

June 23, 1942.

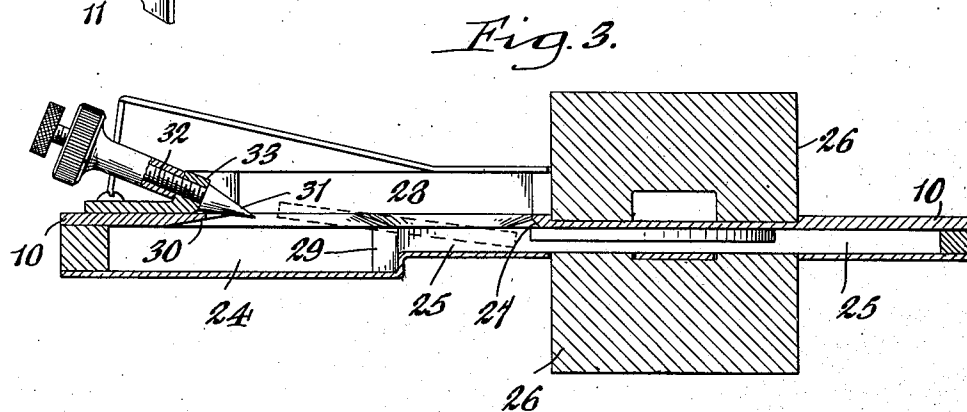
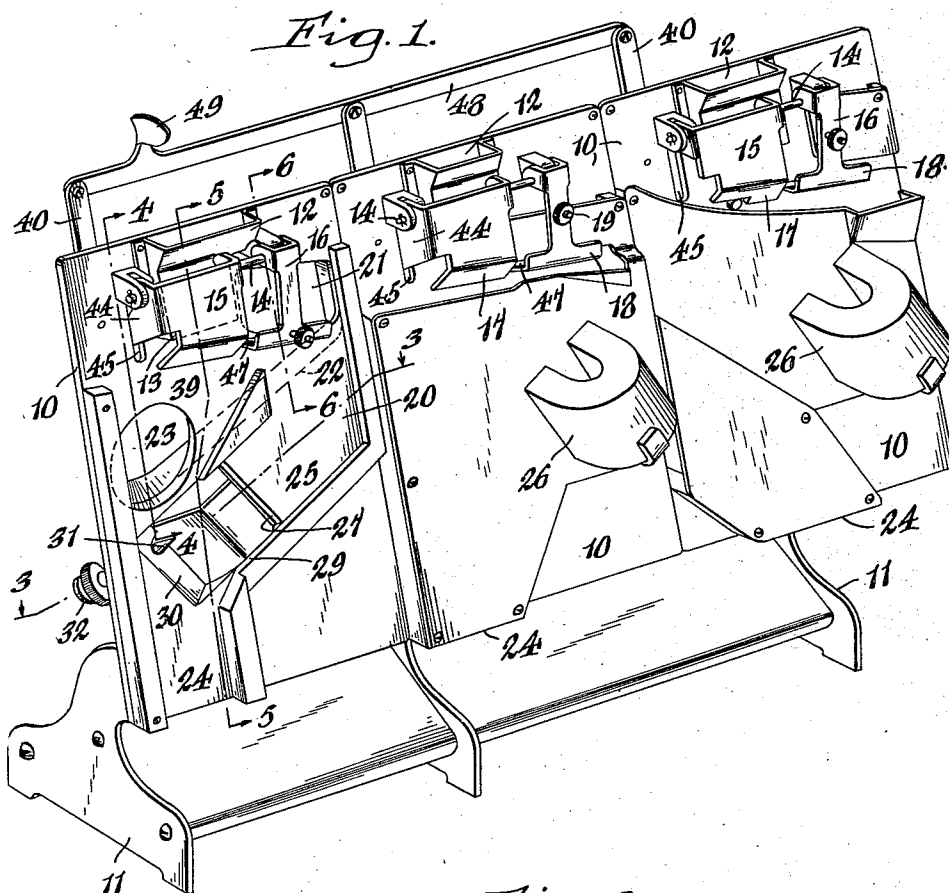
K. C. BUGG

2,287,292

COIN CONTROL MECHANISM

Filed March 17, 1938

2 Sheets-Sheet 1



Inventor,
Kenly C. Bugg,
by Walter P. Meyer
Attorney.

June 23, 1942.

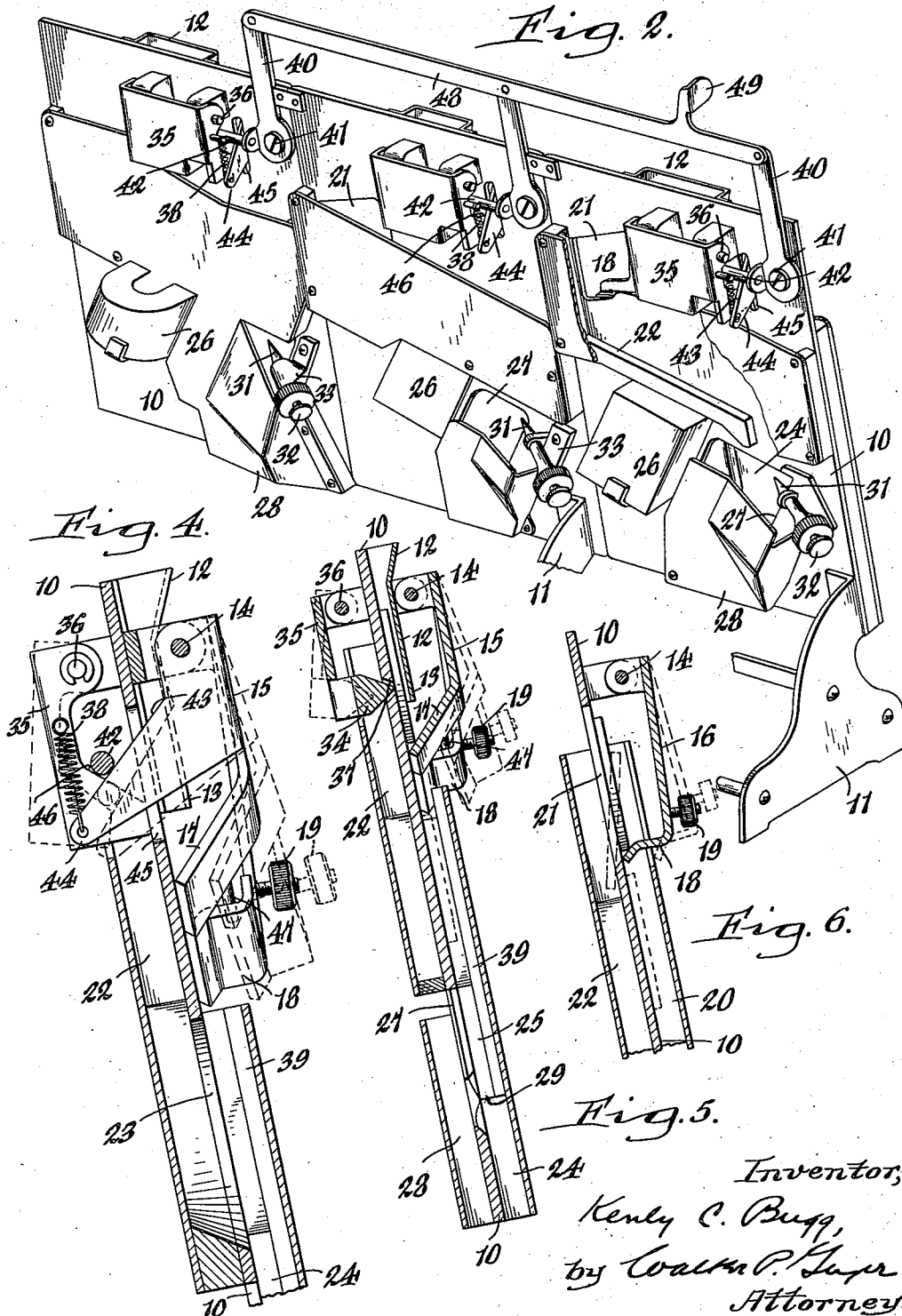
K. C. BUGG

2,287,292

COIN CONTROL MECHANISM

Filed March 17, 1938

2 Sheets-Sheet 2



Inventor,
Kenly C. Bugg,
by *Walter P. Gump*
Attorney.

UNITED STATES PATENT OFFICE

2,287,292

COIN CONTROL MECHANISM

Kenly C. Bugg, Farmington, Mo., assignor to The
Rudolph Wurlitzer Company, North Tona-
wanda, N. Y., a corporation of Ohio

Application March 17, 1938, Serial No. 196,468

5 Claims. (Cl. 194—97)

This invention relates to certain new and useful improvements in coin-controlled mechanism and particularly to a mechanism designed for use with automatic phonographs, vending machines and the like.

It has for one of its objects to provide an efficient coin control mechanism which is so designed and constructed as to effectually separate the good or acceptable coins from the spurious or unacceptable coins in such a way that the unacceptable coins are returned to the user while the acceptable coins pass through the mechanism and thence into the phonograph or other machine to which the mechanism is applied for automatically operating the same to receive the proper value for the coins deposited.

Another object of the invention is the provision of a coin-separating mechanism which is so designed as to effect the separation in accordance with the weight of the coin and its material-content, the coins rolling by gravity from one testing stage to another and during such movement being inclined to the vertical, whereby the force of gravity also functions in the separation of acceptable from non-acceptable coins.

A further object is to provide a coin-controlled mechanism having simple and effective means for releasing or freeing coins which have been temporarily trapped or arrested in their movement through the mechanism either purposely or accidentally.

Other features of the invention reside in the construction and arrangement of parts herein-after described and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a front perspective view of a multi-coin-controlled apparatus embodying my invention. Figure 2 is a rear perspective view thereof. Figure 3 is an enlarged horizontal section taken substantially in the plane of line 3—3, Figure 1. Figure 4 is an enlarged vertical section taken in the plane of line 4—4, Figure 1. Figures 5 and 6 are like sections taken substantially in the planes of the correspondingly-numbered lines in Figure 1.

Similar characters of reference indicate corresponding parts throughout the several views.

By way of example, I have shown my invention embodied in a multiple coin-controlled unit or mechanism for use with five cent, ten cent and twenty-five cent coins. However, inasmuch as each unit coin-controlled mechanism is identical in construction and operation insofar as the separation of acceptable from non-acceptable coins

is concerned, a description of one of such units will suffice for all. Briefly, each of these coin-controlled units comprises a vertically-tilted or inclined support or panel provided with a plurality of coin chutes for the travel of the coins; a magnetic means for trapping or arresting spurious slugs, such as iron or steel washers and the like; a weight-testing device which is designed to so function as to release a proper weight coin into the proper coin chute and to function to direct or deflect a light-weight coin or slug to another chute; a means for creating a magnetic field along the path of one of the coin chutes for retarding the speed of travel of a coin depending upon its material-content and accordingly effecting the separation of acceptable and non-acceptable coins, the acceptable coins being discharged into a passage for receiving them at one side of the inclined support and the non-acceptable coins being discharged into a corresponding passage at the opposite side of such inclined support.

Referring now to the drawings, 10 indicates the inclined support, panel or backing member to which the various chutes and coin control devices are applied, this support being disposed in a slightly inclined position to the vertical and being suitably attached to a frame 11 or like means borne by the cabinet of the vending machine, phonograph or like apparatus. At its upper end this inclined panel is provided with a coin inlet 12 into which the coin drops after being deposited in the customary coin slot borne by the apparatus, this inlet being formed in any appropriate fashion and secured to the upper front face of the panel as shown in Figures 1 and 5, and having a pendant portion or apron 13 spaced from such face of the panel to form a guide or retaining wall for the coin after it leaves the inlet. Pivoted independently at 14 to the upper front face of the panel to rock toward and from the same, are displaceable baffle elements 15 and 16 which are provided at their lower ends with inwardly-bent flanges or ledge portions 17 and 18, respectively, which normally abut at their inner edges against the face of the panel 10 in the manner shown in Figure 4. In this position the ledges of these baffle elements form trackways over which coins are adapted to roll in a right-hand direction generally transversely or crosswise of the plate, viewing Figure 1. The ledge 17 of the baffle element 15 is positioned beneath the coin inlet 12 so that when a coin is deposited therein it will drop by gravity onto that ledge unless arrested by other or ancillary means dur-

ing its downward movement. The companion baffle element 16, which functions as a weight tester for the coins, is disposed laterally at one side of the coin inlet in the manner shown in Figure 1 and it is provided with a suitable forwardly-facing, adjustable weight 19 at its lower end which normally tends to rock or swing such element, independently of the companion element 15, toward the face of the panel with its ledge abutting the same. This ledge portion 18 constitutes a lateral continuation of the ledge portion 17 of the companion element 15 and when a proper weight coin or acceptable coin encounters the testing element 16, such coin causes this element to swing outwardly from the panel to enable the coin to be freed or released and to drop by gravity into a communicating substantially upright chute 20 provided in the front face of the panel for receiving it.

Formed in the upper end of the inclined panel 10 adjacent the weight-testing baffling element 16 and adjoining the upper end of the chute 20, is an opening 21 which may have a chamfered lower edge, as seen in Figure 6, and which communicates with the upper end of a transversely-inclined chute 22 formed on the rear side of the panel 10. Should a light-weight coin, or slug of less weight than a genuine coin, such as an aluminum-made slug or one made of Bakelite, be inserted in the coin inlet 12, then such coin or slug will travel downwardly and then in a transversely-inclined path over the ledges 17 and 18 of the baffle elements 15 and 16, and due to its light weight, such coin or slug will not displace the testing element 16 but the latter will remain in its normal position and cause the coin or slug to drop backwardly through the opening 21 into the reversely-inclined chute 22. This last-named chute opens into an opening 23 formed in the panel and after passing through such opening the light-weight coin travels downwardly through a vertical chute 24 formed in the front side of the inclined panel 10.

The upright chute 20 communicates at its lower end with the upper portion of a transversely-inclined chute 25 likewise formed on the front face of the panel 10, and associated with this chute is a magnet 26 which creates a magnetic field across the chute, and as the coins roll through the chute past the lines of force created by this magnet, eddy currents are set up in the coins, should the coins be of the proper material-content to be acted upon by the magnetic field. When the coin, such as a genuine twenty-five cent piece, passes through this magnetic field, the eddy currents set up in it slow down or retard the downward travel of the coin. When a non-acceptable coin not so affected by the magnetic field rolls through the chute 25 it is not retarded but continues on through the chute at its normal speed of travel. Beyond the magnet and partially intersecting the chute 24, the panel 10 is provided with an opening 27 which is in the back wall of the chute 25 and which is of a size to permit a coin to discharge laterally therethrough. Communicating with this opening and applied to the rear side of the panel 10 is a discharge chute 28. The bottom ledge 29 of the inclined chute 25 continues on a short distance beyond the magnet 26 and opposite the opening 27, and a coin passing thereover under normal speed discharges directly into the vertical discharge chute 24, as shown in Figure 1. A coin which is retarded in its movement when it encounters the magnetic field, tilts by gravity backwardly from the chute-

ledge 29 and drops into the discharge chute 28 at the rear side of the panel 10. A coin not so retarded travels under its own momentum into the companion discharge chute 24 at the front side of such panel. To assure the proper deflection of the coin into its respective chute 24 or 28, there is provided a beveled deflector surface 30 which is formed in the panel 10 at the far edge of the lateral discharge opening 27 and associated therewith is an adjustable point or tapered element 31 which is applied to the end of an adjusting screw 32 supported in a suitable bracket 33 fixed at the lower rear side of the panel as seen in Figures 2 and 3.

Associated with the coin inlet 12, for preventing the passage of steel slugs, washers and the like beyond such inlet, is a magnet 34 which is preferably attached to the lower end of a swinging bracket 35 pivoted at 36 to the upper rear side of the panel 10, in opposing relation to the baffle element 15, in the manner shown in Figures 2 and 5. In its normal position the magnet bridges an opening 37 formed in the panel 10 in the plane of the inlet 12, so that should a steel slug be inserted in such inlet the magnet will attract and arrest it in the manner shown in Figure 5 with the lower edge of the coin resting on the ledge 17 of the baffle element 15. A spring 38 normally urges this magnet-bearing bracket 35 into operative position. Formed in the front face of the panel 10 beneath the baffle element 15 is a chute 39 which communicates at its lower end with the upper end of the upright discharge chute 24, so that when the baffle element 15 and the magnet 34 are released from holding and supporting engagement with a trapped slug, such slug then drops by gravity through the chute 39 and thence downwardly through the communicating chute 24 to the reject side of the coin-control mechanism.

For the purpose of actuating the baffle elements 15 and 17 and the bracket 35 carrying the magnet 34 to scavenge or release any trapped or otherwise caught coins adjoining such parts, I provide a scavenging mechanism consisting of a rock arm 40 pivoted at 41 to the panel 10 and carrying a tappet 42 which bears against the inclined edge 43 of an arm 44 projecting from the baffle element 15 and through a slot 45 in the panel. This tappet 42 also engages the inclined top edge of an arm 46 projecting forwardly from the magnet-bearing bracket 35. Projecting laterally from the lower side of the baffle element 15 is a coupling pin 47 which is adapted to abut against the adjoining lower side of the companion baffle element 16, so that when the element 15 is swung outwardly its coupling pin encounters the adjoining portion of the baffle element 16 and compels it to move outwardly therewith. By this construction, upon rocking the arm 40 to the right, viewing Figure 1, or to the left, viewing Figure 2, its tappet 42 simultaneously rocks the baffle element 15 forwardly from the front face of the panel 10 and the magnet-bearing bracket 35 rearwardly from the rear face of such panel to thereby free a trapped coin held by either of these elements and allow it to drop by gravity into the chute 39. Should a coin become trapped or wedged by the baffle or weight-testing element 16, then simultaneously with this scavenging stroke of the arm 40, this element will likewise be swung forwardly from the face of the panel 10 and free such coin. The spring 38 which normally urges the magnet-bearing element 35 to a normal position also serves to restore that

element and the jointly connected baffle elements 15 and 16 to their normal positions when the rock arm 40 is released after the scavenging stroke is effected.

In the multiple coin unit arrangement of the invention shown in Figures 1 and 2, each rock arm 40 of the scavenging device may be connected to a common actuating link 48 having a suitable thumb-piece 49 thereon for actuating it.

As seen in Figures 4, 5 and 6 the coin-engaging ledges of the displaceable elements 15 and 16 are disposed in an inclined plane to provide for ease of travel of the coins as well as for simple and effective counter-balance adjustment of such parts.

I claim as my invention:

1. A coin device of the character described, comprising a coin chute through which coins are adapted to roll, said chute being downwardly inclined and inclined to the vertical and terminating at its lower end in separate passages for the discharge of genuine and spurious coins, respectively, said passages being disposed side by side in different planes parallel to the vertical incline of the chute and the latter having a lateral opening therein, means adjacent said chute and in advance of said discharge passages for creating a magnetic field, whereby to govern the momentum of travel of the coins according to their permeability and their subsequent discharge through one or the other of said separating passages, and a deflecting member disposed beyond the magnetic field-creating-means and substantially in the plane of said lateral opening for directing the coins into their respective discharge passages.

2. A coin device of the character described, comprising a chute for coins of proper material-content and a chute for coins of improper material-content, a common coin-inlet associated with said chutes, displaceable magnetic means adjoining said coin-inlet for arresting the travel of improper coins into either of said chutes, a displaceable baffle element disposed in opposing relation to said magnetic means and normally extending across the discharge mouth of the coin inlet, a second displaceable baffle element disposed alongside said first-named baffle element, a coupling connection between said first and second-named baffle elements to effect their joint displacement in unison, and means operatively connected to said magnetic means and the first-named baffle element for shifting them, together with the second-named baffle element, to a displaced position to release an arrested, improper coin into its companion chute or an intercepted proper coin into its companion chute.

3. A coin device of the character described, comprising a panel-like member inclined to the vertical and having downwardly-inclined coin chutes at opposite sides of said member, the coins traveling in the inclined plane of said chute bearing member and the respective chutes terminating in discharge passages at the opposite sides of the inclined member, the latter having openings therein at predetermined points along the chutes for directing coins of certain characteristics from one of the chutes into another and into

one or the other of said discharge passages, and means disposed at successive stations along the chutes for governing the separation of the coins into one or another of the chutes and into one or the other of said discharge passages, said means including baffle elements for effecting the separation of light weight spurious coins, magnetic means for trapping certain spurious coins, and other magnetic means for retarding the movement of other spurious coins to effect their gravity displacement from one chute into the other.

4. A coin device of the character described, comprising a supporting member inclined to the vertical and having coin chutes on its top and under faces through which coins are adapted to travel by gravity in the inclined plane of such member, one of said chutes terminating at its upper end in a coin-inlet and each of the chutes terminating at its lower end in discharge opening for an acceptable or non-acceptable coin, said supporting member having transverse openings adjacent its upper and lower ends for the passage of non-acceptable coins from the top-chute into the under-chute, means disposed at opposite sides of the supporting member adjacent said upper transverse opening for testing the characteristics of an inserted coin, the lower portion of the top chute being inclined crosswise of the supporting member and intersecting said lower transverse opening, means mounted on said supporting member in the plane of the crosswise-inclined portion of the top chute and in advance of said lower opening for creating a magnetic field, whereby those coins acted upon by such field are retarded in their movement as they approach such lower opening and are tilted by gravity beyond the plane of inclination of the supporting member and through said last-named opening into the under chute, and a coin-deflector element disposed substantially in the plane of said lower opening and at that edge thereof remotest from the magnetic field creating means.

5. A coin device of the character described, comprising a member inclined to the vertical and having downwardly-inclined coin chutes at its top and under faces along which coins are adapted to travel by gravity, the coins traveling in the inclined plane of said member and the respective chutes terminating at their lower ends in discharge passages disposed at the opposite sides of said inclined member for separating the genuine from the spurious coins, said member having an opening adjacent one end for directing a given characteristic coin from the top chute into the opposing under chute and a second opening adjacent its other end for directing a coin of another characteristic from the top chute into the under chute, and means adjacent the lower end of said top chute for creating a magnetic field, whereby those coins acted upon by such field are caused to be directed through said second opening into the opposing chute and its companion discharge passage and those coins not so acted upon are caused to travel past such opening and be directed into the other discharge passage.

KENLY C. BUGG.