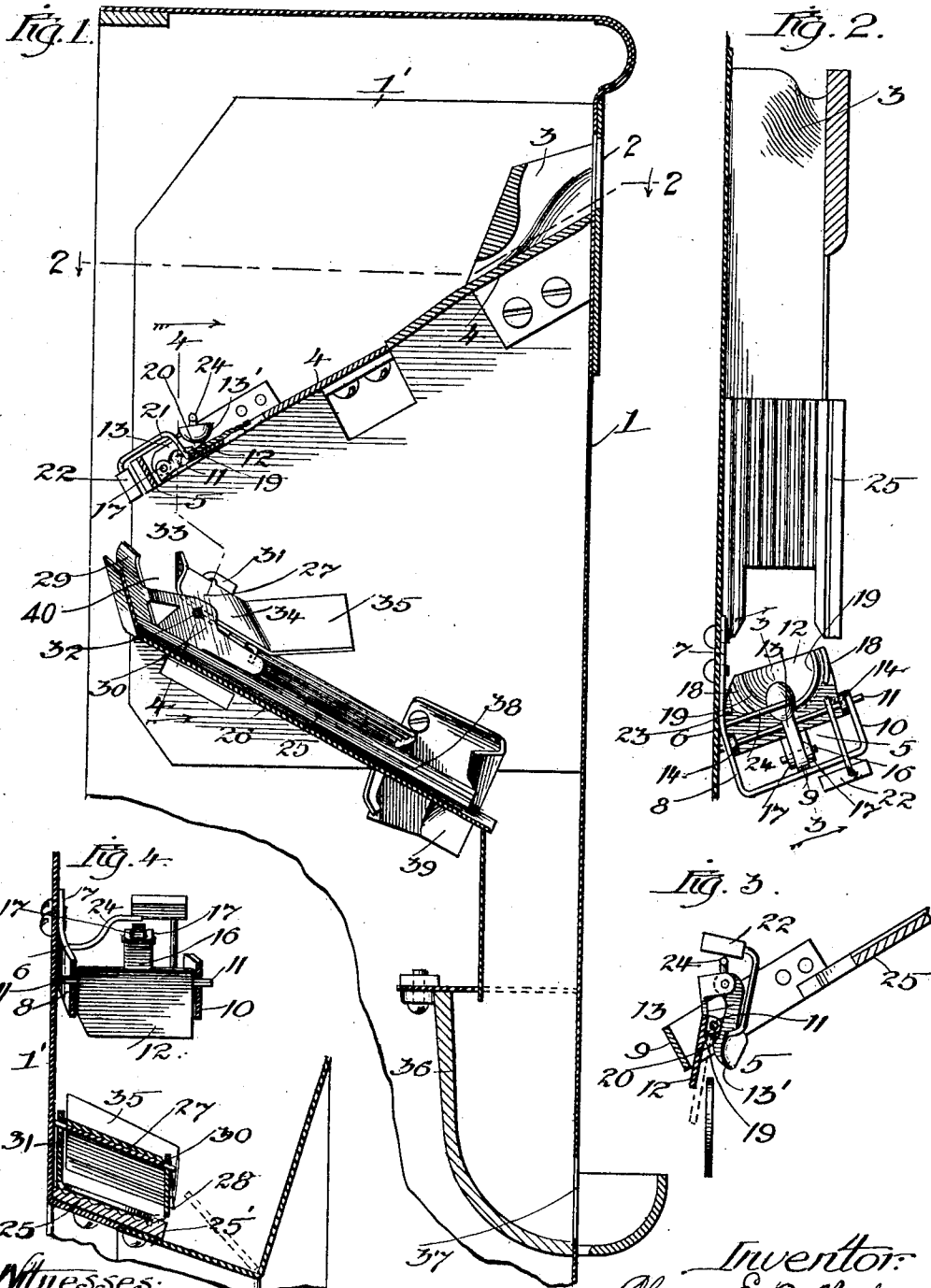


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C. E. DELLENBARGER.
COIN SORTING MECHANISM.
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UNITED STATES PATENT OFFICE.

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COIN-SORTING MECHANISM.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES E. DELLENBÄRGER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Coin-Sorting Mechanism, of which the following is a specification.

This invention relates to improvements in coin-sorting mechanism and, more specifically stated, relates to improvements in mechanism of that character which effects the selection of coin used for actuating vending machines and the like.

The salient object of the invention is to provide a mechanism in which the configuration of one or both sides of the coin is made the means of determining whether or not the coin is of proper character to be received in exchange for the commodity vended.

Subsidiary objects of the invention are to provide a simple construction in which the weight of the coin coöperates with a peculiar gripping device in the sorting and selection of the coin; to provide a mechanism which will reject slugs and worn or imperfect coins without reference to the weight or dimensions of the latter; to provide a mechanism of the character referred to devoid of springs and devoid of parts requiring delicate readjustment; to provide in such mechanism a form of gripping device which operates by gravity to grip the coin and also operates by gravity to release the coin, thereby reducing the wear on the gripping member to a minimum, and in general to provide a simple and improved mechanism of the character referred to.

To the above ends the invention consists in the matters hereinafter described and more particularly pointed out in the appended claims.

In the drawings—Figure 1 is a vertical cross-sectional view through the upper portions of a vending machine equipped with my invention; the view being taken in a plane coincident with the coin-slot through which the coin is inserted and extending from front to rear parallel with the side face of the machine; Fig. 2 is an approximately horizontal sectional view taken on line 2—2 of Fig. 1 and looking downwardly; Fig. 3 is a sectional detail of the dumping device and its associated gripper, taken approximately

on line 3—3 of Fig. 2 and looking in the direction of the arrows, the parts being, however, shown in discharging position; Fig. 4 is a transverse sectional view taken on line 4—4 of Fig. 1 and looking in the direction of the arrows.

Referring to the drawings, 1 designates as a whole a suitable casing provided in its upper part, in this instance in the front face thereof, with the usual opening or coin-slot 2. Against the inner face of the casing and in register with the slot 2 is mounted a guard 3 and the upper end of a coin-chute 4 which extends obliquely downwardly and rearwardly and discharges into a dumping mechanism designated as a whole 5. This dumping mechanism constitutes the chief feature of novelty of the present invention and, in its preferred embodiment illustrated, is constructed and arranged as follows: Referring to Fig. 2, 6 designates a suitable strap frame or yoke having one end secured to a suitable plate or support, as indicated at 7, and its free end bent or shaped to form three sides, as 8, 9 and 10, of which the sides 8 and 10 are substantially parallel with each other. Extending through and across said frame is a pivot pin 11 upon which is mounted the dumping table 12, upon which in turn is pivotally mounted a gripper 13. The dumping table in its normal position underlies the pivot pin 11 and is provided with upstanding pivot ears 14 at each side engaging said pin. It is also provided centrally with a rearward extension 16 likewise provided with upstanding pivot ears 17 between which is pivotally mounted the gripper 13. That part of the dumping table in front of its pivotal axis is provided with upstanding stop-projections 18 arranged adjacent to and concentric with a circle conforming to the periphery of the coin the device is intended to select, and radially inside of said stops, in position to register with that depression found in most coins just inside of the rim, is formed a slight rib 19. The construction is such that when the coin is resting upon the dumping table, and with its edge against the stops 18, the rib 19 will rest in the depression just inside of the rim of the coin and tend to hold the latter from sliding off of the table when the latter is tilted downwardly. Preferably the width of that part of the dumping table occupied by the coin is made approximately

equal to one-half the diameter of the coin; the particular construction shown having a width slightly more than one-half the diameter of the coin.

5 The gripper 13 takes the form of an arm pivoted at one end between the ears 17 and at its other end overhanging that part of the dumping table upon which the coin momentarily rests; this end of the gripper being
10 made of considerable weight so as to insure certainty of action on its part. The under side of the overhanging portion of the gripper is provided with a slight hook 20 (see Figs. 1 and 3) so shaped as to engage the up-
15 per side of the coin just inside of the rim, or, in other words, in the depression in the upper face of the coin corresponding to that within which the rib 19 lies in the lower face.

In the normal position of the dumping
20 mechanism the upper face of the dumping table lies in substantially the same plane with the bottom of the chute 4, *i. e.* inclined upwardly. The device is held in this position by means of a counter-weighted arm 21
25 rigidly connected with the table and extending thence rearwardly over the back member 9 of the yoke frame and carrying a counter-weight 22. The up-tilting movement of the table is limited by a stop 23 inserted in the
30 frame member and overhanging one edge of the table. In like manner the possibility of the gripper arm being thrown over out of operative position is prevented by an overhanging stop 24 mounted in the same frame
35 member.

With the parts constructed and organized as described, when a coin slides down the chute its lower edge passes onto the table, and in so doing encounters the inclined forward end 13' of the gripper, lifting the latter
40 and passing into position between the gripper and table. The coin is arrested by the stops 18, and in this position overweights the dumping device and swings downwardly
45 with the latter. It is obvious that at some point in the downward swinging movement a position will be reached where the free end of the gripper will tend to swing away from the coin, and the dumping table will have swung
50 beyond the vertical. It will be equally obvious that the angular position which will be occupied by the dumping table at the instant the coin slides therefrom will be determined by the detaining action of the two factors,
55 *viz:* the rib 19 of the table and the hook 20 of the gripper. In the case of a new coin having an unmutilated and unworn rim, and correspondingly well defined depressions just inside of the rim, the coin will be held until
60 the dump table has swung well beyond a vertical position. On the contrary, in the case of a coin, the face surfaces of which are substantially smooth because of wear or mutilation, the coin will slip from the dump-

ing table considerably before the latter has
65 reached a vertical position. This latter proposition will also be true in the case of all slugs and the like which are unprovided with a thickened rim and depressions adapted to register with the rib 19 and hook 20.
70

The difference in angular position at which proper coins are discharged from that at which improper coins and slugs are discharged is made the means of properly selecting the coins. To this end there is arranged
75 at a point below the dumping mechanism a guiding mechanism so constructed that those coins and slugs which are released too soon will be discharged outside of the regular chute, and those which are carried to the
80 proper angle of release will pass into the regular chute. This guide mechanism, in the preferred construction shown, comprises an accepting chute member 25, a rejecting chute member 26 and a shedder 27. As best
85 shown in Fig. 4, the accepting chute member is suitably secured to the side plate 1 of the casing and extends from a point vertically below the dumping mechanism obliquely downwardly and toward the front side of the
90 machine, the inner edge 25' of this chute member being inclined downwardly somewhat from the horizontal and being provided with an upstanding rib 28 which guides the coin down the chute. At its extreme upper end
95 the accepting chute member is provided with an upstanding deflector extension 29 (see Fig. 1), and extensions of this deflector are turned up at each side of the chute member to form pivot ears, as 30 and 31. Through
100 these pivot ears extends a pivot pin 32 upon which is mounted the shedder 27, which takes the form of a plate having an upstanding blade-like upper end portion 33, an intermediate portion 34 overlying and substantially
105 parallel with the surface of the accepting chute 25, and an upwardly inclined lower end portion 35 which serves as a guide for the coins, as will be hereinafter explained.

The rejecting chute member 26 desirably,
110 and as shown, is made of sheet metal approximately right angular in cross section, as shown clearly in Fig. 4; the lower member thereof being secured to the under side of the accepting chute member and projecting laterally beyond the latter a distance equal at
115 least to the diameter of the coin, while the upstanding member is of sufficient height to arrest and direct the coin to the bottom of the chute as it is deflected from the shedder
120 27. The rejector chute member leads to and delivers into a cup 36, so mounted in the front casing that it is partly within and partly without the latter; an opening 37 being formed through the casing through which
125 the coin may pass to a point accessible from the outside, as usual.

The accepting chute is provided near its

lower end with an opening 38, which permits the accepted coins to fall through; a guide 39 being arranged at this point to direct the coins to a certain mechanism not shown and which actuates the vending mechanism.

With the parts constructed and arranged as described, all proper coins will be discharged into the throat-opening 40 between the guide 29 and upstanding member 33 of the shedder while all improper coins, slugs, etc., will be discharged from the dumping device before it has swung down far enough to deliver into the throat 40, and they will therefore strike upon the shedder and be deflected over into the rejecting chute, and so returned to the party who inserted them. By making the upstanding portion 33 of sheet metal, and arranging it as described, it will be obvious that great exactness of adjustment may be readily secured by simply bending the part 33 towards or from the guide 29, thus forming a convenient means of originally adjusting the mechanism for proper operation. The object of pivoting this member is to enable it to act as a yieldable deflector which will cause those coins which pass into the accepting chute to rest flatwise upon the latter before passing out from beneath the shedder, thus insuring their proper delivery through the discharge opening 38.

While I have herein shown and described a preferred embodiment of the invention, yet I do not wish the invention to be understood as specific in character except in so far as the claims are made specific.

I claim as my invention:

1. In a coin-sorting mechanism, a tiltable dumping device comprising a coin-support, a cooperating gripper movable bodily with the coin-support and independently movable toward and from said coin-support, and means for directing coins, etc., discharged from said dumping device to either of two points of delivery, depending upon the angular position of the dumping device at the time the coin is discharged therefrom.

2. In a coin-sorting mechanism, a gravity actuated dumping device comprising a coin-table pivoted upon a transverse axis and weighted to normally stand with its receiving end upwardly inclined, stop mechanism upon said table acting to arrest a coin guided to slide onto the table, cooperating gripper mechanism associated with the table and arranged to releasably hold a coin in position upon the table during the tilting of the latter and until it has tilted to or beyond a vertical position, and means for directing coins, etc., discharged from said dumping device to either of two points of delivery, depending upon the extent to which the coin is detained upon the table by said gripper mechanism.

3. In a coin-sorting mechanism, a gravity actuated dumping device comprising a coin-

table pivoted upon a transverse axis and weighted to normally stand with its receiving end upwardly inclined, stop mechanism upon said table acting to arrest a coin guided to slide onto the table, gravity actuated gripper mechanism associated with the table and arranged to releasably hold a coin in position upon the table during the tilting of the latter and until it has tilted to or beyond a vertical position, and means for directing coins, etc., discharged from said dumping device to either of two points of delivery, depending upon the extent to which the coin is detained upon the table by said gripper mechanism.

4. In a coin-sorting mechanism, a tiltable dumping device comprising a coin-table movably mounted to normally stand with its receiving end upwardly inclined, stop mechanism upon said table arranged to arrest a coin guided to slide thereon in predetermined position, an elevated portion upon the upper face of the table adapted to enter a corresponding depression in the face of a coin inside of the rim of the latter, a gripper mechanism moving with the table and arranged to bear yieldably upon the upper side of a coin supported upon said table, and means for directing coins, etc., discharged from said dumping device to either of two points of delivery.

5. In a coin-sorting mechanism, a tiltable dumping device comprising a coin-table movably mounted to normally stand with its receiving end upwardly inclined, stop mechanism upon said table arranged to arrest a coin guided to slide thereon in predetermined position, an elevated portion upon the upper face of the table adapted to enter a corresponding depression in the face of a coin inside of the rim of the latter, a gripper mechanism comprising a gravity arm pivotally mounted upon said table to normally overhang the coin-supporting portion thereof and provided at its under side with an engaging projection adapted to enter a corresponding depression in the upper face of the coin, and means for directing coins, etc., discharging from the dumping device to either of two points of delivery.

6. In a coin-sorting mechanism, a tiltable dumping device, comprising a coin-support, a cooperating gripper movable bodily with the coin-support and independently movable toward and from said coin-support, and means for directing coins, etc., discharging from said dumping device to either of two points of delivery comprising an accepting chute, a rejecting chute and a shedder having a deflector member bearing a definite angular relation to said tiltable dumping device.

7. In a coin-sorting mechanism, a tiltable dumping device, comprising a coin-support, a cooperating gripper movable bodily with

the coin-support and independently movable toward and from said coin - support, and means for directing coins, etc., discharged from said dumping device to either of two
5 points of delivery comprising an accepting chute member provided with a deflecting guide at its receiving end, a rejecting chute member and a shedder member having a deflecting surface arranged to direct rejected
10 coins into the rejecting chute and an upstand-

ing blade-like deflecting member located below said dumping device and the upper edge of which forms a division between the throat entrance of the accepting chute and the entrance to the rejecting chute.

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