

July 14, 1925.

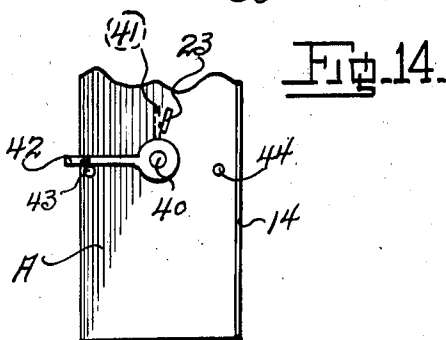
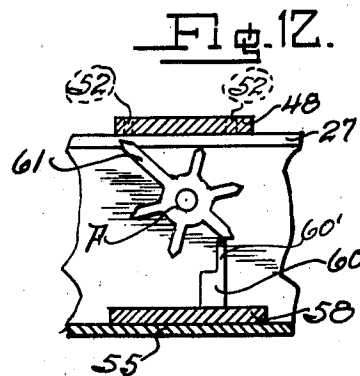
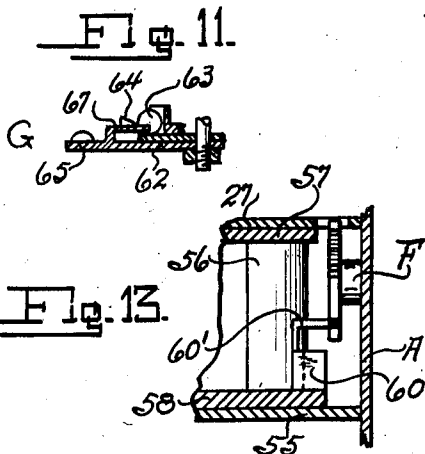
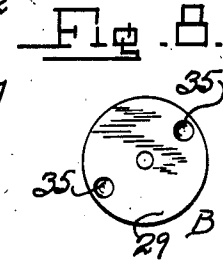
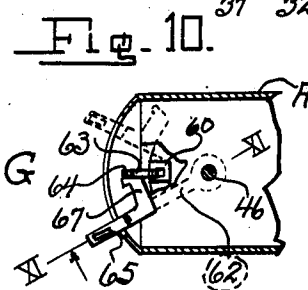
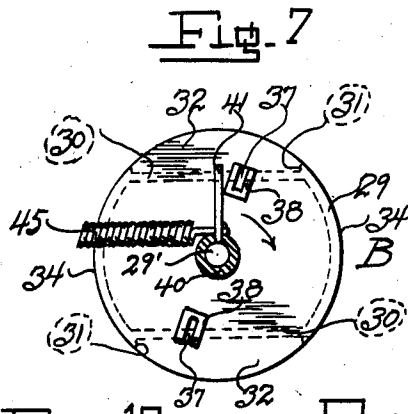
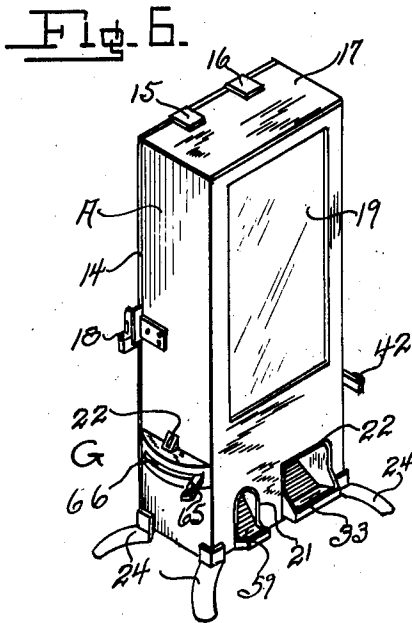
1,546,077

R. S. HUNTER ET AL

VENDING MACHINE

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2 Sheets-Sheet 2



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Patented July 14, 1925.

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UNITED STATES PATENT OFFICE.

RANSOM S. HUNTER, OF KANSAS CITY, KANSAS, AND EDWIN BOYD, OF KANSAS CITY, MISSOURI, ASSIGNORS TO THE COOPERATIVE VENDING MACHINE COMPANY.

VENDING MACHINE.

Application filed December 14, 1923. Serial No. 680,615.

To all whom it may concern:

Be it known that we, RANSOM S. HUNTER and EDWIN BOYD, citizens of the United States, and residing, respectively, at Kansas City, in the county of Wyandotte and State of Kansas, and Kansas City, county of Jackson, and State of Missouri, have invented certain new and useful Improvements in Vending Machines, of which the following is a complete specification.

The present invention relates to vending machines, and has for its general object to provide an improved type of machine for use in vending small articles of manufacture in either packet or single form.

In general, the machine comprises a casing having two separate coin slots and operating handles, one of which is operated when it is desired to purchase a packet of cigarettes or like articles, and the other operated when only a single cigarette is desired.

The primary object of the invention is to provide a machine, of the character above mentioned, wherein a few number of parts may be made to perform a great amount of work, and wherein the commodity may be delivered to the purchaser, over a great length of time, without having to re-fill the magazines.

A further object of this invention is the provision of a coin operated machine that will be cheap to make, profitable and of little trouble to its owner and may be operated without bringing into play the usual great number of parts and intricate mechanisms.

With these general objects in view, as well as minor objects which will appear in the course of the detailed specification, the invention will now be described with reference to the accompanying drawings illustrating a construction embodying the improvements and designed particularly for operation in the vending of cigarettes in either single or packet form, after which the novel features of the same will be set forth and defined in the appended claims.

In the drawings:—

Figure 1 is a vertical central section of a vending machine constructed in accordance with the present invention.

Fig. 2 is a sectional view of the same taken on line II—II of Fig. 1, looking in the direction of the arrow.

Fig. 3 is a similar sectional view of the machine, taken on line III—III of Fig. 1, looking in the direction of the arrow.

Fig. 4 is a horizontal sectional view taken on line IV—IV of Fig. 1.

Fig. 5 is a similar horizontal section taken on line V—V of Fig. 1, looking in the direction of the arrow.

Fig. 6 is an outside perspective view of the machine.

Fig. 7 is a fragmentary view taken on line VII—VII of Fig. 1.

Fig. 8 is a detail view of one end of the conveyor drum showing the diametrically opposite detents.

Fig. 9 is a fragmentary detail view of the dividing plate showing the relation of the delivery and re-filling apertures.

Fig. 10 is a detailed view of the single article operating lever.

Fig. 11 is a sectional view of the same taken on line XI—XI of Fig. 10.

Fig. 12 is an enlarged detail view of the star-gear taken on line XII—XII of Fig. 5.

Fig. 13 is a similar illustration of the star-gear and the engaging tooth, viewing it from the side; and

Fig. 14 is a fragmentary side view of the lower part of one side of the vending machine.

Referring now to the drawings in detail, wherein similar reference characters refer to like parts throughout the several views, the letter A designates the outer casing, B the packet delivery mechanism, C the operating means for mechanism B, D the magazine structure for the single article of manufacture, E the ejectors or delivery tubes for the same, F the means for automatically turning magazine structure D and G the coin lever and operating means for delivery tubes or ejectors E.

The casing A may be formed of any suitable material, but is preferably made of sheet aluminum with a detachable back 14 which has two right angled lugs 15 and 16 located at the top for securing the removable top 17 in place. A suitable locking structure 18 may be provided to secure the contents against theft. A glass front 19 allows for the display of the goods, while two openings 20 and 21 permit the free passage of delivery chutes. Coin slots 22 and 23 are also provided in casing A and the whole may be supported upon legs 24.

Referring at this time to B or the packet delivery mechanism, such is enclosed within the casing A, occupying approximately one-half of the space, and comprises a packet magazine 25 which may be made any suitable height to accommodate any number of small packets of cigarettes or other vendible articles. The vertical slot 26 affords a view of the packages, and through this medium with the glass front 19, the owner may determine when to refill the machine. Magazine 25 is preferably rigidly supported upon a transverse partition 27 which in turn has an opening equal in size to the inside of the magazine and allows the packets 28 to fall upon drum 29 which is rotatably mounted on shaft 29' supported by partition 39 and casing A below magazine 25. Two packet recesses are formed in drum 29 which consist of a flat portion 30, low sides 31 and ends 32. While one packet is being delivered to the ejecting passage 33, the rest of those in magazine 25 are supported by surface 34 of drum 29. In operation, the drum 29 travels through one-half a revolution in the direction of the arrow (see Fig. 2) and has emptied one packet recess while the other has positioned itself directly beneath the magazine and has received the next packet for a similar delivery. Detents 35 engaged by spring 36 yieldably secure drum 29 in position, and insure positive registration of slot 23 with coin pocket 37 formed by lugs 38 which may be integral with drum 29.

C or the operating means for mechanism B is loosely mounted upon shaft 40 which passes through casing A and is held against coming out by the coin engaging pin 41. Any suitable operating handle 42 may be rigidly attached to stub shaft 40 and limited in its rotary motion by pins 43 and 44. A retrieving spring 45 having one end attached to stub shaft 40 with its other secured to casing A is provided to return operating handle 42 to its normal position. In actual operation, this mechanism C operates as follows:

A coin is first lodged in coin pocket 37 through slot 23, engaging pin 41 is forced against the coin by operating handle 42 which action causes drum 29 to rotate one-half turn and deposit a packet of cigarettes into ejecting passage 33. When handle 42 is released, the coin falls to the bottom of the casing, retrieving spring 45 returns the handle to a normal position ready for the next similar operation.

Referring now to D, or the magazine for containing the single article to be vended, such is vertically and pivotally mounted upon shaft 46 and rests upon partition 27. Disk ends 47 and 48 may be spaced apart by rods 49 and glass tubes 50, which tubes are caused to pass through the disk ends 47

and 48 to allow free passage of the cigarettes 51. Teeth 52 are formed integrally with lower disk 48 for engagement with an operating member hereinafter described. Aperture 53 in partition 27 lies in the path of tubes 50 when the whole is rotated, and through this opening the delivery tubes for the ejector mechanism E are re-filled after depositing their contents through opening 54 of lower plate 55. Opening 54 is also positioned in the line of travel of delivery tubes 56 but ahead of aperture 54 as shown in Fig. 9.

As may be seen from Fig. 1, the ejector mechanism is also pivotally mounted upon rod 46 and has an upper connecting disk 57 and a similar lower disk 58. The plurality of delivery tubes 56 are arranged circumferentially and their inner passages pass through both upper and lower disks 57 and 58. As the cigarette is ejected from one of the tubes 56 through aperture 54 in plate 55 into passage 59, the previously emptied tube is being refilled from the magazine D through passage 53 of plate 27. A plurality of lugs 60 integral with lower disk 58 form coin slots and an upwardly and outwardly projecting tooth 60' is carried by each to engage the star-gear F which has one elongated tooth 61 to periodically engage teeth 52 of disk 48.

In operation, this particular structure is advantageous in that each tube 50 is filled with as many cigarettes as there are tubes 56 in mechanism E and through teeth 60' gear F is caused to make one complete revolution when said mechanism E has made a complete round, and in turn, elongated tooth 61 rotates magazine structure D and presents a full tube 50 over aperture 53. This is highly desirable, inasmuch as any number of magazine tubes 50 may be used, which eliminates frequent re-filling by the owner.

Any suitable coin actuated means may be used to operate the delivery tubes or ejecting means E, but it is preferred to provide a lever 62 which is pivotally mounted upon and adjacent the lower end of rod 46. To operate the ejector E, a coin 63 is inserted through slot 22 and is aided in positioning itself between lugs 60 by the inclined portion 64 of the lever 62. The handle 65 of lever 62 is then forced rearwardly along slot 66 of casing A while member 67 simultaneously engages coin 63 and rotates mechanism E through approximately 22½ degrees. When pressure on the lever is released, the coin drops through opening 68 and into the bottom of casing A to be collected by the owner of the vending machine. Any means, such as a spring 69 may be used for returning lever 62 to its normal position.

It will thus be seen that we have devised a comparatively simple, compact and effi-

cient arrangement and construction for fulfilling the desired objects of the invention, and while we have illustrated what now seems to constitute the preferred form of construction, we desire to reserve the right to make such changes or modifications as may fairly fall within the scope of the following claims:

1. In a vending machine, a magazine comprising a plurality of vertical compartments disposed in circular arrangement and mounted on a vertical shaft, a drum comprising a series of tubular ejectors loosely mounted on said shaft beneath said magazine, and means for imparting successive steps of rotary motion to said magazine upon each complete revolution of said drum.

2. In a vending machine, a magazine comprising a plurality of vertical compartments disposed in circular arrangement and mounted on a vertical shaft, a drum comprising a series of tubular ejectors loosely mounted on said shaft beneath said magazine, a plurality of extensions on said drum, and means engaging said extensions and said magazine for imparting successive steps of rotary motion to said magazine upon each complete revolution of said drum.

3. In a vending machine having a magazine comprising a plurality of vertical compartments disposed in circular arrangement carried by disks rotatably mounted on a vertical shaft and an apertured and slotted supporting plate at the bottom thereof, the combination of a series of ejector tubes rotatably mounted below said magazine adapted to be filled thereby as the individual tubes thereof pass beneath the aperture of said magazine supporting plate, an integral radially projecting tooth carried by the disc on which said ejector tubes are mounted and means disposed adjacent said teeth and operated thereby for moving said magazine through an arc of a circle when said series of ejector tubes has been forced through one complete revolution.

4. In a vending machine having a magazine comprising a plurality of vertical compartments disposed in circular arrangement carried by disks rotatably mounted on a vertical shaft and an apertured and slotted supporting plate at the bottom thereof, a series of ejectors rotatably mounted below said magazine comprising a pair of perforated disks, a plurality of open-end tubes supported between said disks and registering with said perforations and forming open-end compartments disposed in circumferential alinement with said magazine compartments and rotated independently thereof, a second apertured plate adapted to support said series of ejectors and control the delivery of articles therefrom, a radially projecting tooth carried by the disc on which said ejector tubes are mounted,

a star-wheel rotatably mounted on a horizontal axis with its face disposed in a plane tangent to said ejector disks adjacent said slotted plate and adapted to engage said radially projecting teeth and the disk of said magazine, whereby rotary motion is imparted to the magazine at predetermined intervals by the actuation of said ejectors.

5. In a vending machine, a magazine comprising a plurality of vertical compartments disposed in circular arrangement carried by disks rotatably mounted on a vertical shaft and an apertured and slotted supporting plate at the bottom thereof, a series of ejectors rotatably mounted below said magazine having a plurality of open-end compartments disposed in circumferential alinement with said magazine compartments, a second apertured plate adapted to support said series of ejectors and close the lower ends of all but one thereof, a radially projecting tooth carried by the disc on which said ejector tubes are mounted, a star-wheel having one elongated tooth rotatably mounted on an axis disposed at right angles to the axis of said series of ejectors and in a plane tangent to the line of travel of said teeth and adapted to engage said radially projecting teeth, said elongated star-wheel tooth projecting through the slot of said support to engage the disk of said magazine when said series of ejectors has made one complete revolution, whereby the next succeeding vertical compartment of the magazine is positioned above the aperture of said supporting plate.

6. In a vending machine of the character described, a pair of upper and lower spaced apart horizontal plates each having an aperture therethrough, a rotatably mounted drum having a predetermined number of circumferentially arranged, open-ended ejector tubes positioned between said plates, each ejector tube adapted to hold a single article to be vended, a magazine positioned above said ejector tubes having a series of compartments each adapted to hold a number of articles to be vended equal to the number of ejector tubes positioned between said horizontal plates, a plurality of slotted coin receiving lugs having upwardly and outwardly extending teeth individual to each ejector tube and mounted for rotation therewith and means mounted to rotate in a vertical plane and tangentially to the line of travel of said teeth for imparting movement to said magazine through the arc of a circle upon one complete revolution of said ejector tubes to position the next succeeding compartment above the aperture of said upper plate.

7. In a vending machine of the character described, a pair of upper and lower spaced apart horizontal plates each having an aperture therethrough, a rotatably mounted

drum having a predetermined number of circumferentially arranged open-ended ejector tubes positioned between said plates with their line of travel crossing said apertures, each ejector tube adapted to hold a single article to be vended, a magazine positioned above said ejector tubes having a series of compartments each adapted to hold a number of articles to be vended equal to the number of ejector tubes positioned between said horizontal plates and means connecting said drum and said magazine whereby the next succeeding compartment is positioned above the aperture in the dividing plate for filling each of said ejector tubes as it registers therewith, said means comprising a star wheel rotatably mounted on an axis at right angles to the axis of said drum and magazine and having one elongated tooth member and a plurality of shorter teeth, each tooth being successively engaged by projections carried by said rotatably mounted drum as the same is operated, and said elongated tooth caused to engage said magazine to rotate the latter for a fraction of a turn upon one complete revolution of said ejector tubes.

In testimony whereof we hereunto affix our signatures this 11th day of December, 1923.

RANSOM S. HUNTER.
EDWIN BOYD.