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W. PATZER ET AL

2,278,129

COIN CHUTE

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Fig. 1.

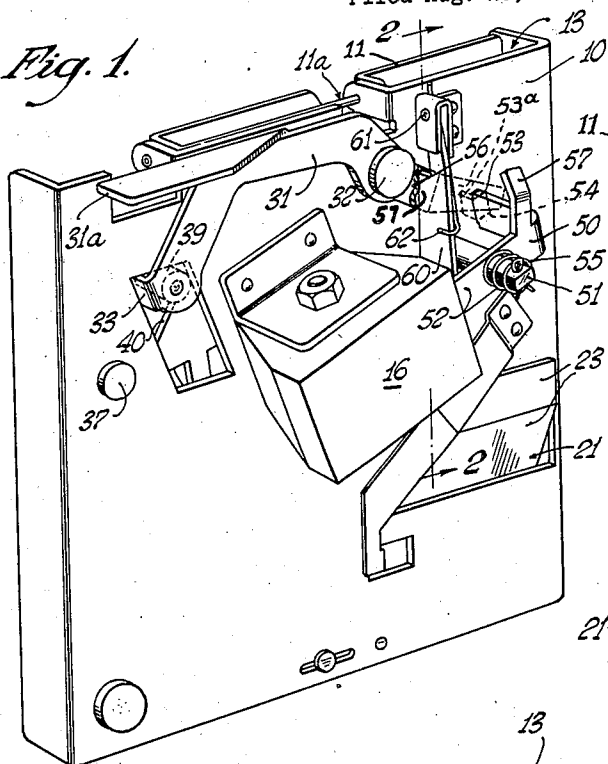


Fig. 2.

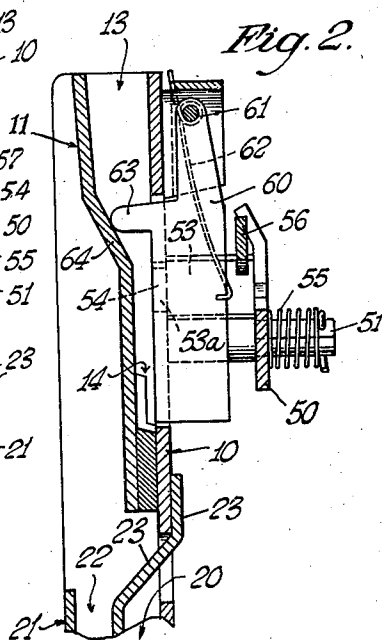


Fig. 3.

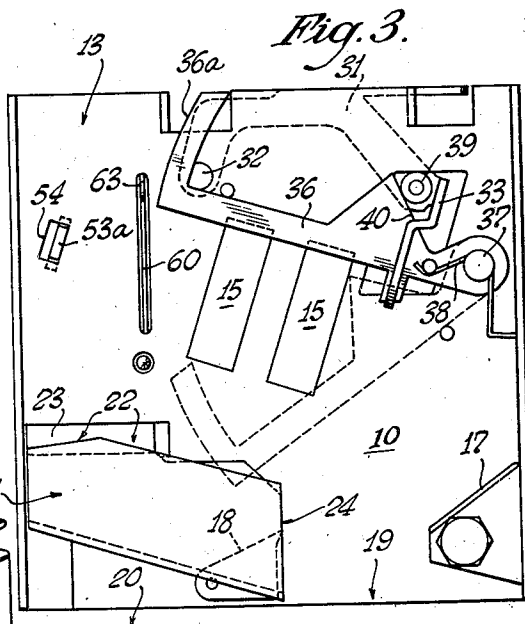


Fig. 4.

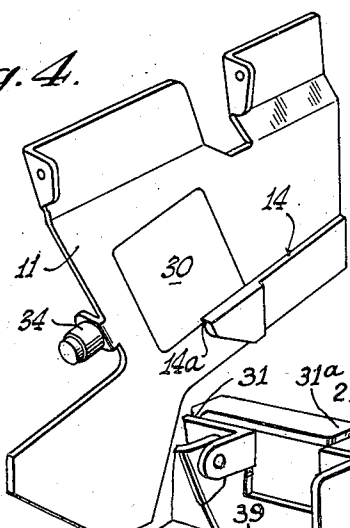
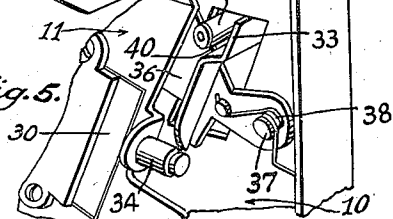


Fig. 5.



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COIN CHUTE

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Application August 25, 1939, Serial No. 291,805

4 Claims. (Cl. 194-101)

This invention relates to coin testing devices of the chute type and has as its principal object the provision of fraud preventive means adapted to prevent jamming the chute by the insertion of a plurality of magnetically attractable slugs, pins, nails or other objects. Attention is called to our copending application, Serial No. 291,804, directed to an auxiliary induction magnet in the initial coin runway for momentarily holding magnetically attractable matter until released by the scavenger mechanism.

Viewed from another aspect, it is a primary object of the invention to provide a coin chute having magnetic testing means including two or more magnets spaced apart along a coin passage, and means for moving one of the magnets to effect release of arrested objects, and means for blocking the passage between the two magnets to prevent the released object from being drawn into the field of the stationary magnet.

A further object is the provision of a coin chute having a plurality of testing magnets disposed in spaced relation along the coin passage and means for dislodging coin elements from one of the magnets, and coacting mechanism for blocking the passage between the magnets so that magnetically attractable objects cannot be drawn from the region of the field of force of one magnet into that of an adjoining magnet.

Still another object is the provision in a coin chute having a gate and a plurality of magnets spaced along the passage and mechanism for opening the gate and dislodging arrested magnetically attractable objects, of fraud preventive means including a blocking member normally urged into blocking position between two or more of the magnets and moved out of blocking position by coaction with the gate when the latter is closed.

Other objects and advantages of the invention reside in certain details of construction as well as the operation and arrangement of parts of the illustrative embodiment described hereinafter in view of the annexed drawing, in which:

Fig. 1 is an outside perspective view of the chute;

Fig. 2 is an enlarged fragmentary vertical section through the fraud preventive blocking member, looking in the direction of line 2-2 of Fig. 1;

Fig. 3 is an elevational view of the inside of the chute (side opposite Fig. 1);

Fig. 4 is a perspective of the inside of the gate and may be said to be complementary to Fig. 3;

Fig. 5 is a perspective fragment of the gate camming or opening means.

In the construction of chute chosen for purposes of illustration as seen in Fig. 1, there is provided a vertical coin passage defined between the inside of a main plate member 10 and the inside of a normally closed gate 11. The entrance 13 to this passage is situated at the upper right-hand corner of Fig. 1 and leads in a downward direction over a ledge portion 14 (Fig. 4) provided on the inside of the gate and which inclines downwardly past the poles 15 of a permanent magnet 16 so as to guide the movement of coins toward an anvil 17 near the lower edge of the passage.

Spaced from the anvil about midway across the lower edge of plate 10 is a deflector 18 dividing the lower region of the chute into two exits 19 and 20, the former constituting a reject exit, and the latter constituting an acceptance exit.

It will be observed that the acceptance exit 20 is disposed below the entrance 13 and that there is a reject guide or apron 21 (Fig. 2) having an open upper side 22 disposed in the region below the gate and the entrance 13, the apron being secured in position by means of an offset ramp 23 (Fig. 1 also) which crosses the passage and projects through an opening in the plate member 10 for attachment by welding or the like to the outside of the chute. Thus, the offset part of the apron lies immediately beneath the entrance opening and such coin elements as are caused to pass downwardly instead of traversing the passage are deflected into the apron which has a lower open end 24 terminating over the reject exit 19. By reason of the offset mounting of the apron, the coins rebounding from the anvil 17 over the exit 19 and the deflector 18, may move freely into the acceptance exit 20.

The gate 11 is swung on a pintle rod 11a (Fig. 1) and is provided with a magnetically attractable keeper plate 30 disposed opposite the poles 15 of the main magnet so as to concentrate the field of force of the latter, prolong its life, and also provide a means for automatically closing the gate as a result of the attraction of the keeper plate 30 to the magnet. It will be apparent that magnetically attractable coin elements and other objects may be arrested at one or both of the poles 15 in the region substantially opposite the keeper plate and the lower end 14a of the runway ledge, and in order to withdraw the ledge 14 from beneath such arrested coin elements in scavenging the chute, there is pro-

vided mechanism for opening and closing the gate. This mechanism includes a main operating lever 31 pivoted as at 32 on the outside of the chute and having an offset cam arm 33 (Figs. 1, 3 and 5) passing through an opening in the chute to engage a roller 34 (Fig. 4) and cam the gate to open position when the lever is depressed by application of pressure on its handle portion 31a.

In order to bodily dislodge arrested objects held at the poles 15, there is provided means in the form of a sweep 36 (Fig. 3) pivoted as at 37 for movement from a normally raised position in which it is disposed by action of a spring 38 to sweep past the poles 15 in the passage and into the dotted line position, thus pushing arrested coins or objects downwardly toward the apron 21 or the reject exit 19. The sweep also is actuated by the lever 31 by means of a cam roller 39 also arranged on the offset portion 33 of the operating lever and positioned to bear against a cam edge 40 on the sweep so as to push the latter downwardly simultaneously with the opening of the gate. It will be observed that the end portion of the sweep is provided with an offset arm 36a formed thusly to provide a blocking means which in part is effective to prevent movement of additional magnetically attractable coin elements toward the main magnet poles after the sweep has been moved a predetermined distance downwardly.

It has been found that coin chutes of this class can be defrauded at times by the insertion of a plurality of magnetically attractable coin elements in quick succession, that is to say, substantially together, with the object of causing the first element to be attracted into engagement with both poles 15 of the magnet with the next following element attracted closely behind the first and held in position to move into the place occupied by the first coin element when the sweep is either partially or completely lowered. The object of this operation is to manipulate the scavenging lever 31 in short quick strokes in an endeavor to work the first coin or slug, or possibly the second one (if there are others following), into a position where a vigorous effort on the part of the sweep will cause one or more of the coins or slugs ultimately to be released without passing directly onto the discharge apron 21 but rather discharging directly into the reject exit 19. To prevent such fraud, the end 36a of the sweep has been constructed as shown so as to block movement of subsequent coin elements or objects toward the magnet 15 as the sweep 36 descends, and this arrangement is successful except that it will not prevent small, light objects, such as pins, nails, etc., from being drawn so firmly into the field that they are held there during movement of the sweep and will follow the sweep back to normal position, where they remain substantially blocking the passage and causing various troubles, for example, the deflection of legitimate coins into the reject exit 19 so that the chute is substantially out of commission.

In order to obviate fraudulent blocking of the chute passage as aforesaid, there have been provided auxiliary magnetic means including a rocking arm 50 mounted for rocking movement on a post 51 with one end portion 52 disposed in the field of the magnet 16 so as to be magnetized by the latter, and the opposite end portion 53 offset to project through an opening 54 in the main

mounting plate 10 (Fig. 3) to lie in close proximity to the passage.

The end 53a of the offset portion 53 of the auxiliary arm constitutes a pole piece providing a localized magnetic field in the region beneath the entrance 13 which is effective to attract and hold most magnetic coin elements, as well as the lighter attractable objects in the nature of pins, nails, etc.

The auxiliary magnetic arm 50 is urged into the normal position by action of a spring 55 on the post 51, but may be rocked out of normal position to withdraw the pole 53a from the passage, this being accomplished by action of an extended portion 56 (shown in phantom or dotted lines to expose underlying parts to view) of the main operating lever 31 in bearing against an offset cam ear 57 formed on the auxiliary magnetic arm 50 so as to rock the latter against the tension of the spring 55 for the purpose aforesaid. Thus, the auxiliary magnetic means is moved or actuated to effect release of objects held thereby simultaneously with the opening of the gate 11 and the operation of the sweep 36.

To prevent movement of objects released as aforesaid from the influence of the auxiliary magnetic arm 50 into the field of the main magnet and consequent jamming or other interference with the operation of the chute, there is provided a blocking means in the form of an elongated plate 60 (Figs. 1 and 2) pivoted as at 61 on the outside of the chute and urged by action of a spring 62 for movement through a slot in the plate member 10 into blocking position across the passage at a point situated between the main magnet 15 and the auxiliary magnetic arm 50, and incidentally defining a sort of auxiliary reject passage leading from the entrance 13 into the apron 21 to further assure guidance of released objects into the apron and reject exit 19.

Means coacting with the gate 11 for holding the blocking plate 60 normally in ineffective position, includes the provision of an extension 63 (Fig. 2, particularly) from the blocking member across the chute for engagement with an offset portion 64 on the gate so that when the latter is in closed position the blocking plate 60 will be cammed out of the passage.

It will be apparent that when the operating lever 31 is depressed, the gate 11 will be opened, the sweep 36 will be moved downwardly, the auxiliary magnetic arm 50 will be withdrawn from the passage, and the blocking plate 60 will be moved into blocking position, all substantially at the same time. If more than two magnetic testing devices are arranged along the passage, blocking members may be situated between each adjoining pair of the same with the same end in view, since each additional magnetic testing device increases the possibility of manipulation and the danger of magnetically attractable objects in some manner being worked into the passage. It is contemplated that the blocking plate 60 may be actuated independently of the gate or other mechanism, since the invention in its broader aspects relates to the provision of blocking means between adjoining magnetic fields for the purpose set forth.

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 testing device, means providing a coin passage, magnetic testing devices situated at spaced points along said passage in the direction of movement of a coin therealong, one of said magnetic testing devices being movable from a normal position away from the passage to effect release of objects held thereby, and blocking means including a blocking member mounted for movement from a normal ineffective position into blocking position in the passage between said testing devices to block movement of magnetic objects from the field of one of said testing devices into that of another, and means for moving the movable one of said testing devices and said blocking member so that the latter will block movement of objects released by the former.

2. In a coin chute including a coin passage having an entrance in its upper region and exits in its lower region and means for selectively influencing the movement of coin elements relative to said exits and including a permanent magnet disposed between said entrance and exits, the combination with said permanent magnet of an auxiliary magnet positioned between said entrance and the permanent magnet, and means for dislodging objects attracted by said permanent magnet together with a blocking member coacting with said last-mentioned means to

block the passage between said permanent magnet and said auxiliary magnet during action of said dislodging means.

3. In a coin chute including a pair of magnetic testing devices situated in spaced relation along a coin passage and means for effecting release of objects held by said testing devices, the combination with said last-mentioned means of means for blocking said passage to prevent movement of magnetically attractable objects from one of said testing devices toward the other during operation of said releasing means.

4. In a coin chute including a passage having an entrance in its upper region and a plurality of exits in its lower region and testing means including a permanent magnet situated between said entrance and exits and mechanism operable to effect dislodgement and ejection of coin elements arrested by said magnet, the combination of a movable auxiliary magnet situated between said entrance and said permanent magnet and of lesser strength than said permanent magnet, and mechanism for moving said auxiliary magnet to effect release of objects held thereby cooperably with the actuation of said dislodging and ejecting mechanism, and means for automatically blocking said passage in the region between said permanent magnet and auxiliary magnet and operably controlled by said dislodging and ejecting mechanism.

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