A. K. COLLINS.

COIN CONTROLLED OPERATING DEVICE FOR VENDING MACHINES AND THE LIKE.

APPLICATION FILED FEB. 12, 1920.

1,382,475. Patented June 21, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

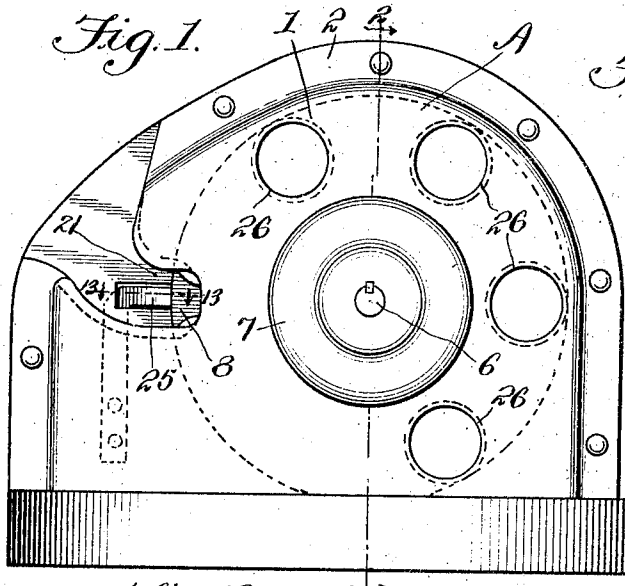


Fig. 11.

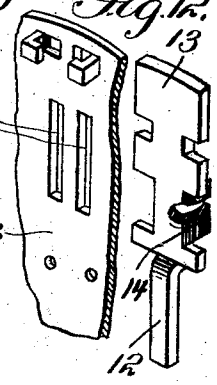


Fig. 12.

Fig. 13.

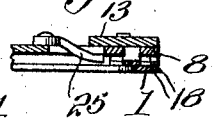


Fig. 2.

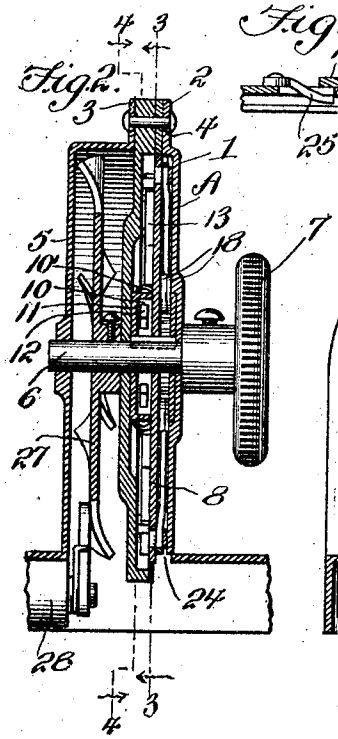
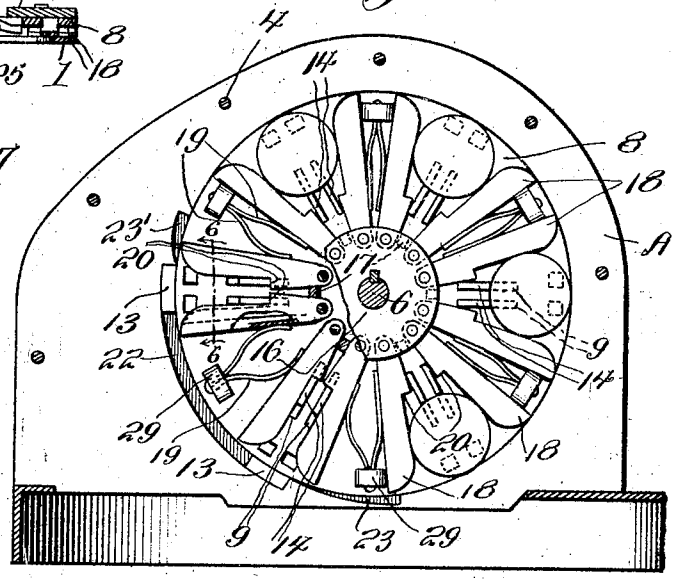


Fig. 3.



Witnesses

Inventor

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2 SHEETS—SHEET 2.

Fig. 4.

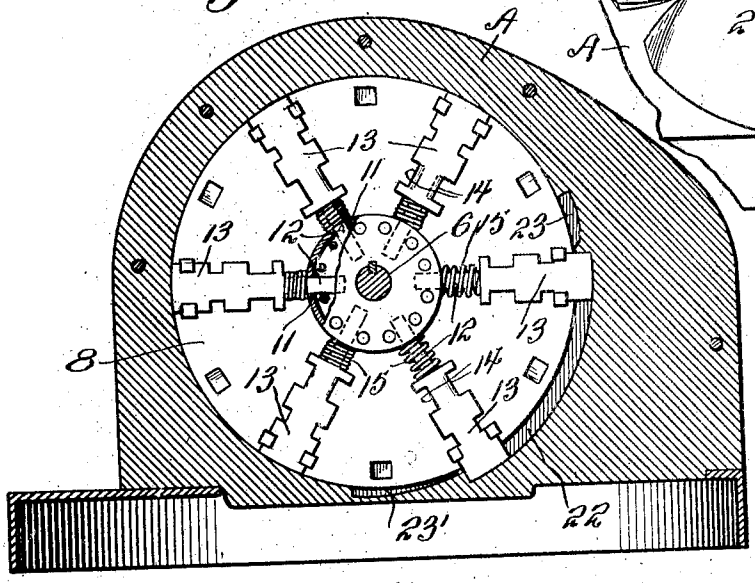


Fig. 14.

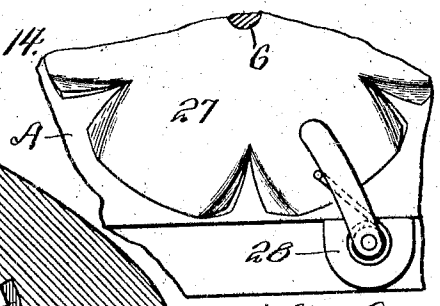


Fig. 6.

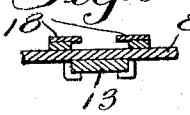


Fig. 7.

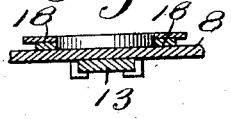


Fig. 8.

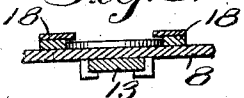


Fig. 5.

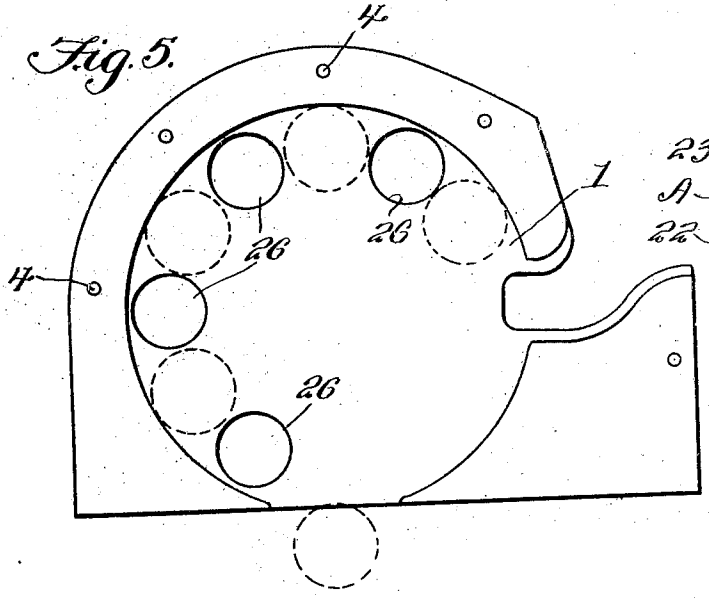


Fig. 9.

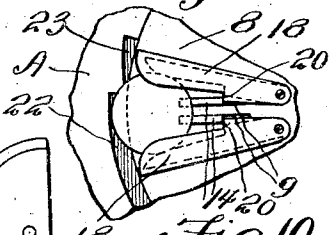
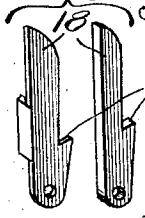


Fig. 10.



Inventor

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UNITED STATES PATENT OFFICE.

ALBERT K. COLLINS, OF CHARLOTTE, NORTH CAROLINA.

COIN-CONTROLLED OPERATING DEVICE FOR VENDING-MACHINES AND THE LIKE.

1,382,475. Specification of Letters Patent. Patented June 21, 1921.

Application filed February 12, 1920. Serial No. 358,198.

To all whom it may concern:

Be it known that I, ALBERT K. COLLINS, a citizen of the United States, residing at Charlotte, North Carolina, have invented certain new and useful Improvements in Coin-Controlled Operating Devices for Vending-Machines and the like, of which the following is a specification.

This invention relates to improvements in vending machines and has particular application to a coin controlled operating device for such machines.

In carrying out the present invention, it is my purpose to provide a coin controlled operating device for vending machines, change making machines and the like, whereby when the proper coin is applied to the device the machine controlled thereby may be readily operated to deliver the merchandise or change as the case may be.

It is also my purpose to provide a device of the class described which will be incapable of operation upon the application of a slug or other spurious coin thereto and which will be locked against operation until the proper coin has been inserted therein.

Furthermore, I aim to provide a device of the type set forth which will embrace the desired features of simplicity, efficiency and durability, coupled with cheapness of cost in manufacture and marketing and which may be applied to any type of vending or change making machine without necessitating any elaborate changes in the structure of such machines.

With the above recited objects in view and others of a similar nature, the invention consists in the construction, combination and arrangement of parts set forth in and falling within the scope of the appended claims.

In the accompanying drawings:—

Figure 1 is a view in side elevation of a device constructed in accordance with the present invention.

Fig. 2 is a vertical sectional view on the line 2—2 of Fig. 1.

Fig. 3 is a sectional view on the line 3—3 of Fig. 2.

Fig. 4 is a similar view on the line 4—4 of Fig. 2.

Fig. 5 is a rear elevation of one of the side walls of the casing.

Fig. 6 is a sectional view on the line 6—6 of Fig. 3 showing the fingers in closed position.

Fig. 7 is a similar view showing the fingers in open position.

Fig. 8 is a like view showing the position of the fingers when a spurious coin is inserted between the same.

Fig. 9 is a fragmentary top plan view showing a pair of the fingers.

Fig. 10 is a perspective view of the fingers.

Fig. 11 is a fragmentary perspective view of the disk carrying the fingers and locking bolts.

Fig. 12 is a perspective view of one of the locking bolts.

Fig. 13 is a fragmentary cross sectional view through the casing.

Fig. 14 is a fragmentary longitudinal sectional view through the device.

Referring now to the accompanying drawings in detail, A designates a casing constructed of some suitable or appropriate material and composed, in the present instance, of a side wall 1 having the marginal edge thereof flanged as at 2 and the flange formed with bolt holes 4 and a plate 5 forming the opposite side wall of the casing and formed with a securing flange 3 formed with bolt holes alining with the holes 4 to receive the fastening bolts. In the present instance, the central portions of the walls 1 and 5 of the casing are bulged outwardly so as to nicely receive and accommodate the mechanism of the device.

The operating shaft 6 is journaled in the side walls of the casing at a point approximately centrally thereof and at one end is equipped with a manipulating knob 7. In this form of my invention the movable element of the device is in the form of a disk 8 within the casing A and keyed upon the shaft 6, such disk being provided with slots 9 disposed radially of the axis thereof. Surrounding the shaft 6 and keyed thereto at one side of the disk 8 is a relatively small disk 10 formed with a peripheral flange 10′ provided with slots 11, each designed to receive the shank 12 of a locking dog 13, the latter being placed in face to face contact with one side of the disk 8 and having lugs 14 stamped therefrom and projected through the respective slots 9 in the disk. At the junction of the shank 12 with the main body portion of the dog a shoulder is formed to receive one extremity of a coiled expansion spring 15 encircling the shank and having the free end thereof abutting

the proximate portion of the periphery of the relatively small disk 10.

A second disk 16 is keyed to the shaft 6 at the opposite side of the disk 8 and has formed thereon adjacent to the periphery thereof spacers or blocks 17 designed to contact with the adjacent part of the disk 8 to hold the disk 16 spaced apart therefrom. Pivotally connected to the disk 16 between the spacers 17 thereon and lying against the adjacent face of the disk 8 constituting the movable element of the device are pairs of duplex fingers 18, the fingers of each pair being disposed at the opposite sides of the lugs 14 on the corresponding locking dog 13, while leaf springs 19 or tension devices of some other form hold the fingers of each pair normally at their limit of inward movement. These fingers have their confronting faces formed with heels 20 which, when the fingers are in normal position, contact with the lugs 14 on the locking dog to hold the latter against inward movement and in locking position.

Formed in the casing A at some suitable point is a coin slot by means of which a coin may be fed to the device, while the inner wall of the casing at a point adjacent to the coin slot is formed with a groove 22 adapted to successively receive the locking dogs 13 so as to hold the movable element of the device against operation. At each end of the groove 22 and contiguous to such groove the inner wall of the casing is provided with depressions 23, the purpose of which will presently appear. The numeral 24 designates the outlet or discharge opening of the casing.

In the embodiment of my invention selected for illustrative purposes, the dogs 13 and their coöperating springs constitute the locking means of the movable element of the device, while the pairs of duplex fingers 18 form the coin controlled means controlling the locking means. It is conceivable, however, that other locking and coin-controlled means controlling said first means may be employed without departing from the spirit of my invention.

It will be seen that the fingers 18 of each pair are in the form of longitudinal sections capable of independent or relative movement. The purpose of this construction is to prevent the introduction of slugs or counterfeit coins into the machine. For instance, should a coin of a denomination other than that for which the machine is adapted, be fed into the machine by way of the coin slot 21 therein and be of less thickness than the proper coin, as shown in Fig. 8, the fingers will not respond as a unit to the influence of the coin, but only certain sections thereof swing outwardly. Thus, the particular locking dog will be held against inward movement incident to the heels of the remaining sections of the respective fingers engaging the coöperating lug 14 of the dog. I have found it advantageous to fasten to the wall of the coin slot 21 a catch or spring 25 so that the coin applied to the machine will be held therein automatically.

From the foregoing description taken in connection with the accompanying drawings, the construction, mode of operation and manner of employing my invention will be readily apparent. Assuming the shaft 6 to be connected up to the operating element of a vending, change making or other machine, and a pair of fingers 18 in alinement with the coin slot 21 in the casing as shown in Fig. 1, it will be obvious that the movable element of the device will be unable to rotate under the action of the shaft 6 and manipulating disk 7 thereon, incident to the dog 13 under the control of the particular pair of fingers 18 having the outer end thereof disposed within the slot 21 in the inner wall of the casing. However, should a coin be introduced into the machine by way of the coin slot 21 therein, such coin will enter the space between the particular pair of fingers registering with the coin slot and force such fingers apart, that is to say, swing the same about their pivotal connections with the disk 16 and against the action of the respective springs 19. As the fingers move outwardly or away from each other, the heels 20 thereof release the coöperating lugs 14 on the dog 13, while the coin engages such lugs and so moves the dog inwardly or toward the axis of the disk 8 and against the action of the spring 15. Thus, the movable element of the machine is relieved of the influence of the locking dog and the shaft rendered operative. As soon as the shaft is rotated a predetermined distance, determined by the distance between the locking dogs, the following or succeeding dog will engage the groove and ride around and within the same until it meets the far end of the slot 21 whereby further movement of the movable element is arrested. In the initial movement of the movable element, subsequent to the introduction of the coin into the device, the locking dog following the previously active dog enters the locking groove 22 and in doing so drives the coin between the respective pairs of fingers outwardly of the casing by way of the discharge slot 24 therein. In the present instance, the inlet and outlet slots of the casing are arranged in proximity to each other and as a consequence every pair of fingers, but that opposite the coin slot, has a coin therein.

One side wall of the casing, for example, the wall 1, is provided with sight holes 26 through which the coins within the device may be viewed. These openings are prefer-

ably of a diameter slightly less than that of the coins, thus enabling the plugged coins to be seen so that the miscreant may be detected before the coin has been discharged from the device.

Adjacent to the depression 23 above the coin slot the casing is formed with a depression 23′ having an inclined end wall that merges into the side wall of the adjacent depression 23 and this depression 23′ is designed to receive the adjacent locking dog 13 in the event of such dog being actuated to release position by a penknife or other instrument, the dog entering the depression 23′ as soon as the shaft is rotated and the dog relieved of the influence of the instrument. Thus, the device is held against operation by one that intended to defraud, and the shaft may be rotated in the reverse direction to move the dog to its original locking position.

In the present instance, an actuating wheel 27 of some suitable construction is fixed to the shaft 6 concentrically thereof and controls the vending machine or other apparatus under the control of the present invention, and associated with this actuating wheel is a counter mechanism 28 adapted to be operated in each rotation of the wheel. In the present instance, the leaf springs 19 are carried by blocks 29 disposed between the respective sets of fingers and these blocks act as stops to limit the opening movement of the fingers.

While I have herein shown and described the particular embodiment of my invention, I wish it to be understood that I do not limit or confine myself to the precise details of construction herein described and delineated, as modification may be made within the scope of the appended claims and without departing from the spirit of the invention.

Furthermore, it is to be understood that the size of the movable element of the device may be varied and any desired number of fingers and locking dogs employed so that the capacity or range of the device may be varied to suit the circumstances or requirements of each particular case.

I claim:

1. In a coin controlled operating device for vending machines, a casing having a coin slot therein, a shaft journaled in said casing and adapted for rotary movement, a disk keyed upon said shaft and rotatable therewith, said disk having radial slots formed therein, locking dogs disposed upon one side of the disk and having lugs stamped therefrom and projecting through the slots in the disk, said dogs normally holding the disk against movement, and pairs of coin controlled fingers at the opposite side of said disk, the confronting edges of the fingers of each pair having heels formed thereon adapted to engage the respective lug in said locking dog to hold the latter against movement to unlocking position, said fingers being adapted to be moved away from each other to relieve the lugs of the influence of the heels upon the application of a coin to the machine whereby the disk will be relieved of the influence of the locking dogs so that the shaft may be actuated to operate the machine associated with the device.

2. In a coin controlled operating device for vending machines, a casing having a coin slot and a groove therein, an element journaled in said casing for rotary movement, locking dogs on one face of said element and disposed radially of the axis thereof and adapted to successively engage the groove in said casing to hold the element against movement, means urging said dogs into said groove, pairs of duplex fingers on the opposite faces of said disk, and connections between the fingers of each pair and one of said dogs whereby upon the application of a coin to said fingers, the movable element will be relieved of the influence of said dogs so that said movable element may be actuated to operate the machine associated therewith.

3. In a coin controlled operating device for vending machines, the combination of a casing having a coin slot therein, a shaft journaled to rotate in said casing, a disk upon said shaft and rotatable therewith, locking dogs disposed upon one side of said disk and extending radially thereof and normally engaging said casing to hold the shaft against movement, and coin controlled fingers upon the opposite side of said disk, said fingers having abutments formed thereon coöperating with said dogs for normally preventing the release of the latter, said abutments being engageable by a coin inserted through said slot and forced out of operative relation with said dogs.

4. In a coin controlled operating device for vending machines, the combination of a casing having a coin slot therein, a shaft journaled in said casing and adapted for rotary movement, a disk keyed upon said shaft, said disk having radial slots therein, locking dogs for normally holding said disk from rotation disposed upon one side of the disk radially thereof, said dogs having lugs extending laterally through said radial slots, and pairs of coin controlled fingers at the opposite side of said disk adapted to cooperate with said lugs for normally restraining the release of said dogs from locking position, said fingers being moved out of operative relation with said dogs by the coins inserted through said slot whereby a coin may engage said lugs and move the corresponding dog to released position and permit rotation of said disk.

5. In a coin controlled operating device

for vending machines, the combination of a casing having a coin slot and a groove formed therein, an element journaled in said casing for rotary movement, locking dogs on one face of said element disposed radially of the axis thereof and adapted to successively engage the groove in said casing to hold the element against rotation, means urging said dogs into said groove, pairs of fingers on the opposite face of said element adapted to coact with said dogs for normally holding the latter in locking position, said fingers being arranged so that a coin inserted through said slot causes said fingers to release one of said dogs, whereby said dog may be moved to inoperative position and release said element so that the latter may be actuated to operate the machine associated therewith.

6. In a coin controlled operating device, the combination of a casing having a coin slot and a groove therein, a disk rotatably mounted within the casing, a plurality of locking dogs carried by said disk so that two of said dogs normally engage opposite ends of said groove for locking the disk against rotation, and pairs of pivoted fingers for normally holding the dogs in locked position, said fingers being spread apart by the coin inserted through said slot for releasing one of said dogs and permitting rotation of said disk in one direction.

7. In a coin controlled operating device, the combination with a casing having a coin slot, a groove adjacent said slot terminating at each end in a locking shoulder, and an auxiliary recess formed therein terminating at one end in a locking shoulder and gradually merging at the other end into the adjacent shoulder of said groove, of a disk rotatably mounted within the casing, spring pressed locking dogs carried by said disk so that two of said dogs normally engage the shoulders of said groove for locking the disk against rotation, whereby an instrument inserted through said coin slot is ineffective to rotate the disk to the necessary extent since upon slight rotation of the disk one of said dogs is moved out of engagement with the instrument and immediately engages in said recess and the shoulder of the latter coacting with said dog limits the movement of the disk in one direction.

8. In a coin controlled operating device, the combination of a casing having a coin slot and a groove formed therein, a disk rotatably mounted in the casing, spring pressed dogs carried by said disk adapted to engage opposite ends of said groove for normally locking the disk from rotation, pivoted duplex fingers comprising independently movable sections for normally maintaining the dogs in locked position and adapted to release said dogs when all of the sections are actuated by the coin inserted through said slot.

9. In a coin controlled operating device, the combination of a rotatable disk, means for normally locking said disk against rotation, and pivoted fingers consisting of independently movable sections for maintaining said means in locked position adapted to be actuated to inoperative position by a coin of proper thickness.

10. In a coin controlled operating device, the combination of a casing having a coin slot, a coin outlet, a groove and an arcuate recess formed therein, a rotatable disk mounted in said recess, a plurality of radially movable locking dogs carried by said disk any two of which are adapted to engage with opposite ends of said groove for locking the disk from rotation, a pair of pivoted fingers for each dog tending to maintain the corresponding dog in locked position, said fingers being moved to inoperative position by a coin of proper dimension inserted through said slot, and said coins coacting with a circumferential wall of said recess and with said dogs to maintain said dogs in unlocked position until said outlet is reached.

11. In a coin controlled operating device, the combination with a casing having a coin slot therein, of a rotatable element within the casing, locking devices for normally holding said element against rotation, pivoted fingers normally holding said devices in locked position, said fingers being actuated to inoperative position by a coin of proper size inserted through said slot whereby said coin may have access to said locking devices for positively releasing the same.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ALBERT K. COLLINS.

Witnesses:
C. A. DUCKWORTH,
LOUISE K. WITHERS.