; and in the case of legitimate coins, the advantage resides in the fact that one who has inadvertently deposited more than one coin in the device will in no case be prevented from procuring a vendible article or other service for each coin deposited, particularly in those coin-operated machines which are arranged to be actuated for a predetermined period for each coin deposited.

The objects and advantages of the invention may be realized in other forms of construction and in functional arrangements of the parts of the preferred embodiment described in detail herein, and the appended claims are therefore not to be restricted to such details but are to include all equivalent forms and arrangements.

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

1. A coin chute comprising a body defining a coin passage having a funnel-shaped entrance for the reception of one or more coins or tokens, means on said body defining a discharge chute adapted for communication with the passage, one wall of said passage constituting a gate normally closing communication between the passage and discharge chute, means pivotally mounting said gate for lateral movement from said body to permit the release of coins, when several coins have become lodged in said entrance, and for pivotal movement to open communication between the passage and the discharge chute, and means for imparting said pivotal movement to the gate.

2. A coin chute comprising a body defining a coin passage having a funnel-shaped entrance for the reception of one or more coins or tokens, means on said body defining a discharge chute adapted for communication with the passage, one wall of said passage constituting a gate normally closing communication between the passage and discharge chute, means pivotally mounting said gate for lateral movement from said body to permit the gravitation of coins, when several coins become accumulated in said entrance, and for pivotal movement to open communication between the passage and the discharge chute, means for imparting said pivotal movement to the gate, and means for resisting said lateral movement of the gate.

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