T. R. CHISOLM.

COIN CONTROLLED VENDING APPARATUS.

APPLICATION FILED OCT. 29, 1908.

919,824.

Patented Apr. 27, 1909.

4 SHEETS—SHEET 1.

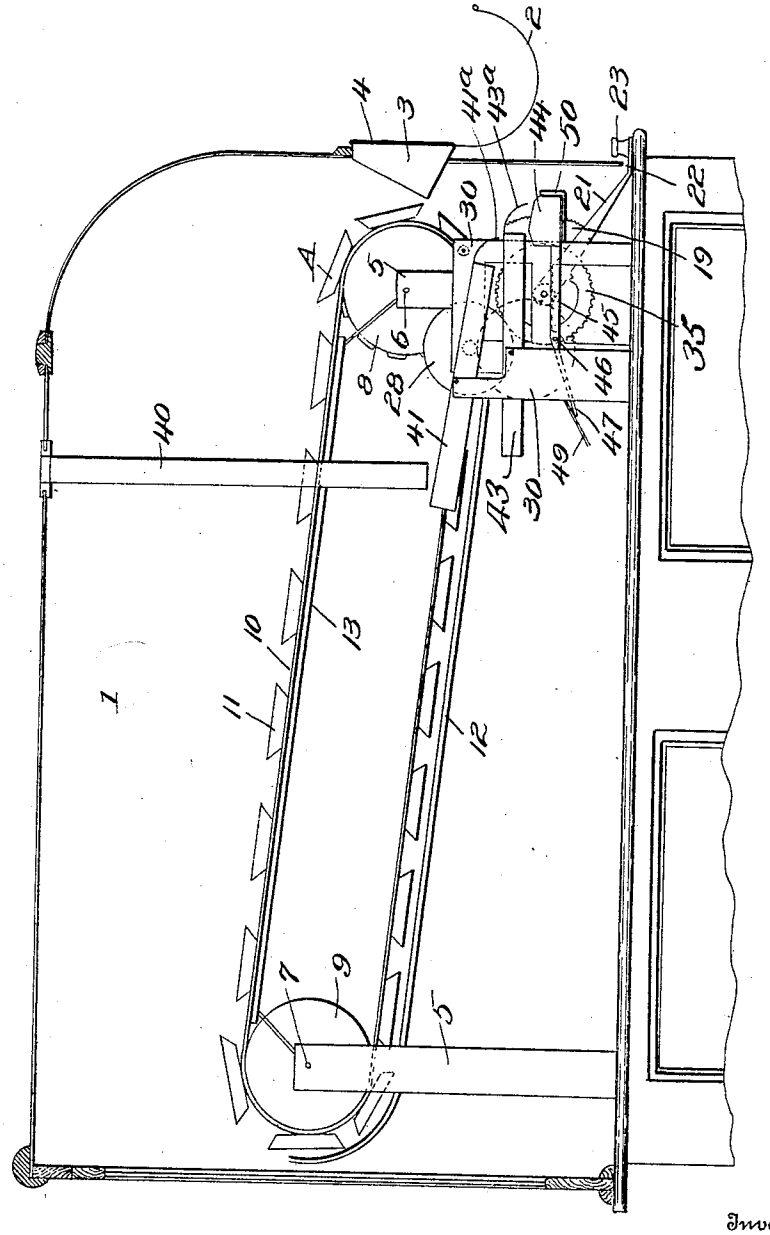


Fig. 1.

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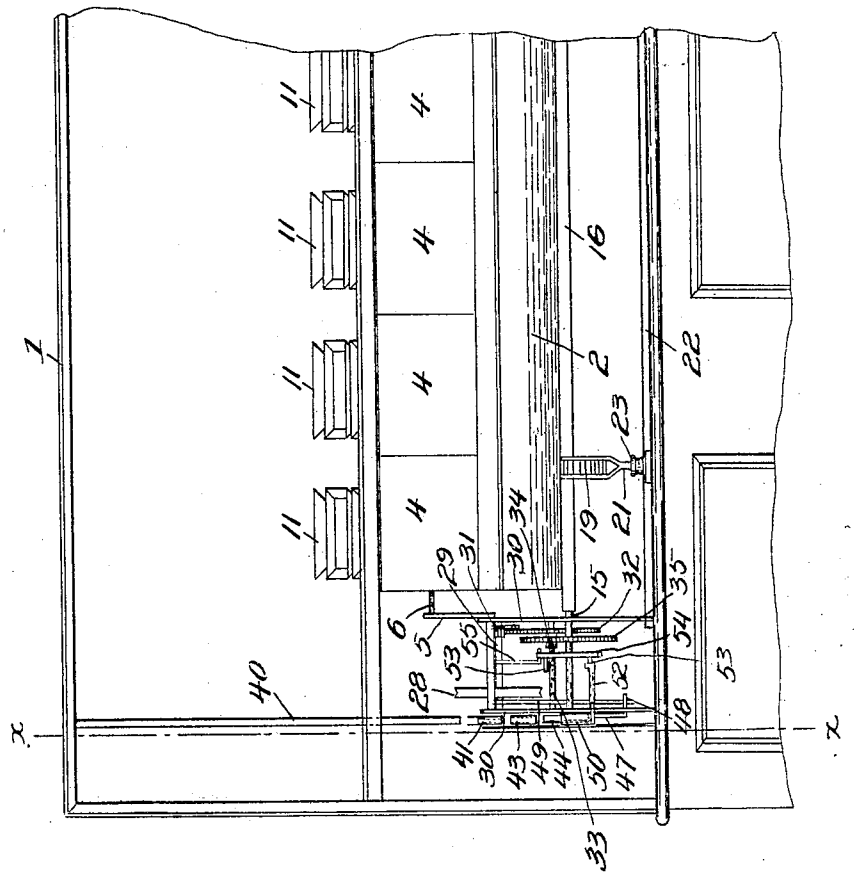
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4 SHEETS—SHEET 2.

Fig. 2.



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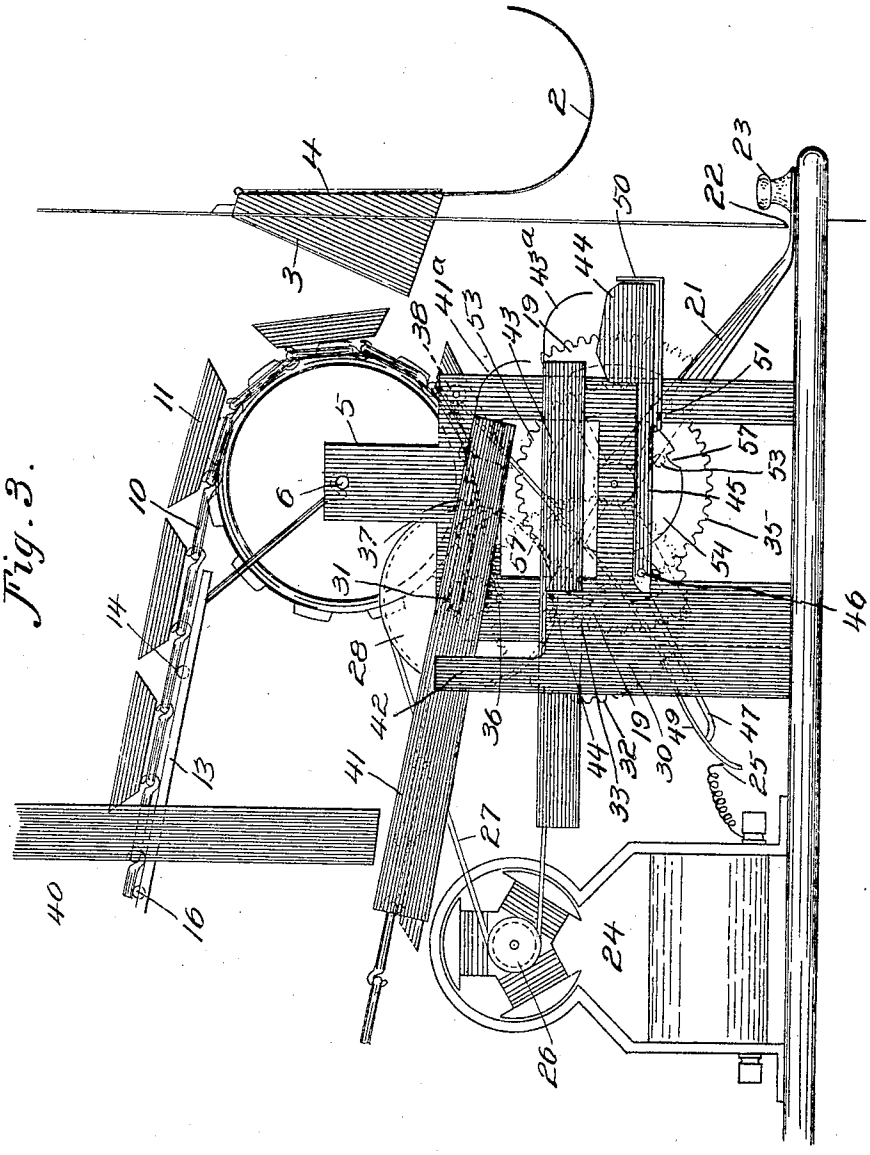
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4 SHEETS—SHEET 3.

Fig. 3.



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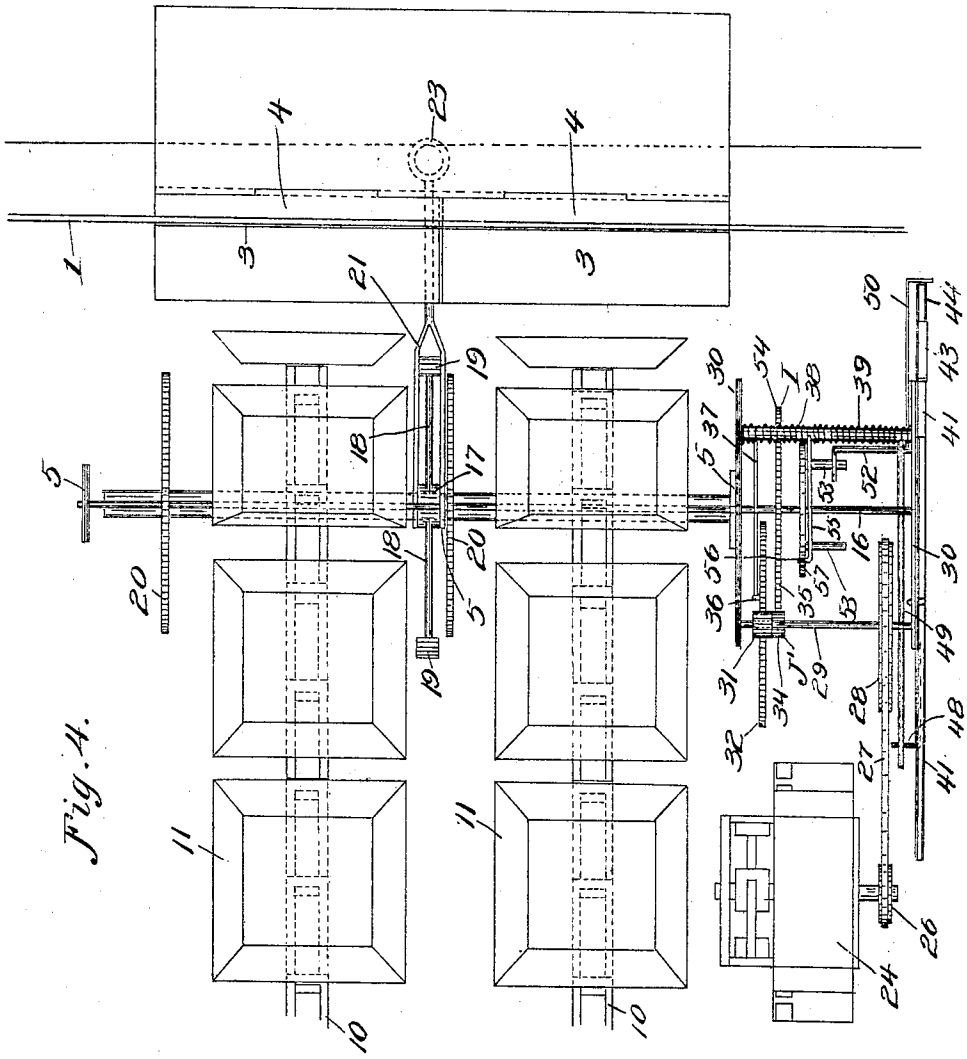


Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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COIN-CONTROLLED VENDING APPARATUS.

No. 919,824. Specification of Letters Patent. Patented April 27, 1909.

Application filed October 29, 1908. Serial No. 460,064.

To all whom it may concern:

Be it known that I, THOMAS R. CHISOLM, a citizen of the United States, residing at Blackville, in the county of Barnwell and State of South Carolina, have invented new and useful Improvements in Coin-Controlled Vending Apparatus, of which the following is a specification.

This invention relates to vending apparatus of the coin-controlled type and preferably embodying a plurality of delivery devices for different kinds or sizes of goods or articles, any one of which may be thrown into operation upon the deposit of a proper coin, by means under the control of the operator, so that the desired kind of goods or article of merchandise may be obtained.

The primary object of the invention is to provide a vending apparatus of this character having a novel, simple, effective and reliable construction of motor-operated dispensing means for automatically delivering the desired article upon the deposit of a coin without further action on the part of the operator, and automatically stopping the motion of the mechanism upon the discharge of the article.

A further object of the invention is to provide a novel construction and arrangement of vending devices which are adapted to be operated by a common (single) motor, and to provide selective gearing whereby such devices may be independently coupled for operation to the driving mechanism actuated by the motor at the option of the operator.

The invention also has for its object to provide a neat and attractive apparatus which may be manufactured at a comparatively low cost, and which shall be certain in action and not liable to get easily out of order.

With these and other objects in view, the invention consists of the features of construction, combination and arrangement of parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a vertical section from front to rear through the machine on the plane indicated by the line *x*—*x* of Fig. 2, parts being omitted. Fig. 2 is a fragmentary front elevation of the same. Fig. 3 is a detail vertical section on an enlarged scale through the casing, showing the operating mechanism in side elevation. Fig. 4 is a sectional plan view.

Referring to the drawings, 1 designates the casing of the machine which may be of any suitable size or construction to rest upon a stand or counter or to be supported in any preferred manner, and which is preferably of ornamental design and largely composed of glass so that the interior thereof may be viewed and the operation of the mechanism observed from without to render the apparatus attractive and interesting to prospective purchasers and the general public. At the front of this casing is a shelf or tray 2 to receive and support the discharged merchandise, which tray is arranged below a series of discharge chutes 3, each closed and guarded by a hinged gravity closing door 4 adapted to open under the impact of the article to allow the latter to pass from the chute to the shelf or tray.

Suitable brackets or frame pieces 5 are mounted upon the bottom of the casing and have journaled therein front and rear sets of transverse shafts 6 and 7, the shafts of each set being arranged in longitudinal alinement. These shafts carry sprocket wheels 8 and 9, and passing around the sprocket wheels of the companion front and rear shafts are endless carrying chains 10, each provided with a series of spaced trays or receptacles 11 to hold the goods or articles to be dispensed. These endless goods carriers are thus mounted for independent operation, and may be employed to hold and convey different sizes or kinds of goods. As each tray or receptacle passes downward and around the sprocket wheel 8 and into line with the coöperating chute 3, the package or article therein will discharge by gravity therefrom into the chute and thence to the shelf or tray 2. A suitable guard plate or board 12 may be provided to retain the goods in the inverted filled receptacles 11 on the lower or return stretch of the chain. Bars or other suitable supports 13 are arranged below the upper stretches of the carrier chains and carry friction rollers 14 to prevent downward deflection thereof from the weight of the filled receptacles and to insure an easy traveling movement of said chains.

Arranged below the series of shafts 6 is a power transmitting shaft 15, on which is fixed for rotation therewith in any suitable manner a sleeve 16. Mounted for longitudinal sliding motion on said sleeve and suitably mounted to rotate therewith is a hub or collar 17 provided with oppositely ex-

tending arms 18 carrying toothed sectors 19, each preferably in the form of a quadrant, the two quadrants providing a mutilated adjustable clutch gear. This gear is adapted to be adjusted longitudinally on the sleeve for engagement of one or the other of its quadrants with gears 20 on the respective shafts 6 by an arm 21 connected with the collar or hub 17 and projecting outwardly through a longitudinal slot 22 in the front wall of the casing, its outer end being provided with a button or finger piece 23, whereby the prospective purchaser may shift the clutch gear to position it to operate the gear 20 of any one of the shafts 6 and to thereby prime either dispensing device or carrier for operation by the motor mechanism. The gearing is so proportioned that a one-half revolution of the shaft 15 under the action of the motor will operate the acting gear 20 a quarter revolution through the action of the operating quadrant 19 thereon, which quadrant will then move out of engagement with said gear, the remaining quarter revolution of the shaft 15 serving to bring the other quadrant 19 into position for engagement with one or the other of gears 20 for the succeeding dispensing operation. Under the quarter revolution imparted to either shaft 6, the receptacle 11 next in order of arrangement for the discharge of its contents is carried by the movement of the chain from a position immediately above the gear 8 to a substantially vertical position downward in advance thereof and in alinement with the chute 3, so that the article therein will be dumped by gravity into the chute and thence discharged into the tray 2. The arm 21 may be constructed in any suitable manner to engage and operate the clutch gear. In the present instance, it is shown, see Fig. 4, as yoked, the spaced arms of the yoke providing for the rotation of the gear therethrough and the free ends of the arms of said yokes being arranged to bear against the sides of the collar, whereby the latter may be shifted in reverse directions.

Arranged within the casing is a suitable motor 24, which may be a spring motor, electric motor or any other suitable type of motor. An electrical motor is shown in the present instance which is provided with a circuit closing contact 25 and has fixed on the armature shaft thereof a pulley 26 which is connected by a belt 27 with a pulley 28 on a drive shaft 29, said shaft being journaled in brackets or supports 30 forming the frame structure of the drive gearing of the apparatus operated by the motor, which gearing includes the shaft 15 which is journaled at one end in said frame structure. On the shaft 29 is a pinion 31 meshing with a gear wheel 32 on a shaft 33 disposed below said shaft 29, and on this shaft 33 is also mounted a pinion 34 meshing with a gear wheel 35 on the shaft 16, by which train of gearing motion will be transmitted to the shaft 16 to drive the selected carrier or dispensing device when the motor is set into action. In order to lock the gearing normally against operation, the gear 32 is provided with a pair of spaced pins or projections 36 arranged on diametrically opposite sides of the center of one of its faces, and which are adapted to be independently and in turn engaged by the suitably formed free end of a locking arm 37, by which the train of gearing will be held from movement until said locking arm is retracted. The arm 37 is carried by a rock shaft 38 journaled in the frame pieces 30 and inclosed by a coiled spring 39 suitably connected thereto and to one of said frame pieces to normally hold the arm 39 downward into locking position. The said locking arm is adapted to be retracted to permit actuation of the gearing and the motor to be thrown into operation by coin-operated controlling mechanism, which I will now proceed to describe.

In the top of the casing is a coin slot from which depends a spout or chute 40, the lower end of which terminates above the upper rear end of a downwardly and forwardly inclined primary coin conductor or runway 41, preferably consisting of a channeled casting or strip of sheet metal. This conductor is pivoted intermediately upon one side of the gear frame, as indicated at 42, with its lower forward end terminating above the front end of a similarly constructed secondary coin conductor or runway 43 intermediately pivoted at 44 on the gear frame and having a slight downward and rearward inclination. The coin passing from the chute into the conductor 41, if of proper denomination and weight, rolls forwardly down the same and tilts the forward end of said conductor downward, whereby the coin is discharged into the forward end of the secondary conductor 43 and tilts the same downward in a similar manner. Arranged below the forward end of the conductor 43 is a pocket or receptacle 44 into which the coin is dumped from said conductor 43, and this receptacle is open at top and bottom and carried by an arm 45 pivotally mounted on the gear frame at 46 and formed with a rearwardly projecting extension or arm 47 having a laterally bent free end 48. The part 48 engages a rod or arm 49 connected with the rock shaft 38 and which is normally held downward with the locking arm 37 by the action of the spring 39 and thus maintains the coin pocket or receptacle in normal horizontal or receiving position. The free end of the arm 49, which latter serves as a circuit-closing switch or terminal, normally lies out of contact with the terminal 25 of the motor, but is adapted to be moved upward into engagement therewith to close the motor circuit and thus start the motor in operation when the pocket 44 is

tilted downward by the weight of the coin therein and the arm 47 is elevated in an obvious manner thereby to lift the arm 49 against the action of the spring 39, under which operation the locking arm 37 will also be elevated out of contact with the pin 36 engaged thereby to permit the drive gearing to be operated by the motor.

The coin is retained in the pocket to maintain engagement between the contacts 25 and 49 until the acting dispensing device has been moved to the desired degree to discharge the goods from one receptacle by a guard or closure 50 which partially incloses the pocket and has a bottom portion arranged in spaced relation below the bottom of the pocket to support and hold the coin therein. This guard or cover is pivotally mounted upon the gear frame, as shown at 51, and has a rearwardly extending angularly bent arm or projection 52 which is adapted to be engaged by either one of a pair of detent pins or studs 53 arranged at diametrically opposite sides of the axis of one of the faces of a cam disk 54 mounted on the shaft 16. The guard is properly balanced to hold the coin within the pocket so as to insure the proper operation of the parts to start the motor into action before the coin is discharged. The guard is tripped to permit the coin to discharge and effect an automatic resetting of the coin-controlled starting mechanism by the pins 53 on the cam disk. Normally, one of these pins lies below the arm 52 and as soon as the motor is set in operation the rotation of the cam disk brings said pin into engagement with the arm which is lifted by the pin on its passage and thus tilts the guard to release the coin, which drops down onto the bottom of the casing or may be discharged into any suitable receptacle. It will be understood, of course, that the two pins 53 are employed to act successively on the arm 52 on each half revolution of the cam disk in view of the arrangement of the pins 36 and the proportioning of the gearing to effect the discharge of the goods from each receptacle of the selected carrier on each half revolution of the shaft 16.

In order to maintain the locking arm 37 in retracted position and the switch arm 39 in projected position until the mechanism has made one complete operating movement, a retracting arm 55 extending from the rock shaft 38 is provided and has a laterally bent end 56 to ride upon the periphery of the disk and to engage recesses or notches 57 formed therein. These notches, two in number, are properly arranged to receive the portion 57 and permit depression of the retracting arm to enable the acting spring 39 to return the arm 37 to locking position and the arm 49 to circuit-breaking position on each complete half revolution of the shaft 16.

When the gearing is set into action and the cam disk 54 begins to revolve the bent end of the arm 55 is lifted out of engagement with the coacting recess and rides on the periphery of the disk, which latter holds said arm elevated and keeps the arm 37 retracted and the switch arm 49 projected after the coin has been discharged from the pocket and until the shaft 16 has made a complete half revolution, at which time the arm 53 will drop into the other notch 57 and permit the return of the rock shaft 38 to normal position by the spring 39, whereby the arm 37 will be brought into position to engage the opposite locking pin 36 on the gear 32 to again hold the gearing from action, while the switch arm 49 will be retracted to break the circuit and stop the motor.

From the foregoing description, taken in connection with the accompanying drawings, the construction and mode of operation of my improved coin-controlled vending apparatus will be readily understood and it will be seen that the invention provides a simple, effective and reliable construction of machine having a plurality of vending devices, any one of which may be set into operation, at the option of the operator, upon the deposit of a proper coin, which latter sets the driving motor into action without the necessity of further manipulation on the part of the operator. By the use of a plurality of vending devices adapted to be operated by a single motor and which may be adjusted for actuation by the motor by means under control of the operator, the construction and mode of operation are simplified, the machine adapted for vending different kinds or sizes of goods and the operator enabled to adjust the mechanism to obtain the particular kind of article or goods he desires. The apparatus as thus constructed is also of an ornamental character and as the interior mechanism is in full view, the operation of the machine affords interest to the purchaser and general public and constitutes a self-advertising feature, whereby custom will be attracted.

By the described construction of the coin-operating mechanism, the operation of the machine by coins or tokens of other than the proper size, denomination and weight will be prevented. If the coin or token should be of greater than the normal weight, it will, upon falling from the chute into the rear end of the conductor 41, tilt such end of the conductor downward, whereby the coin will run down and out of the rear end of the same into the casing. If, on the other hand, the coin should be too light, it will pass into the forward end of the conductor 43 but will not tilt the same downward, the downward and rearward inclination of said conductor causing such coin to roll rearwardly out of the same and into the casing. In order to prevent the coins passing from the primary conductor to the secondary conductor and from

the latter to the coin pocket from being ejected with too much force and to insure their proper passage from one part to another, the forward ends of the said conductors are respectively provided with outwardly and downwardly curved guides or deflectors 41[a] and 43[a], the operation of which will be obvious.

Having thus fully described the invention, what is claimed as new is:—

1. A vending apparatus comprising a plurality of vending devices, a motor for operating the same, gearing adapted to be actuated by the motor, transmission mechanism under the control of the operator for individually connecting said gearing for operating any of the respective vending devices, and mechanism for starting the motor and actuating said gearing.

2. A vending apparatus comprising a plurality of vending devices, a motor, gearing adapted to be operated by the motor, transmission mechanism under the control of the operator for individually connecting the gearing with any of the respective vending devices, locking means for holding the gearing from operation, and mechanism for simultaneously starting the motor and retracting the locking means.

3. A vending apparatus embodying a motor, gearing operated by the motor, a shaft operated by the gearing, a plurality of vending devices, gears for imparting motion thereto, and a transmission gear operated by the shaft and adjustable thereon to engage any of the first named gears.

4. A vending apparatus embodying a motor, gearing operated by the motor, a shaft driven by the gearing, a plurality of vending devices each having an operating gear, controlling mechanism governing the gearing to intermittently actuate the shaft a part revolution on each actuation of the gearing, a transmission gear operated by the shaft and adjustable to independently engage the gears of the vending devices, and means for adjusting said transmission gear.

5. A vending apparatus embodying a motor, gearing operated by the motor, a shaft driven by the gearing, a plurality of vending devices each having an operating gear, controlling mechanism governing the gearing to intermittently actuate the shaft a part revolution on each actuation of the gearing, a mutilated transmission gear operated by the shaft and comprising a pair of gear segments, and means for adjusting said transmission gear to bring one or the other of the segments thereof into engagement with one of the said operating gears.

6. A vending apparatus comprising a plurality of vending devices, a motor, gearing operated by the motor, transmission mechanism under the control of the operator for connecting said gearing with any of said vending devices, means controlling the operation of the gearing for imparting an intermittent motion to the vending device connected with the gearing and means for setting the motor and gearing into operation.

7. A vending apparatus comprising a plurality of intermittently movable vending devices, a motor, gearing operated by the motor, transmission mechanism under the control of the operator for connecting said gearing with any of said vending devices, locking mechanism for normally holding the gearing and motor from action, means governing the same to throw the motor and gearing into action, and means for holding the locking mechanism retracted until the gearing has completed one actuating movement.

8. A vending apparatus comprising a plurality of movable vending devices, a gear train for operating the same, a motor for operating the gear train, a controlling device for throwing the motor into and out of operation, coöperating means for throwing the gearing into and out of operation, transmission mechanism for connecting the gearing with any of said vending devices, mechanism for simultaneously actuating said controlling device and coöperating means, and means governing the gearing to maintain the aforesaid device and means respectively in and out of action for a prescribed period to secure one complete operation of the gear train.

9. A vending apparatus comprising an intermittently movable vending device, a gear train for operating the same, a motor for actuating the gear train, motor and gear controlling devices for throwing the same into and out of action to secure an intermittent operation of the gear train, mechanism governing said devices for movement to effect the operation of the gearing by the motor, means for freeing said mechanism for retraction after the starting of the motor and gearing into action, and means actuated by said mechanism freeing means to maintain the motor and gear controlling devices in position for the prescribed movement of the gearing.

In testimony whereof I affix my signature in presence of two witnesses.

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Witnesses:
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J. WALTON FLYTHE.