

June 4, 1963

C. L. BARNHART
AUTOMATIC COIN COLLECTOR

3,092,308

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2 Sheets-Sheet 1

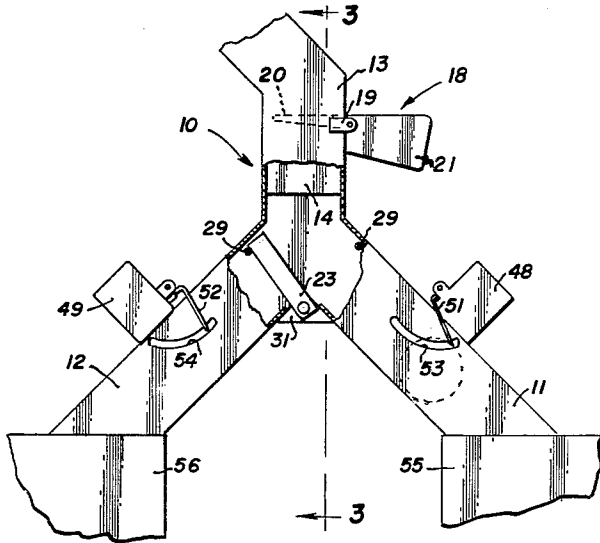


FIG. 2.

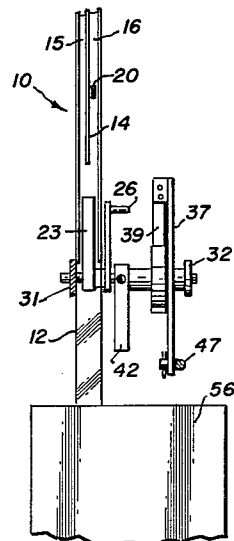


FIG. 3.

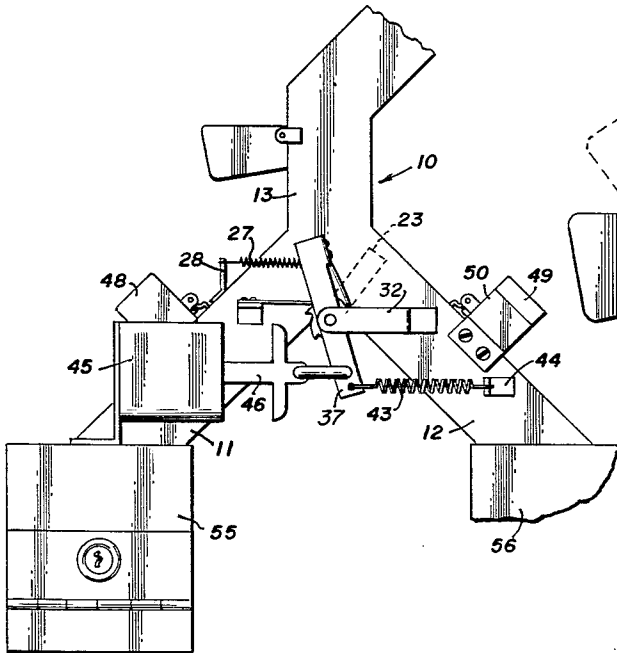


FIG. 1.

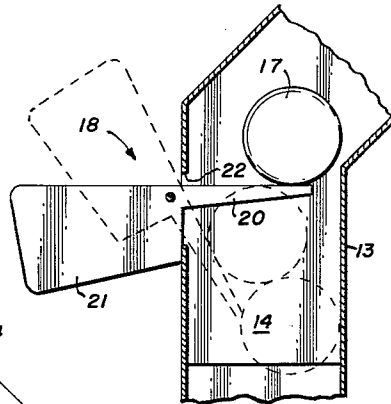


FIG. 4.

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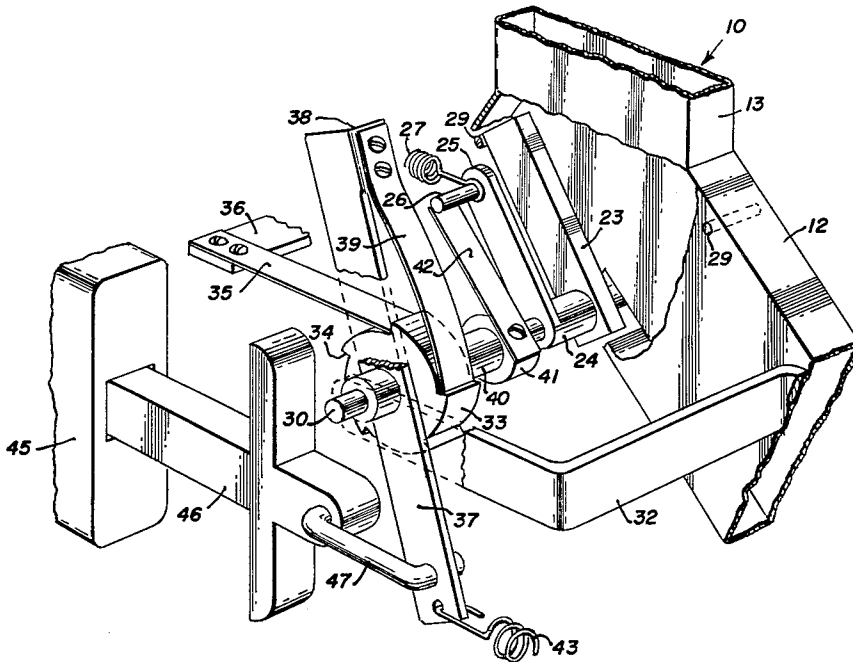


FIG. 5.

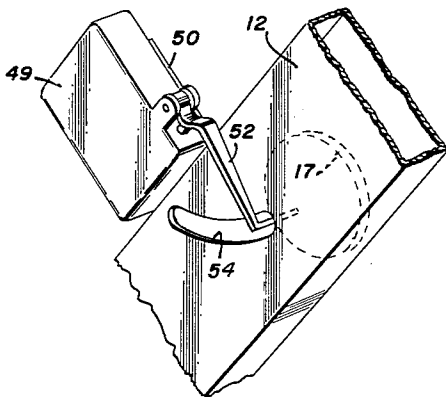


FIG. 6.

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3,092,308
AUTOMATIC COIN COLLECTOR
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This invention relates to coin operated mechanisms and has reference to means for proportioning and depositing coins in separate receptacles.

Various vending machines, coin operated amusement devices, phonographs and service machines are placed in retail establishments on a percentage basis; that is, the proprietor of the establishment receives a predetermined portion of the coins deposited and the owner of the machine receives the remainder. As an inducement to the proprietor to permit the placing of machines in his place of business, it has been proposed that the machines be made in a manner whereby the proprietor may collect his share of the coins at any time. By selectively depositing the coins in separate locked receptacles either party may collect his share at will and without the other party being present.

An object of the invention is to provide improved means for selectively dividing coins in coin operated machines.

A particular object is to provide a simplified yet highly accurate mechanism for the described purpose.

Another object is to provide a coin divider which will accommodate and proportionately divide coins of different denominations.

Ancillary to the foregoing object is the provision of a weighted gate whereby a multiple of coins of a given denomination are required in a single vertical slot before entering either of the locked receptacles.

A particular object of the invention is to provide a chute in the form of an inverted Y which will "count" two coins as one when rapidly following one another through either leg of the chute.

These and other objects will become apparent from the following description and the accompanying drawing, wherein:

FIGURE 1 is a broken elevational view of a coin divider in accordance with the invention.

FIGURE 2 is a broken elevation and partly sectional view of the opposite side of FIGURE 1.

FIGURE 3 is a vertical section and elevational view taken on line 3-3 of FIGURE 2.

FIGURE 4 is an enlarged broken vertical sectional view illustrating the weighted gate of the invention.

FIGURE 5 is an enlarged broken perspective view of the operating mechanism.

FIGURE 6 is a broken perspective of one of the legs of the chute and showing the outline of a coin therein coacting with a microswitch.

The present invention is installed within the housing of a coin operated machine, not shown, and beneath the coin separating mechanism thereof. The chute 10 of the invention is generally flat and hollow and in the form of an inverted Y, the legs 11 and 12 of which are at the same angle relative to the upper vertical portion 13. The vertical portion 13 includes a parallel partition 14 to provide slots 15 and 16 for coins 17 of different denominations, for example, dimes and nickels. A weighted gate 18 is pivotally mounted on one side of the vertical portion 13 of the chute 10 by means of brackets 19, and a lateral projection 20 thereof extends substantially across the nickel receiving slot 16. The weight 21 of the gate 18 is shouldered adjacent the outer surface of the chute portion 13 and normally rests thereagainst. The weight 21 is such that the projection 20

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will support one nickel 17 but not two. A vertical opening 22 in the side of the chute portion 13 accommodates the movement of the finger 20.

An elongate deflector 23 is pivotally mounted within the chute 10 at the apex of the bottoms of the legs 11 and 12. The deflector 23 is rigidly mounted on a sleeve bearing 24 which extends outwardly of and perpendicular to the chute 10. A rigid arm 25, parallel with the deflector 23, is mounted on the outer end of the sleeve bearing 24 and has a lateral pin 26 in the extending end thereof. As viewed in FIGURES 1 and 5, there is a tension spring 27 which urges the arm 25 in a counterclockwise direction and when in this position causes the deflector 23 to direct coins 17 into the leg 12 on the right. The end of the spring 27 opposite the pin 26 is connected with a bracket 28 mounted on top of the left leg 11. The angular movement of the deflector 23 is limited by suitable means, such as inwardly projecting pins 29 in the top surfaces of the legs 11 and 12.

The sleeve bearing 24 is mounted for free rotation on a shaft 30 which extends outwardly of said sleeve bearing and perpendicular to the chute 10. The inner end of the shaft 30 is journaled in a triangular plate 31 at the apex of the legs 11 and 12 and the extending end of the shaft is journaled in a bracket 32 mounted on one of said legs. Inwardly of the extending end of the shaft 30, there is a ratchet wheel 33, the teeth 34 of which are arranged to rotate in a clockwise direction as viewed in FIGURES 1 and 5. A flat spring stop 35, supported on a bracket 36 connected with the leg 11, engages the vertical surfaces of the teeth 34 when the latter are positioned at the top of the ratchet wheel 33. A lever 37 is mounted on and extends above and below the shaft 30, and which lever has an angular upper portion 38 positioned over the ratchet wheel 33 and on which there is mounted a depending flat spring finger 39, the extending end of which successively engages teeth 34 of the ratchet wheel 33. Adjacent the inner face of the ratchet wheel 33 and connected therewith there is another sleeve bearing 40 which is shouldered, as at 41, and has a laterally extending spring arm 42 thereon. The spring arm 42 is of sufficient length to contact the lateral pin 26 and thereby rotate the deflector 23 to make contact with the stop pin 29 in the leg 12. Continued rotation of the ratchet wheel 33 flexes the spring arm 42 and causes the extending end thereof to over ride the lateral pin 26, after which the rigid arm 25 is returned to its original position by action of the tension spring 27.

The upper end of the lever 37 is normally positioned to the left as viewed in FIGURES 1 and 5 by reason of a tension spring 43 connected with its lower end and extending to the right where it is secured to a bracket 44 on the leg 12.

Opposite the last described tension spring 43, and mounted on a coin receptacle, hereinafter referred to, there is a solenoid 45, the core 46 of which is pivotally connected with the lower end of the lever 37 by a link 47.

Referring now to FIGURES 1, 2 and 6, each leg 11 and 12 of the chute 10 is provided with a microswitch 48 and 49 mounted on the tops and outwardly of the sides thereof and intermediate the ends of the legs. Each microswitch 48 and 49 has a depending actuating arm 51 and 52 including a laterally extending end, not numbered, each end entering a leg 11 and 12 through an arcuate slot 53 and 54 generated about the pivot point of its respective actuating arm. In their normal positions the extending ends of the arms 51 and 52 are substantially midway between the upper and lower sides of the respective legs 11 and 12. The microswitches 48 and 49 are wired, in parallel, to the solenoid and a suitable source of power is provided.

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The legs 11 and 12 empty into separate locked receptacles 55 and 56 and the operator keeps possession of one key and the proprietor the other. The exemplary form of the invention shown is particularly designed for installation in a bottled drink vending machine where the unit retail price is ten cents and the proprietor receives one-fifth of the coins deposited.

As before stated, the dimes enter slot 15 and the nickels enter slot 16. For the purpose of this description, let it be assumed that the deflector 23 is positioned to initially direct a coin 17 to the operator box 55 as shown in FIGURES 1 and 2. As the coin rolls through leg 11 the same makes contact with the actuating arm 51 and it is deposited in the operator's receptacle 55. Contact with the actuating arm 51 actuates the microswitch 48 which, in turn, causes the core 46 of the solenoid 45 to move inwardly. This action oscillates the lever 37, which in turn moves the spring finger 39 and thereby rotates the ratchet wheel 33 one-fifth of its circumference. This action moves the deflector 23 to its alternate position where it remains by reason of the spring stop 35 contacting the then uppermost tooth 34. Consequently, the next coin is directed to the proprietor's box 56. As the coin passes through leg 12 the coin 17 actuates microswitch 49 and partial rotation of the ratchet wheel 33 causes the spring arm 42 to over ride the lateral pin 26 on the rigid arm 25. The tension spring 27 then returns the deflector 23 to its first position.

In the event nickels are deposited, the first coin 17 is blocked by the projection 20 of the weighted gate 18. The second coin 17 overcomes the counterweight 21 and both coins, in proximity with each other, enter one of the legs 11 or 12 in accordance with the foregoing. The momentary time delay of operating the microswitch 48 or 49 permits both coins 17 to pass the microswitch, but the coins impart a single impulse in the solenoid 45.

The invention is not limited to the exemplary construction herein shown and described, but may be made in various ways within the scope of the appended claims.

What is claimed is:

1. In an automatic coin collector, a flat hollow chute having a vertical upper portion and diverging legs connected with the lower end thereof, an upwardly directed elongate deflector pivotally

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mounted at its lower end within said chute between the upper ends of said legs, resilient means normally positioning said deflector to block one of said legs,

a ratchet wheel, means connecting said ratchet wheel with said deflector imparting pivotal movement thereto, the last said means including over riding releasing means, a solenoid connected with and actuating said ratchet wheel, and a microswitch associated with each leg and including microswitch actuating means therein and positioned to be contacted by coins passing therethrough.

2. In an automatic coin collector as defined in claim 1, the construction wherein

said over riding releasing means is comprised of a lateral pin rigidly connected with said deflector and outwardly of the pivotal axis thereof, and

a spring arm rotatably driven by said ratchet wheel and having an extending end positioned to contact said lateral pin.

3. In an automatic coin collector,

a flat hollow chute having a vertical upper portion and diverging legs connected with the lower ends thereof,

a first shaft perpendicular to the plane defined by said legs and extending into said chute,

an upwardly directed elongate deflector mounted at one end thereof on said first shaft,

means limiting the pivotal movement of said deflector from one side of said vertical portion to the other, a lateral pin rigidly mounted to move with said deflector,

a second shaft parallel with said first shaft,

a ratchet wheel rotatably carried by said second shaft, and

a spring arm rotatably carried by said second shaft and rigidly connected with said ratchet wheel, an extending end of said spring arm being positioned to contact said lateral pin.

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