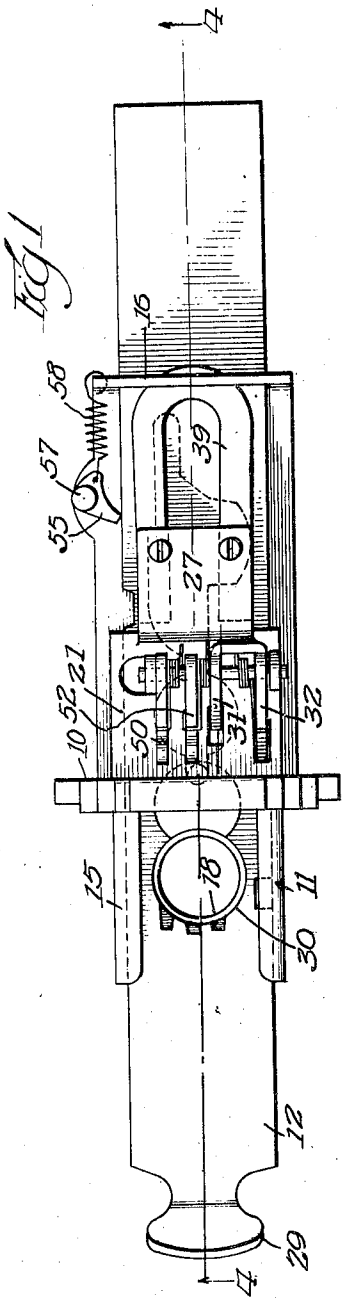
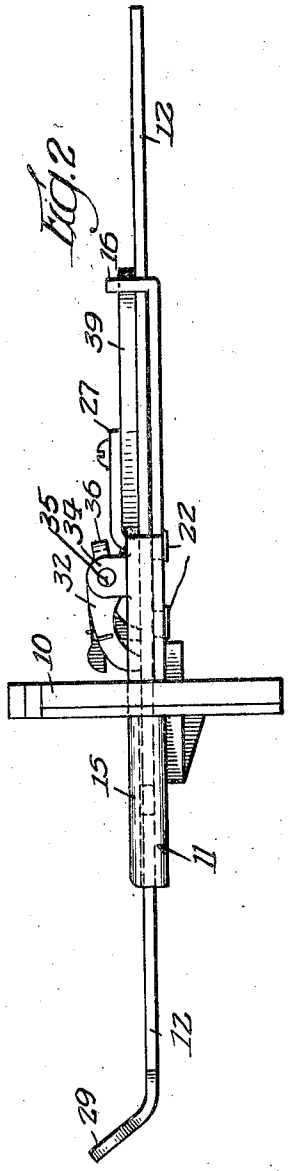
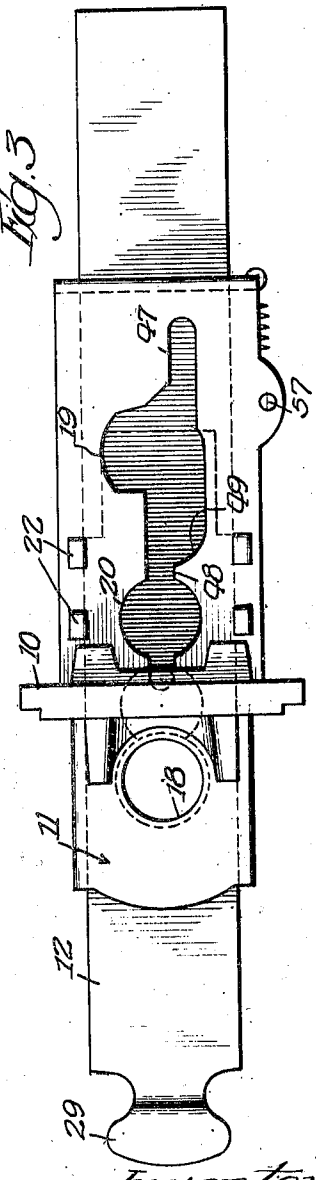
Feb. 12, 1935. L. B. SHINN 1,991,250

COIN CHUTE

Filed Sept. 21, 1933 2 Sheets-Sheet 1





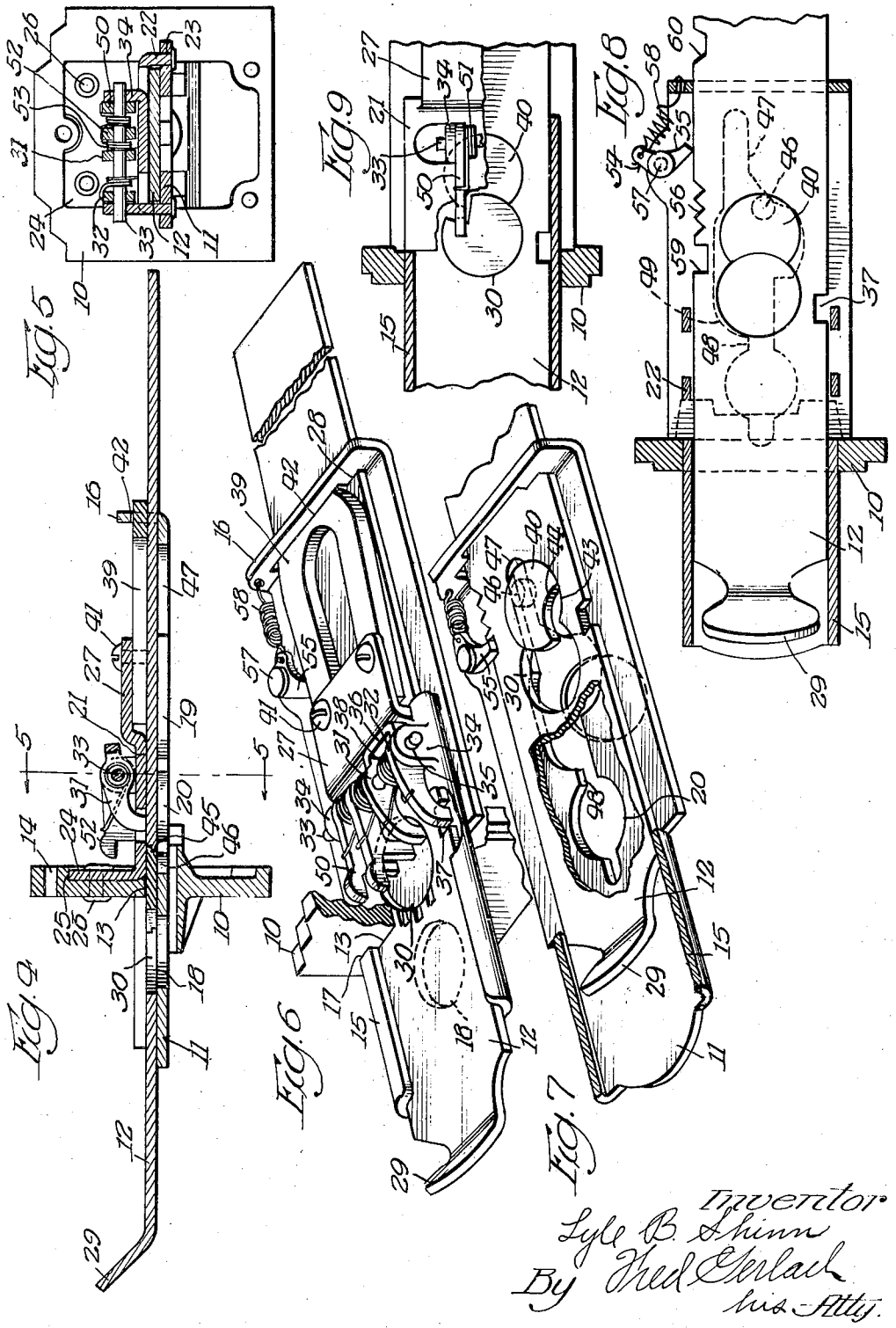


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1,991,250

COIN CHUTE

Lyle B. Shinn, Chicago, Ill., assignor to Chicago Lock Company, Chicago, Ill., a corporation of Illinois

Application September 21, 1933, Serial No. 690,362

9 Claims. (Cl. 194—101)

The invention relates generally to coin chutes. More particularly, the invention relates to that type of coin chute which is designed for use with a coin-operated, cabinet-encased vending or game machine and comprises (1) a vertically extending face plate which is adapted to fit against and be secured to the outer face of one of the side walls of the cabinet of the machine and embodies a horizontal slot across the central portion thereof; (2) a horizontally extending guide which extends through the slot in the face plate and on both sides of the plate and has inturned guide flanges along the sides thereof and a coin discharge aperture at its inner or rear end; (3) an elongated, horizontally extending slide which is mounted slidably on the top face of the guide between the inturned guide flanges, embodies at its outer end an aperture for a coin of fixed denomination and is adapted when a full inward stroke is imparted thereto to bring the coin aperture over the coin discharge aperture in the guide for coin-discharging purposes and to operate the operating mechanism of the vending or game machine; (4) a spring-pressed dog which is mounted on the inner end of the guide and is arranged so that when the slide is pushed inwardly without a coin in the coin aperture, it enters the aperture and operates to prevent a full inward stroke of the slide and actuation of the operating mechanism of the machine; and (5) means for preventing a full inward stroke of the slide when a magnetic disk or slug is inserted into the coin aperture in the slide consisting of a horse shoe magnet which is mounted on the rear end of the guide and is arranged so that it holds the slug in the coin aperture and prevents it from dropping through the discharge aperture in the guide when the slide is shifted inwardly, and an abutment element which is adapted to engage the slug and to prevent a full inward stroke of the slide while the slug remains in the coin aperture.

One object of the invention is to provide a coin chute of the aforementioned type which is simpler and more efficient than, and is generally an improvement upon, previously designed chutes of the same general character or class.

Another object of the invention is to provide a coin chute of the type under consideration in which the abutment element which together with the horse shoe magnet constitutes the means for preventing a full inward stroke of the slide when a magnetic disk or slug is used in the coin aperture, is of novel design and consists of a disk which is rotatably mounted in a hole adjacent to and intersecting the coin aperture in the slide, has a notch whereby it receives a portion of the coin or slug in the coin aperture and is locked thereby against rotation, and is adapted after the coin aperture is shifted beyond the discharge aperture in the slide, to be positively rotated with the result that when a coin is used in the coin aperture in the slide and drops through the discharge aperture in the guide, the slide is free to be shifted inwardly a full stroke, but when a slug is used in the coin aperture and is retained in this aperture by the horse shoe magnet, the slide, after the coin aperture passes the discharge aperture in the guide, is jammed so that it cannot be shifted inwardly a full stroke and hence the operating mechanism of the vending or game machine cannot be operated.

A further object of the invention is to provide a coin chute which consists of but a small number of parts and may be manufactured at a low and reasonable cost.

Other objects of the invention and the various advantages and characteristics of the present coin chute construction will be apparent to those who are skilled in the art from a consideration of the following detailed description.

The invention consists in the several novel features which are hereinafter set forth and are more particularly defined by claims at the conclusion hereof.

In the drawings which accompany and form a part of this specification or disclosure and in which like numerals of reference denote corresponding parts throughout the several views:

Figure 1 is a plan view of a coin chute embodying the invention, the slide being shown in its retracted position, that is, in position to receive a coin in the coin aperture;

Figure 2 is a side view of the chute;

Figure 3 is a bottom view illustrating in detail the construction of the guide for the slide and the position of the coin discharge aperture in the inner end of the guide;

Figure 4 is a vertical longitudinal section taken on the line 4—4 of Figure 1;

Figure 5 is a vertical transverse section taken on the line 5—5 of Figure 4 and showing the arrangement of the various dogs which serve to prevent a full inward stroke of the slide when no coin is confined in the coin aperture or a multilated or notched, magnetic slug is used in the coin aperture;

Figure 6 is a fragmentary perspective of the chute exhibiting in detail the arrangement and mode of operation of the two dogs for preventing

full inward strokes of the slide when the coin aperture in the outer end of the slide is empty;

Figure 7 is a fragmentary perspective showing the manner in which the abutment element of the means for preventing a full inward stroke of the slide when a magnetic disk or slug is used in the coin aperture is positively rotated after discharge of the coin from the coin aperture and as the slide approaches the end of its full inward stroke;

Figure 8 is a fragmentary plan view, partly in plan and partly in section showing the manner in which the abutment element serves to jamb the slide against full inward movement thereof when a magnetic disk or slug is used in the coin aperture and is held by the horse shoe magnet against discharge through the discharge aperture in the guide when the coin aperture passes over the discharge aperture during inward shift of the slide; and

Figure 9 is a fragmentary plan view showing the manner in which the special dog serves to prevent full inward movement of the slide when a magnetic disk or slug which has been notched so as to accommodate the abutment element is used in the coin aperture.

The coin chute which forms the subject matter of the present invention is designed primarily for use with a coin-operated, cabinet-encased vending or game machine and comprises a substantially rectangular face plate 10, a guide 11 and a slide 12.

The face plate 10 is adapted to fit against the outer face of one of the side walls of the cabinet of the machine and embodies in the central portion thereof a horizontally extending slot 13. In addition to this slot, the face plate embodies a plurality of holes 14 whereby it may be rigidly secured in place in a vertical position by means of screws or like attaching instrumentalities.

The guide 11 extends horizontally and is preferably stamped from a blank of sheet metal. It is elongated and projects through the slot 13 in the central portion of the face plate 10 so that it extends on either side of the plate. The outer portions of the side margins of the guide are bent upwardly and inwardly to form guide flanges 15, and the inner end of the guide is bent upwardly to form a transversely extending flange 16. The inner ends of the guide flanges 15 fit within and terminate adjacent to socket portions 17 at the ends of the slot 13 in the face plate 10. Directly in front of the face plate 10, the guide is provided with a finger opening 18. This opening is circular and is adapted as hereinafter described, to be used in connection with the removal of a coin from the slide 12. The rear end of the guide is provided with a coin discharge aperture 19 and a substantially circular opening 20. The coin discharge aperture 19 is located directly in front of the transversely extending flange 16 and the opening 20 is located between the coin discharge aperture and the face plate 10. A sheet metal, substantially rectangular bracket 21 serves to secure the guide fixedly to the face plate and forms part of the guide. This bracket overlies and is spaced from the portion of the guide directly behind the face plate and embodies legs 22 at the sides thereof. These legs, as shown in Figure 5 of the drawings, extend through holes 23 in the side margins of the guide 11 and are beaded over at the lower ends thereof so that the bracket is permanently secured to the guide. The front end of the bracket 21 is bent upwardly to form a vertically extending flange 24. The latter fits within a recess 25 in the rear portion of the face plate 10 and is secured permanently and fixedly to the face plate by means of rivets 26. The rear end of the bracket is bent upwardly and then rearwardly so as to form a tongue 27 which overlies the rear end of the guide and is disposed at a slightly higher elevation than the main portion of the bracket.

The slide 12 is preferably formed from a blank of sheet metal and fits slidably on the top face of the guide 11. The inner end of the slide extends through a horizontally extending slot 28 in the flange 16 at the inner end of the guide, and the side edges of the slide fit in the guide flanges 15 so that the slide is confined to longitudinal sliding movement to and from the face plate 10. The central portion of the slide extends through the slot 13 in the face plate 10 and fits between the bracket 21 and the subjacent portion of the guide 11. The outer end of the slide 12 is shaped and bent upwardly to form a finger piece 29 whereby the slide may be gripped manually and slid back and forth in connection with the operation or manipulation of the machine to which the coin chute is applied. Directly behind the finger piece 29, the slide 12 is provided with a circular aperture 30 for a coin of fixed denomination. This aperture is located so that when the slide is pulled outwardly to its outermost position, it overlies and is concentrically arranged with respect to the finger opening 18. It is slightly larger than the finger opening so that when a coin of the proper denomination is inserted therein, the coin will not drop through the opening 18. When a coin is in the coin aperture 30 and the slide 12 is shifted inwardly, the coin is carried over the guide 11 until it reaches a point directly over the discharge aperture 19. At this point, the coin drops through the aperture into a receptacle (not shown) inside of the cabinet of the vending or game machine to which the chute is applied. The inner end of the slide is adapted to actuate the operating mechanism for the machine after discharge of the coin from the coin aperture 30 and as the slide reaches the end of its full inward stroke. When the slide is shifted inwardly, the finger piece 29 abuts against the front face of the face plate 10 and thus determines the extent of the inward stroke of the slide.

In order to prevent a full inward stroke of the slide 12 when there is no coin in the aperture 30, dogs 31 and 32 are provided. These dogs, as shown particularly in Figures 4, 5 and 6 of the drawings, are pivotally mounted on a horizontal rod 33 which is located behind the face plate 10 and over the bracket 21. This rod extends transversely of the guide 11 and is supported a small distance above the bracket by means of a pair of ears 34. The latter are bent upwardly from and formed integrally with the side portions of the bracket 21 and are provided with aligned holes 35 through which extend the ends of the rod 33. The dog 31 is mounted centrally on the rod 33 and is arranged in longitudinal alignment with the coin aperture 30. When the coin is in the coin aperture and the slide is pushed inwardly for the purpose of actuating the operating mechanism of the cabinet to which the chute is applied, the dog 31 rides over the coin and the top face of the slide. When the coin aperture 30 contains no coin and the slide is pushed inwardly, the dog 31 enters the aperture as the latter passes thereunder, as shown in Figure 6. The dog 32 is located at one end of the rod 33 and is rigidly secured to the dog 31 by a cross-piece 36 so that it moves conjointly with the dog 31. The outer

or distal end of the dog 32 rides on one margin of the slide 12 and is adapted to enter a notch 37 in the slide when the dog 31 enters the coin aperture 30. The outer end of the dog 32 is so shaped that when it is disposed in the notch 37, the slide is locked or held against further inward movement. A coil spring 38 is applied to the dogs 31 and 32 so that the latter are urged downwardly into contact with the top face of the slide 12. This spring is mounted on the rod 33 between the two dogs and one end thereof is extended over and bent around the dog 32. By employing two dogs instead of one, the slide is securely locked against a full inward stroke when the slide is pushed inwardly without a coin in the aperture 30. When the slide is shifted outwardly or retracted, the dog 31 serves automatically to elevate the dog 32 so as to withdraw the outer or distal end thereof from the notch 36.

A horse shoe magnet 39 and an abutment element 40 coact to prevent a full inward stroke of the slide when an attempt is made to operate the chute with a magnetic disk or slug. The magnet 39 overlies the inner end of the slide 12 and extends between the flange 16 and the inner or rear end of the bracket 21. The legs of the magnet underlie and are secured by screws 41 to the tongue 27 at the inner end of the bracket. The rounded part between the legs of the magnet fits in a notch 42 in the flange 16. The magnet is positioned over the coin discharge aperture 19 and operates when a magnetic slug is inserted into the coin aperture 30 and the slide is shifted inwardly, to retain the slug in the aperture 30 so that it does not drop through the discharge aperture 19 in the guide. The abutment element 40 operates to lock the slide against a full inward stroke and thus to prevent actuation of the operating mechanism of the vending or game machine when a coin or slug remains in the coin aperture 30 after the latter passes over the coin discharge aperture 19 during inward movement of the slide. It is rotatably mounted in a circular hole 43 in the outer end of the slide. This hole, as shown in the drawings, is located rearwardly of the coin aperture 30 and intersects the latter. The abutment element is in the form of a disk and embodies an arcuate notch 44 for receiving the rear portion of the coin or slug in the coin aperture 30. When a coin or slug is in the aperture 30, the abutment member 40 is locked against rotation and when the coin aperture is empty, the abutment element is free for rotation. The abutment element is supported on a shoulder 45 around the hole 43. It is provided on the bottom face thereof with a depending pin 46. This pin is located diametrically opposite the notch 44 and coacts with a cam slot 47 in the rear end of the guide 11 to rotate the abutment element immediately after the coin aperture 30 passes over the coin discharge aperture 19 during inward shift of the slide 12. The cam slot 47 is arranged so that substantially a quarter turn is imparted to the abutment element as the slide reaches the end of its inward stroke.

When a magnetic slug is retained in the coin aperture by the horse shoe magnet 39, the abutment element is locked against rotation and hence because of the pin and slot connection between the abutment element and the guide, the slide cannot be given a full inward stroke to actuate the operating mechanism for the machine to which the chute is applied. When a coin of the proper denomination is inserted in the coin aperture, the abutment element 40 is locked against rotation until the coin reaches the discharge aperture 19 during inward stroke of the slide. At this point, the coin drops through the discharge aperture 19 and thus releases the abutment element so that it is free to rotate in response to the action of the pin 46 and the slot 47. The pin 46 travels in a slot 48 during the initial part of the inward stroke of the slide. This slot is formed in and extends longitudinally of the guide 11 and is provided at its rear or inner end with a flared mouth 49. The latter serves during retraction of the slide to engage the pin 46 and rotate the abutment element 40 into its normal position, that is, in the position wherein the notch 44 registers with the coin aperture 30. The slot 48 is preferably shaped so that the abutment element is held against rotation when the slide is in its retracted position. During retraction of the slide, the pin 46 abuts against the outer end of the slot 48 and thus limits retraction of the slide. The horse shoe magnet 39 and the abutment element 40 constitute novel means for preventing a full inward stroke of the slide when a magnetic disk or slug is inserted into the coin aperture in the slide or a proper coin fails to drop from the coin aperture through the discharge aperture 19 in the guide.

In order to prevent operation of the chute by way of a magnetic disk or slug having a notch or cut-out part to accommodate and permit rotation of the abutment element 40 (see Figure 9), a special dog 50 is provided. This dog is mounted on the rod 33, rides on the top face of the slide 12 and is positioned in longitudinal alignment with the corner of the abutment element 40 which enters the coin aperture 30 in the slide when the abutment element is rotated by the pin and slot connection 46, 47. A coil spring 51 is mounted on the rod 33 and serves to urge downwardly the dog 50. When a slug having a notch or recess for accommodating the abutment element is placed in the coin aperture 30 and the slide is shifted inwardly with a view of actuating the vending or game machine in a fraudulent manner, the dog 50 enters the notch in the slug as the slug travels rearwardly during inward shift of the slide, and thus, as shown in Figure 9, prevents a full stroke of the slide in the same manner as the dogs 31 and 32 operate to restrict inward shift of the slide when there is no coin in the coin aperture 30.

A fourth dog 52 is mounted on the rod 33 between the special dog 50 and the dog 31 and operates to prevent operation of the chute when a disk of wood or other comparatively weak material is inserted in the coin aperture. This dog 52 is urged downwardly by means of a coil spring 53 and is located over the circular opening 20 in the central portion of the guide 11. When a paper or wooden disk is inserted in the coin aperture and the slide is shifted inwardly the dog 51 presses against the disk with such force that the latter is caused to bulge downwardly into the opening 20 and thus to lock the slide against a full inward stroke.

In order to insure a full stroke of the slide after discharge of a coin from the slide, a full stroke ratchet 54 is provided. This ratchet consists of a pawl 55 and a plurality of teeth 56. The pawl 55 is pivotally mounted on a stud 57 at the inner end of the guide 11 and the teeth 56 are formed in one of the side margins of the slide. The pawl is urged into contact with the teeth by means of a spring 58 which extends between and is attached to the pawl and one end of the up-

standing flange 16 at the inner end of the guide. The pawl is arranged so that when the slide is shifted to a point wherein the coin aperture 30 overlies the discharge aperture 19, it coacts with the teeth 56 to prevent retraction of the slide. A cut-out 59 in the slide receives the pawl at the end of the inward stroke of the slide and upon retraction of the slide, swings the pawl into a position wherein it rides over the teeth 56. A second cut-out 60 is formed in the slide and receives the pawl at the end of the retractile stroke of the slide and operates during the inward stroke of the slide to swing the pawl into a position wherein it coacts with the teeth 56 to prevent retraction of the slide until after completion of a full inward stroke of the slide.

The operation of the chute is as follows:

When it is desired to actuate the operating mechanism of the vending or game machine to which the chute is applied, a coin of proper denomination is inserted into the aperture 30 in the outer end of the slide 12. Thereafter, a full inward stroke is imparted to the slide. During inward movement of the slide, the coin rides on the top face of the guide 11 until it overlies the discharge aperture 19. At this point, which is slightly more than half of the full stroke of the slide, the coin drops through the discharge aperture and is thus released from the chute. As the slide reaches the end of its full stroke, the rear end of the slide, as previously pointed out, actuates the operating mechanism of the machine. The ratchet 54 operates to prevent retraction of the slide after completion of the full inward stroke of the slide. In the event that a slug or magnetic disk is used in the coin aperture, instead of a proper coin with a view of fraudulently actuating the operating mechanism of the machine, the horse shoe magnet 39 prevents discharge of the slug from the coin aperture during the in-stroke of the slide and the abutment element 40 locks or jambs the slide so that a full inward stroke cannot be imparted to the slide.

The herein described coin chute consists of but a small number of parts. It may be manufactured at a low and reasonable cost and is extremely simple in operation.

The invention is not to be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a coin chute for controlling a vending or like machine, the combination of a guide having a coin discharge aperture therein, a slide provided with a coin aperture and mounted on top of the guide so that it is slidable from a coin-receiving position to a machine-operating position and the coin aperture registers with the discharge aperture for coin-discharging purposes before the slide reaches the machine-operating position, a member movably mounted on the slide adjacent to the coin aperture and arranged and constructed so that it is locked against movement relatively to the slide when a coin is in the aperture, and means for preventing a full stroke of the slide when, during shift of the slide towards its machine-operating position, the coin in the aperture is not discharged through the discharge aperture and the member as a result remains locked.

2. In a coin chute for controlling a vending or like machine, the combination of a guide having a coin discharge aperture therein, a slide provided with a coin aperture and mounted on top of the guide so that it is slidable from a coin-receiving position to a machine-operating position and the coin aperture registers with the discharge aperture for coin-discharging purposes before the slide reaches the machine-operating position, a member rotatably mounted on the slide adjacent to the coin aperture and arranged and constructed so that it is locked against rotation when a coin is in the coin aperture, and means for preventing a full stroke of the slide when, during shift of the slide toward its machine-operating position, the coin in the aperture is not discharged through the discharge aperture and the member as a result remains locked.

3. In a coin chute for controlling a vending or like machine, the combination of a guide having a coin discharge aperture therein, a slide provided with a coin aperture and mounted on top of the guide so that it is slidable from a coin-receiving position to a machine-operating position and the coin aperture registers with the discharge aperture for coin-discharging purposes before the slide reaches the machine-operating position, a member rotatably mounted in a hole in the slide intersecting the coin aperture, and having a recess whereby it receives a portion of the coin in the aperture and is held by the coin against rotation, and means for preventing a full stroke of the slide when, during shift of the slide towards its machine-operating position, the coin in the aperture is not discharged through the discharge aperture and the member as a result remains locked.

4. In a coin chute for controlling a vending or like machine, the combination of a guide having a coin discharge aperture therein, a slide provided with a coin aperture and mounted on top of the guide so that it is slidable from a coin-receiving position to a machine-operating position and the coin aperture registers with the discharge aperture for coin-discharging purposes before the slide reaches the machine-operating position, a member rotatably mounted in a hole in the slide intersecting the coin aperture, and having a recess whereby it receives a portion of the coin in the aperture and is held by the coin against rotation, and a pin and cam slot connection between the member and the guide whereby the member is rotated after discharge of the coin through the discharge aperture and during completion of a full stroke of the slide to its machine-operating position, or, in the event the coin fails to be discharged from the aperture and the member thus remains locked, the slide is held against completion of a full stroke to the machine-operating position.

5. In a coin chute for controlling a vending or like machine, the combination of a guide having a coin discharge aperture therein, a slide provided with a coin aperture and mounted on top of the guide so that it is slidable from a coin-receiving position to a machine-operating position and the coin aperture registers with the discharge aperture for coin-discharging purposes before the slide reaches the machine-operating position, a member rotatably mounted in a hole in the slide intersecting the coin aperture, and having a recess whereby it receives a portion of the coin in the aperture and is held by the coin against rotation, a pin and cam slot connection between the member and the guide whereby the member is rotated after discharge of the coin through the discharge aperture and during completion of a full

stroke of the slide to its machine-operating position, or, in the event the coin fails to be discharged from the aperture and the member thus remains locked, the slide is held against completion of a full stroke to the machine-operating position, and means operative after completion of a full stroke of the slide, to rotate the member to its normal position during return of the slide from its machine-operating position to its coin-receiving position.

6. In a coin chute for controlling a vending or like machine, the combination of a guide having a coin discharge aperture therein, a slide provided with a coin aperture and mounted on top of the guide so that it is slidable from a coin-receiving position to a machine-operating position and the coin aperture registers with the discharge aperture for coin-discharging purposes before the slide reaches the machine-operating position, a member rotatably mounted in a hole in the slide intersecting the coin aperture, and having a recess whereby it receives a portion of the coin in the aperture and is held by the coin against rotation, and a pin on the member arranged to coact with a part on the guide so as to rotate the member after discharge of the coin from the aperture and during shift of the slide to its machine-operating position, and to prevent completion of a full stroke of the slide into said machine-operating position in the event that the coin fails to be discharged from the coin aperture and the member thus remains locked.

7. In a coin chute for controlling a vending or like machine, the combination of a guide having a coin discharge aperture therein, a slide provided with a coin aperture and mounted on top of the guide so that it is slidable from a coin-receiving position to a machine-operating position and the coin aperture registers with the discharge aperture for coin-discharging purposes before the slide reaches the machine-operating position, a member rotatably mounted in a hole in the slide intersecting the coin aperture, and having a recess whereby it receives a portion of the coin in the aperture and is held by the coin against rotation and a pin on the member arranged to coact with a part on the guide so as to rotate the member after discharge of the coin from the aperture and during shift of the slide to its machine-operating position, and to prevent completion of a full stroke of the slide into said machine-operating position in the event that the coin fails to be discharged from the coin aperture and the member thus remains locked, and means on the guide operative after completion of a full stroke of the slide, to rotate the member to its normal position during return of the slide from its machine-operating position to its coin-receiving position.

8. In a coin chute for controlling a vending or like machine, the combination of a guide having a coin discharge aperture therein, a slide provided with a coin aperture and mounted on top of the guide so that it is slidable from a coin-receiving position to a machine-operating position and the coin aperture registers with the discharge aperture for coin-discharging purposes before the slide reaches the machine-operating position, a member rotatably mounted in a hole in the slide intersecting the coin aperture, and having a recess whereby it receives a portion of the coin in the aperture and is held by the coin against rotation, and a pin on the member extending into a cam slot in the guide and operating with said slot to rotate the member after discharge of the coin from the aperture and during shift of the slide to its machine-operating position, and to prevent completion of a full stroke of the slide into said machine-operating position in the event that the coin fails to be discharged from the coin aperture and the member thus remains locked.

9. In a coin chute for controlling a vending or like machine, the combination of a guide having a coin discharge aperture therein, a slide provided with a coin aperture and mounted on top of the guide so that it is slidable from a coin-receiving position to a machine-operating position and the coin aperture registers with the discharge aperture for coin-discharging purposes before completion of a full stroke in the slide, a magnet supported above the slide and over the discharge aperture in the guide and arranged to retain in the coin aperture and prevent discharge of a magnetic slug used in the aperture instead of a coin, and means comprising a rotatable member on the slide for preventing a full stroke of the slide when a slug is retained in the coin aperture by the magnet.

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