Sept. 11, 1928. 1,683,995

G. B. SMITH

COIN CONTROLLED DEVICE

Filed April 27, 1921

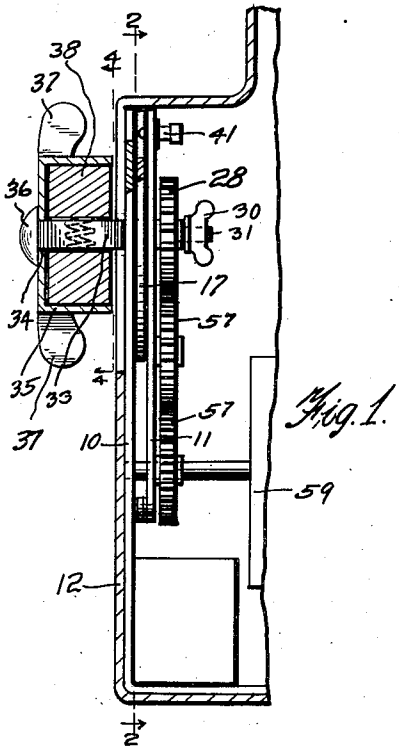

Fig. 1.

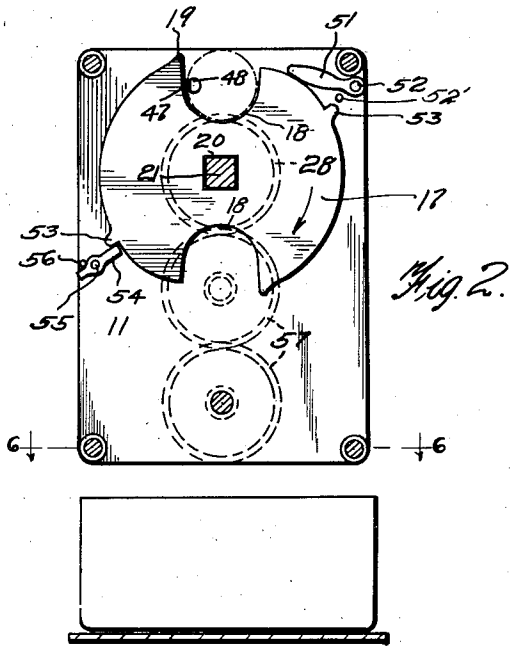

Fig. 2.

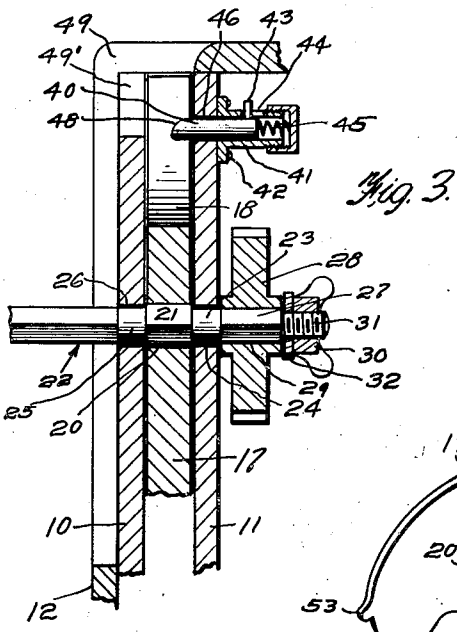

Fig. 3.

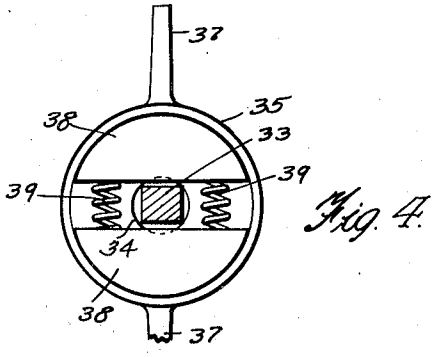

Fig. 4.

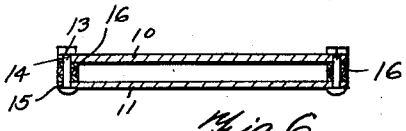

Fig. 6.

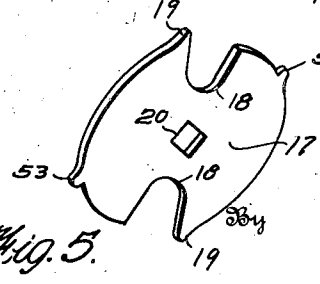

Fig. 5.

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UNITED STATES PATENT OFFICE.

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COIN-CONTROLLED DEVICE.

Application filed April 27, 1921. Serial No. 464,770.

My invention relates to coin controlled means for operating the movable part of a machine, such as the ejector of a vending machine, while not necessarily restricted to this use.

An important object of the invention is to provide a device of the above mentioned character, having a readily removable coin receiving disk, provided with pockets or openings to receive a coin of a selected size or denomination, the disk being adapted to be removed whereby another disk having coin receiving pockets of a different size may be substituted therefor, when desired.

A further object of the invention is to provide a device of the above mentioned character, the operation of which is controlled by the insertion of a coin of a proper denomination, such operation not being affected, should the sides of the coin be worn smooth so that the coin is slightly thinner, provided the diameter of the coin remains substantially the same.

A further object of the invention is to provide a coin controlled operating means of the above mentioned character, embodying a rotatable element which is turned continuously in one direction only for actuating the machine.

A further object of the invention is to provide a coin controlled device having a manually operated part which may be turned for substantially one half a revolution for completing the operation of the machine.

A further object of the invention is to provide friction clutch means for turning the coin receiving disk, whereby the clutch means will permit of slippage between the knob or manually operated element and the coin receiving disk, when the latter is locked against further movement.

A further object of the invention is to provide a device of the above mentioned character, embodying few parts, that can be readily stamped from sheet metal or the like, and which require little or no machine work to finish, thus producing a strong and efficient device at the minimum of cost.

A further object of the invention is to provide a device of the above mentioned character, possessing extreme thinness, thus allowing it to be used in machines of narrow depth, such as wall cabinets and the like, where the depth of the casing of the vending machine contributes largely to its suitability.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Fig. 1 is a central vertical sectional view, taken through the coin controlled device embodying my invention, showing the same within the casing of a vending machine,

Fig. 2 is a vertical section taken on line 2—2 of Fig. 1,

Fig. 3 is an enlarged central vertical section through the coin receiving disk and associated elements,

Fig. 4 is a transverse section taken on line 4—4 of Fig. 1,

Fig. 5 is a perspective view of the coin receiving disk, and,

Fig. 6 is a detail section taken on line 6—6 of Fig. 2.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numerals 10 and 11, designate a pair of supporting plates, constituting the supporting structure of the device. The plate 10 may constitute a part of a frame, which is movable as a unit from the casing 12 of the machine. This frame is detachably held in place by any suitable means. The plates 10 and 11 are detachably connected at their corners by suitable bolts and nuts 13, the bolts passing through openings 14 and 15 in the plates 10 and 11, with spacing collars or washers 16 surrounding these bolts, as shown in Fig. 6. It is thus apparent that the plate 11 may be readily separated from the plate 10, preferably after both plates have been removed from the casing 12, when it is desired to remove the coin receiving disk, to be described. By varying the number of washers 16, or employing washers of different thicknesses, the distance between the plates 10 and 11 may be varied, in accordance with the thickness of the selected coin.

The numeral 17 designates the coin receiving disk, which is located between the supporting plates 10 and 11, and has a thickness to substantially fill the space between these plates. The thickness of the disk may be varied, in accordance with the adjust-

ment of the space between the plates 10 and 11. The disk 17 is preferably provided with a pair of diametrically oppositely arranged coin receiving pockets or openings 18, as shown, while only one of these pockets may be provided, if desired. If two pockets are provided, the operation is completed upon turning the disk 17 one half a revolution, while if only one pocket is provided, the disk must be turned for a complete revolution. The rear end of the wall of each pocket 18 is preferably extended outwardly slightly and rounded, in a projection 19, as shown. The pockets 18 are constructed of a size to receive the coin of a selected denomination or diameter, and it is to be understood that the coin receiving disk 17 is readily removable, so that another disk may be substituted therefor. By this means, the coin controlled device may be operated with coins of different diameters, which may be accomplished by simply changing the coin receiving disk corresponding to the selected coin, without altering the remaining elements of the organization. I regard this as a very important feature of my invention.

The coin receiving disk 17 is provided with a central opening 20, square in cross section, to detachably receive the square portion 21 of a spindle or operating shaft 22. This spindle is provided inwardly of the square portion 21 with a cylindrical portion 23, journaled in an opening 24 of the inner plate 11, and also has a cylindrical portion 25, outwardly of the square portion 21, and journaled in an opening 26, in the outer plate 10. The spindle 22 is preferably square in cross section inwardly of the cylindrical portion 23, as shown at 27, for the reception of a gear 28, having an opening 29, which is square in cross section. This gear is detachably held upon the square portion 27 by a thumb nut 30, engaging a screw threaded end portion 31 of the spindle, with a washer 32, between the gear 28 and thumb nut 30. It is thus seen that by removing the thumb nut 30, the gear 28, plate 11, and coin receiving disk 17 may be removed from the spindle 22, and another coin receiving disk substituted for the original disk, and the parts again assembled.

The outer portion 33 of the spindle is polygonal in cross section, and extends through a circular opening 34 of a hollow cylindrical head 35, the spindle being provided with an enlarged head 36, as shown. The head 35 is provided with wings 37, whereby it may be conveniently turned. The head 35 constitutes one element of a clutching device, and the metallic segments 38 therein constitute the co-acting elements, these segments being arranged upon opposite sides of the polygonal section 33, to be engaged and turned thereby, and being forced outwardly by springs 39. The springs 39 ordinarily afford sufficient frictional engagement between the segments 38 and the head 35, so that these parts turn together, but if the spindle 22 should be locked against turning movement, head 35 will slip upon the segments 38, thereby preventing breakage.

The numeral 40 designates a sliding bolt, operating within a tubular guide 41, having a flange secured to the plate 11, by screws 42 or the like. This bolt has a laterally extending pin 43, operating in a slot 44, and the bolt is urged inwardly by a spring 45. The bolt slides within an opening 46 formed in the plate 11, and projects into the pocket 18, Fig. 2. The bolt 40 has its free end provided with a straight stop wall 47, and an inclined or bevelled wall 48, to engage with the wall of the pocket 18, as shown. The coin is inserted into the upper pocket 18 through the upper portion of an opening 49 formed in the casing 12, in the horizontal and vertical portions thereof. This opening 49 is sufficiently large to permit the head 35 to move inwardly through the same, when the unit embodying the plate 10 is removed from the casing 12. The plate 10 also has a curved opening 49′, which exposes the side of the upper portion of the coin and enables the same to be removed, if desired before the operation of the machine, and also aids in the convenient insertion of the same. When the coin is inserted within the upper pocket 18, it presses the bolt 40 outwardly from within the pocket, and the coin receiving disk is therefore free to be turned in the direction of its arrow. Upon its turning movement, for a sufficient distance, the edge of the coin will engage a dog or pawl 51, pivoted at 52 having a stop pin 52′ therebelow, which stop pin serves to limit the downward movement of the dog 51. This dog or pawl is preferably gravity operated, and normally slidably contacts with the periphery of the disk 17. The coin of proper diameter will shift the pawl upwardly, so that it will be carried over the extension 19. Should the bolt 40 be pressed outwardly by an implement, such as a knife, and the disk 17 turned without the insertion of a coin within the pocket 18, the pawl 51 would enter the pocket 18 and engage behind the portion 19, and hence lock the disk against further turning movement. Also, if the coin is of the improper diameter, as being too small, the pawl 51 will not be raised sufficiently to avoid the extension 19.

Means are provided to prevent the disk 17 being turned rearwardly, in an opposite direction to its arrow, comprising a pair of ratchet teeth 53, faced in the direction shown. These ratchet teeth will cause the pawl 51 to trip over the same, and will also trip a dog 54 pivoted at 55. A stop

pin 56 prevents the turning movement of the dog in one direction, and hence after the ratchet tooth 53 has passed above the dog, it cannot pass the dog in an opposite direction.

The plate 11 carries a plurality of gears 57, the upper gear engaging the gear 28. The lower gear 57 is suitably connected with a rotatable or pivoted ejector 59, to actuate the same. The gear 57 may be dispensed with, and the ejector directly connected with the spindle 22.

In operation, a coin is inserted laterally through the opening 49, and opening 49 into the pocket 18, and if this coin is of the suitable denomination, it will enter the pocket and force the bolt 40 inwardly out of the pocket. The turning movement of the disk 17 may now be effected until the coin elevates the pawl 51, so that it clears the extension 19. The turning movement of the disk is now continued for one half a revolution, until the other pocket 18 is brought opposite the bolt 40, the bolt then automatically moving into the pocket, and stopping the disk, while the coin drops into a coin box or receptacle.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size, and arrangement of parts may be resorted to without departing from the spirit of my invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. The combination with a casing provided with a relatively large opening in one wall thereof, of a support removably mounted within the casing adjacent to said wall and adapted to be shifted away from said wall, a shaft journaled within said support and projecting outwardly through said relatively large opening and having a head, a drum rotatable upon the shaft between the casing and head and having means whereby it may be manually turned, said drum being adapted to be bodily moved inwardly through said relatively large opening, friction elements arranged within the drum between the shaft and the periphery of the drum, a coin disk mounted upon the shaft adjacent to said support and adapted to be removed from the shaft, detachable means upon the inner end of the shaft to control the removal of the coin disk, and coin controlled means to control the turning movement of the coin disk.

2. The combination with a casing provided with a relatively large opening in one wall thereof, of a support removably mounted within the casing adjacent to said wall, a shaft journaled within said support and projecting outwardly through said relatively large opening and having a permanent head, a drum rotatable upon the shaft between the casing and head and adapted to be bodily moved inwardly through said relatively large opening, friction elements arranged within the drum between its periphery and the shaft, a coin disk mounted upon the shaft, and coin controlled means for controlling the turning movement of the coin disk.

3. In a coin controlled apparatus, the combination of a pair of spaced flat and thin plates having means for removably securing them together, a flat disk having uniform thickness throughout substantially equal to the thickness of the coin and disposed between and contacting with the inner walls of said plates, said disk having diametrically opposite peripheral coin receiving slots and diametrically opposite ratchet teeth arranged between said slots, a pawl controlled by a coin in either of said slots, said pawl being pivoted between said plates and adapted to engage either of said coin slots to arrest the disk and being deflected to inoperative position by a coin in either of said slots, a locking pawl pivotally mounted between said plates and engageable with either of said ratchet teeth, and a transverse shaft having an operating handle extending loosely through said plates and fixed in the disk, whereby said disk may be rotated relative to said plates.

4. In a coin controlled apparatus, the combination of a pair of inner and outer spaced flat and thin plates having means for removably securing them together, a flat disk having uniform thickness throughout substantially equal to the thickness of the coin and disposed between and contacting with the inner walls of said plates, said disk having diametrically opposite peripheral coin receiving slots and diametrically opposite ratchet teeth arranged between said slots, a pawl controlled by a coin in either of said slots, said pawl being pivoted between said plates and adapted to engage either of said coin slots to arrest the disk and being deflected to inoperative position by a coin in either of said slots, a locking pawl pivotally mounted between said plates, and engageable with either of said ratchet teeth, and a transverse shaft rotatable with and removable from said disk having an operating handle and extending loosely through said plates, whereby said disk may be rotated relative to said plates, and a pinion engaging and removable from said shaft and arranged at the inner side of the inner plate.

5. The combination of a flat rotary disk of uniform thickness, adapted to be exchanged for another disk suited for another size of coin, and having diametrically opposite coin receiving slots, so that when a coin drops from the slot positioned at the

bottom of the disk the other slot will be at the top of the disk ready to receive the coin of the next customer, a fixed coin receiving aperture with which the slot at the top registers, separable supporting plates enclosing said disk and adapted to be attached to a vending mechanism, coin-collecting means in which coins dropping from the slot at the bottom of the disk are deposited, and means to arrest the disk at each half revolution, and for locking the disk which locking means are released by a coin in the upper slot.

In testimony whereof I affix my signature.

GOODWIN B. SMITH.