Jan. 3, 1928. 1,655,090

H. M. T. CUNNINGHAM

VENDING MACHINE

Filed Aug. 9, 1926 4 Sheets-Sheet 1

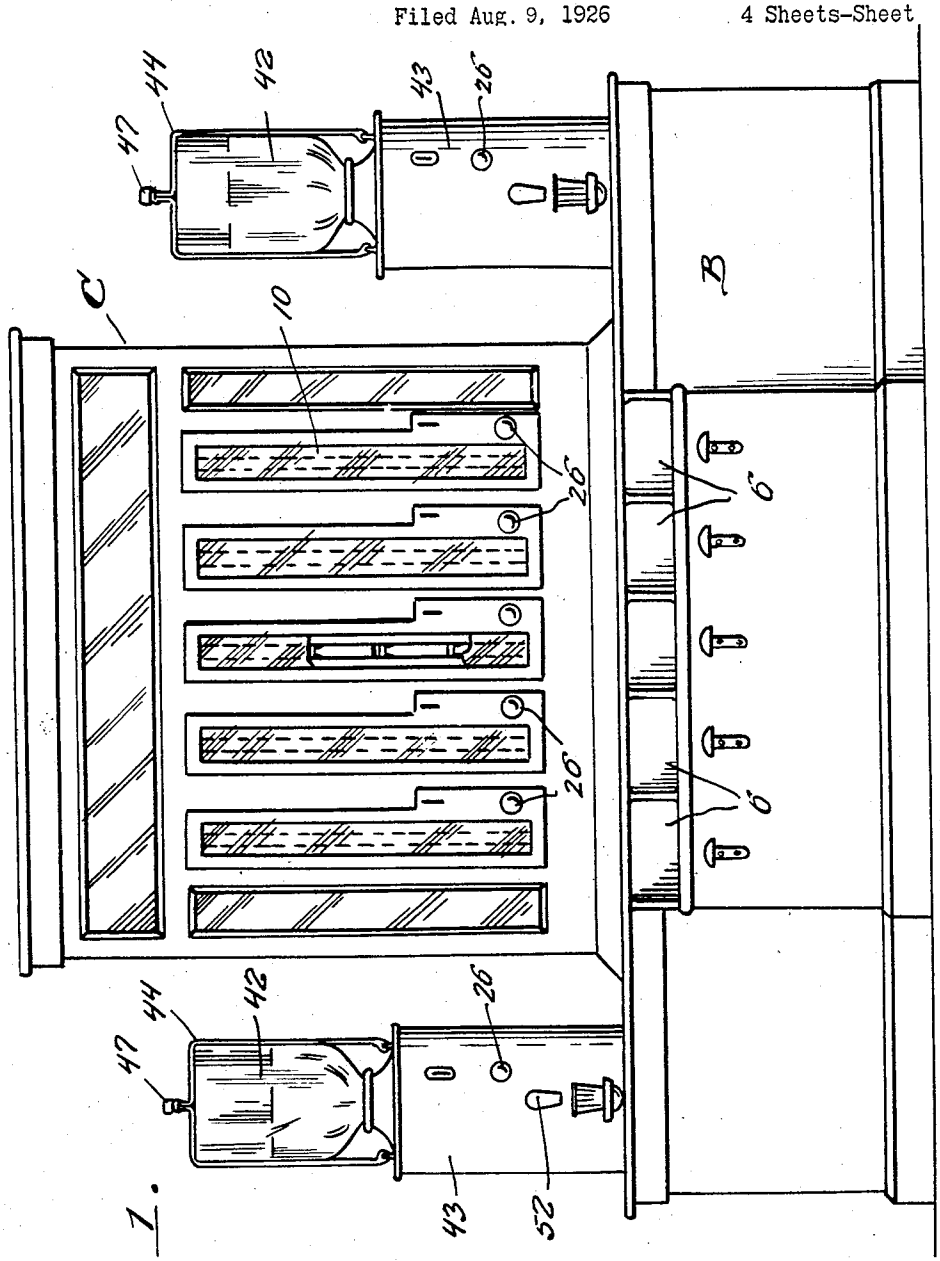

Fig. 1.

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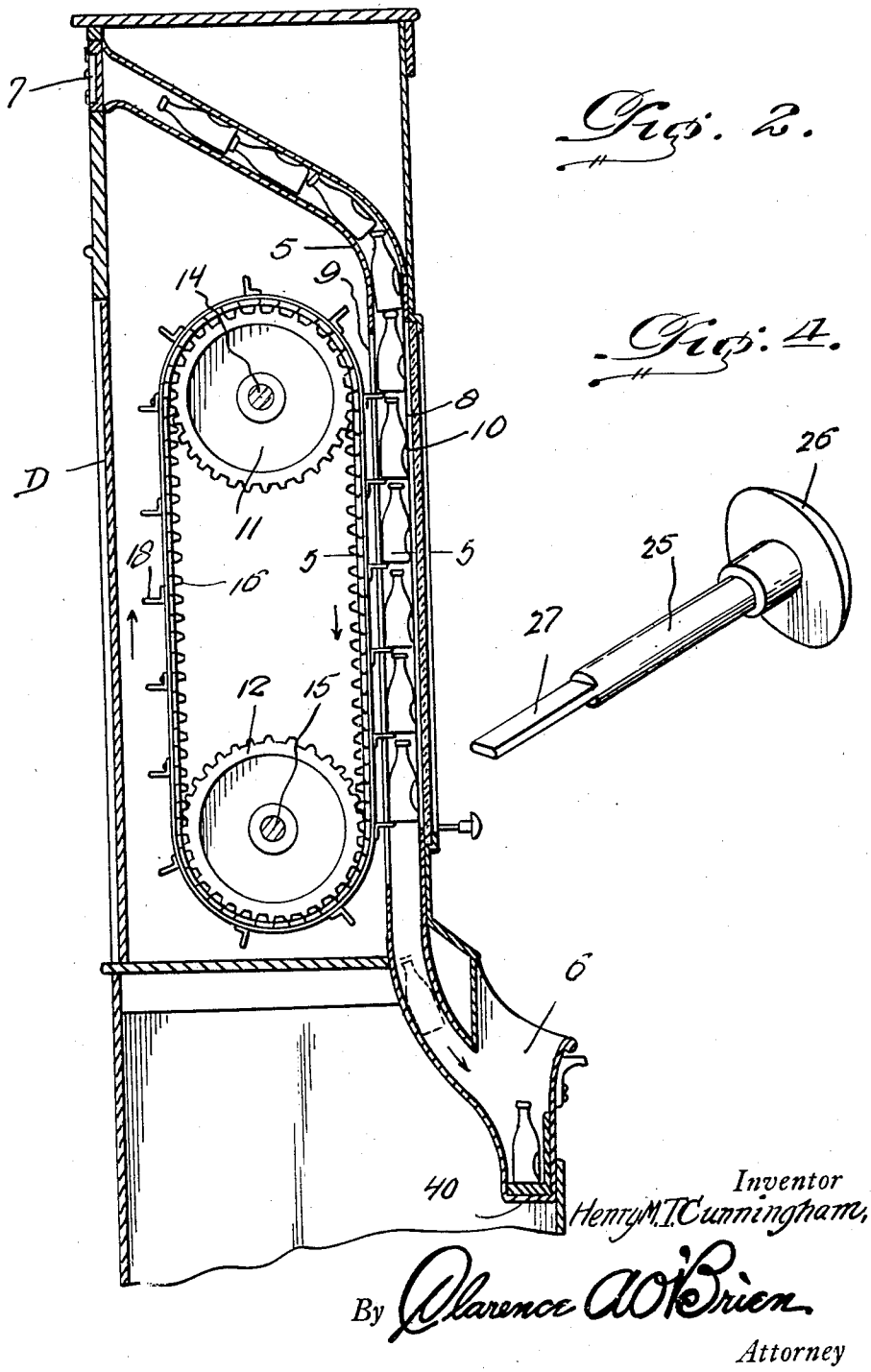
Filed Aug. 9, 1926 4 Sheets-Sheet 2

Fig. 2.

Fig. 4.



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Filed Aug. 9, 1926 4 Sheets-Sheet 3

Fig. 5.

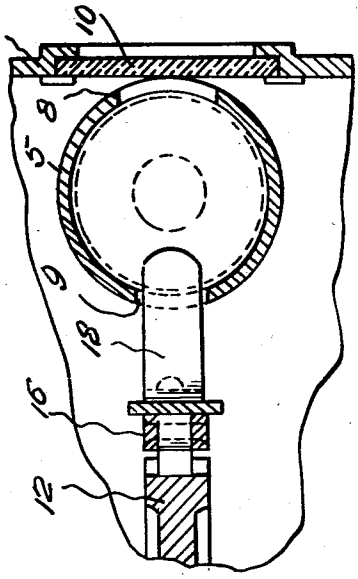


Fig. 6.

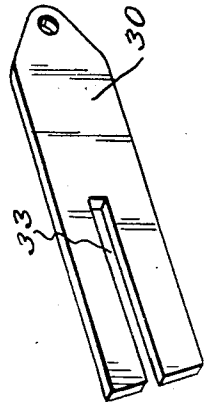
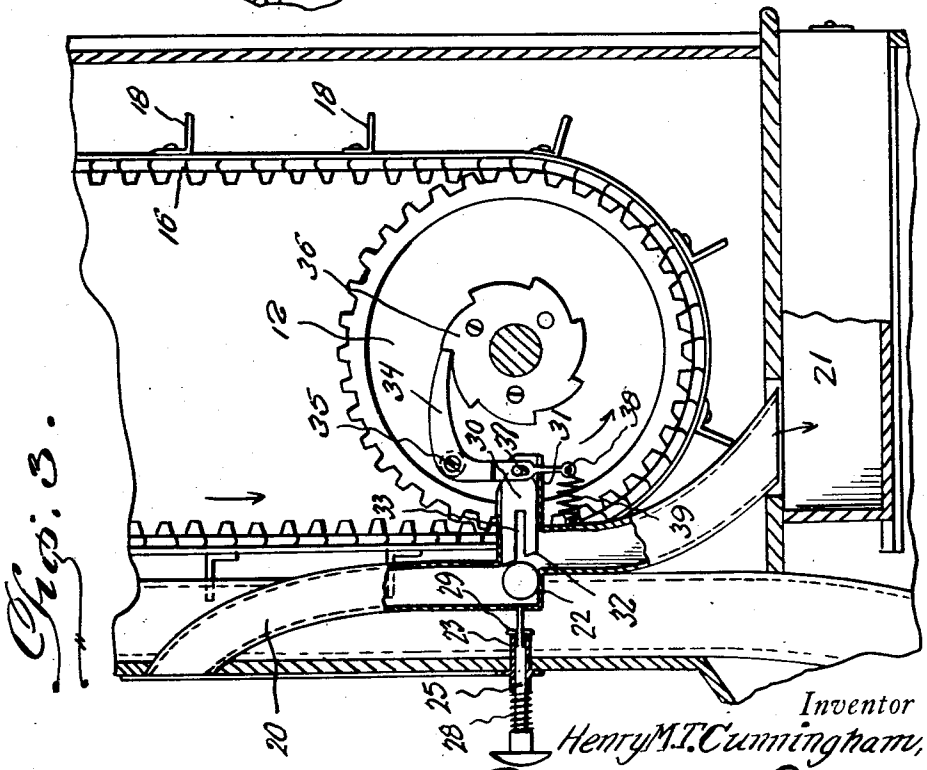


Fig. 3.



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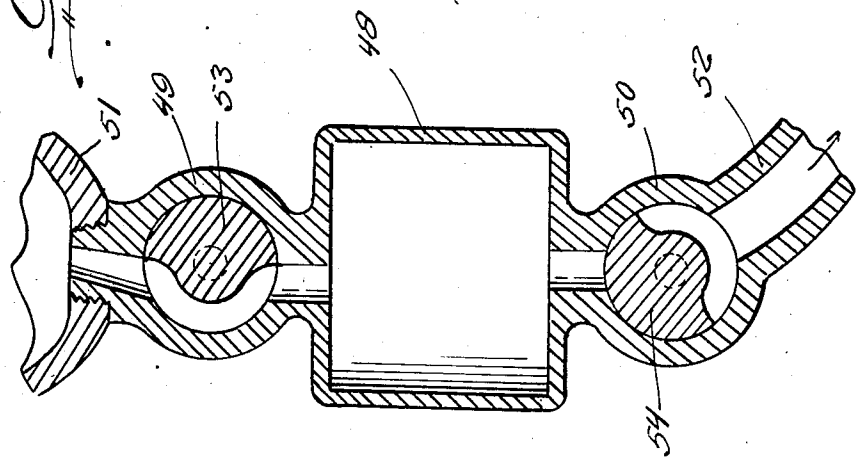
4 Sheets-Sheet 4

Fig. 8.



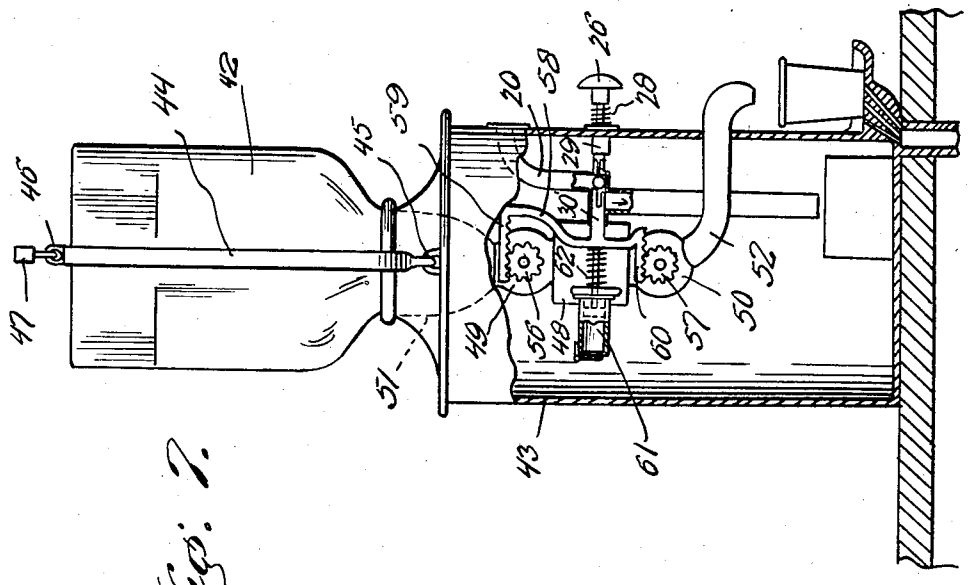


Fig. 7.

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Patented Jan. 3, 1928. 1,655,090

UNITED STATES PATENT OFFICE.

HENRY M. T. CUNNINGHAM, OF WASHINGTON, DISTRICT OF COLUMBIA.

VENDING MACHINE.

Application filed August 9, 1926. Serial No. 128,182.

The present invention has reference to improvements in vending machines and is designed to provide a device wherein bottles, packages, or the like may be stored and maintained in a chilled atmosphere to be delivered on insertion into the machine of a coin of proper size, the vending side of the machine being so constructed that the bottles or the like gravitate from the reservoir into position to be discharged from the machine, the bottle or the like following the one being discharged, being held back by a mechanism responsive to the action of the coin controlled side of the machine.

Another important feature of my invention relates to a coin controlled apparatus for delivering certain quantities of liquid,—for instance water,—in proportion to a coin inserted therein. The liquid dispensing mechanism essentially comprises a valve box capable of discharging a measured amount of liquid and operable thru a coin controlled device.

A still further very important object of the invention lies in the provision of a coin controlled vending apparatus of this nature which is exceedingly simple in its construction, strong, durable, inexpensive to manufacture, compact and convenient, easy to manipulate, not likely to readily become out of order, and otherwise well adapted to the purpose for which it is designed.

With the above and numerous other objects in view as will appear as the description proceeds, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawings:—

Figure 1 is a front elevation of the apparatus embodying the features of my invention,

Fig. 2 is a fragmentary vertical transverse section taken therethrough,

Fig. 3 is an enlarged detail section showing the coin controlled mechanism,

Fig. 4 is a perspective view of the push rod,

Fig. 5 is an enlarged detail section taken substantially on the line 5—5 of Fig. 2,

Fig. 6 is a detail perspective view of the co-actuated member,

Fig. 7 is a fragmentary sectional elevation showing particularly one of the liquid dispensing mechanisms, and

Fig. 8 is a sectional view through the valve mechanism thereof.

Referring to the drawing in detail, it will be seen that the letter C denotes generally a casing mounted on a base structure denoted by the letter B. The rear of the casing C is provided with a removable door D of suitable construction. A plurality of chutes 5 are arranged in the casing C to extend from openings in the rear of the casing at the top thereof through the bottom of the casing, terminating in pockets 6. The upper ends of the chutes 5 have closures 7 which are removable for the purpose of inserting bottles, packages, or the like in the chutes. Any suitable refrigerating means (not shown) may be utilized in the casing for chilling the bottles or the like while in the chutes. As the mechanism associated with these chutes is identical, only one will be described in detail, as this will suffice for a clear comprehension of the plurality of mechanisms.

The chute 5 has a portion thereof extending vertically along the inside front wall of the casing, and this portion is slotted as at 8 in the front and as at 9 in the rear. The front slot 8 is closed by a transparent panel 10 so that the goods in the chute may be seen from the front of the casing. A pair of sprockets 11 and 12 are journaled on suitable shafts 14 and 15 respectively, mounted in the casing C in any suitable or preferred manner. A chain 16 is trained over these sprockets 11 and 12 as is clearly shown in Fig. 2.

A plurality of spaced lugs 18 project outwardly from the chain 16. These lugs 18 are adapted to move thru the slot 9 of the chute 5 for the purpose of allowing the bottles or other packages to rest thereon. The space between the lugs 18, of course, will be governed according to the size of the packages or bottles. This chain and sprocket mechanism forms an escapement mechanism regulating the release of one bottle at a time in accordance with the operation of a coin control mechanism about to be described.

Particular attention is now directed to Figs. 3 to 6 inclusive wherein I have illustrated clearly the coin controlled mechanism

for releasing the escaping mechanism just described. The numeral 20 denotes a coin chute which extends from a point in the front of the casing downwardly to enter a coin compartment 21 of any suitable formation, preferably in the nature of a drawer slidably mounted in the base structure B.

Intermediate the ends of the chute 20, the frame is offset to form a shoulder or ledge 22. A sleeve 23 is mounted through the front of the casing and slidably supports a rod 25, the outer end of which is in the form of a push button 26 and the inner end of which is flattened as at 27. The flattened end 27 is slidable through an opening in the chute 20 immediately above the ledge 22. A spring 28 is disposed about the rod 25 and is impinged against the button 26 and against the sleeve 23 for normally holding the slidable rod outwardly.

A stop pin 29 limits the outward movement of the rod 25. The normal position of this rod is clearly shown in Fig. 3. A slidable plate 30 is mounted in a transverse extension 31 of the chute 20 immediately adjacent the ledge 22. The front end of this plate is beveled as is indicated at 32 and the plate is slotted longitudinally as indicated at 33. A bell crank pawl 34 is pivotally mounted in the casing as at 35 and one end thereof is in engagement with a ratchet 36 provided on the sprocket 12. In Fig. 3 this sprocket rotates, as will be apparent, in a counterclockwise direction. The lower or other end of the bell crank pawl 34 has a pin and slot connection 37 with the inner end of the plate 30. An extension 38 is provided on the latter mentioned end of the pawl 34 and is engaged by a spring 39 which is engaged with the casing and normally holds the pawl engaged with the ratchet.

It will thus be seen that when a coin is dropped in the chute 20, it comes to a stop on the ledge 22. Then the rod 25 may be pushed inwardly, causing the coin to push inwardly on the plate 30, thereby rocking the pawl 34 out of engagement with the ratchet 36. Because of the bevel 32, the coin will slip off of said beveled end 32 and fall down through the chute into the drawer or like container 21. This momentary release of the pawl 34 will allow the movement of the sprocket 12 sufficiently so that one bottle or the like will be released from engagement with its respective pawl so as to drop down through the lower portion of the chute 5 into the pocket 6, a suitable buffer means 40 being provided therein.

It is apparent that the slot 33 is provided for the purpose of receiving the flattened end of the rod 25 whenever no coin is resting on the ledge 22, so that the mechanism may not be operated except when a coin is inserted therein.

Particular attention is now directed to the water dispensing devices on the ends of the base structure B. These dispensing devices may be used for other liquids than water and they are duplicates of each other, and only one will be described in detail.

In this connection, particular attention is directed to Figs. 7 and 8, wherein the numeral 42 denotes the ordinary inverted water bottle inserted in the usual cooler casing 43, the refrigerating features of which may be of the conventional formation. In order to prevent the unauthorized removal of the water bottle 42, I provide a pair of L-shaped members 44 which are hingedly connected as at 45 with the casing 43 and the other ends of which are provided with eyes 46 for receiving a padlock 47, thus preventing the unauthorized removal of the bottles.

The numeral 48 denotes a measuring container which has a valve casing 49 at the top thereof and a valve casing 50 at the bottom thereof. The valve casing 49 communicates with the inverted bottle 42 through suitable means 51 and an outlet conduit 52 is associated with the valve casing 50. A rotary valve 53 is mounted in the casing 49 and a rotary valve 54 is mounted in the casing 50. As shown in Fig. 8, the valve 53 is open, allowing the passage of the liquid from the bottle down into the measuring receptacle 48, while the valve 54 is closed.

A gear 56 is associated with the valve 53 and the gear 57 is associated with the valve 54. A member 58 has rack extensions 59 and 60 associated respectively with gears 56 and 57. A shank 30′ functions identically with the plate 30 previously described in connection with the coin controlled mechanism. Otherwise the coin controlled mechanism is identical with that previously described. A dash pot 61 is connected with the member 58 and prevents the too quick return of the shank 31 which is returned through the medium of a spring 62.

It will thus be seen that when the coin control means is actuated, the member 58 is pushed to the left of Fig. 7, thereby rotating the valves 53 and 54 simultaneously. It is thought that the construction, operation, and advantages of this vending machine will now be clearly understood by those skilled in this art without a more detailed description thereof. The present embodiment of the invention has been disclosed in detail merely by way of example, since in actual practice it attains the features of advantage as numerated as desirable in the statement of the invention and the above description.

It will be apparent that numerous changes in the details of construction, and in the combination and arrangement of parts may be resorted to without departing from the spirit or scope of the invention

as hereinafter claimed, or sacrificing any of its advantages.

Having thus described my invention, what I claim as new is:—

In a vending machine of the class described, a coin control mechanism including, in combination, a continuous chute disposed for gravitational passage of a coin therethrough and having an intermediate offset to form a ledge, an extension provided in the chute transversely thereof immediately adjacent the ledge, a plate slidable in the extension and having a longitudinally extending slot at its end adjacent the ledge, a slidably mounted rod projectible through an opening in the chute immediately above the ledge for forcing a coin into engagement with the plate for sliding said plate, said slot in the plate being adapted to receive the end of the rod when no coin is resting on the ledge, the coin engaging end of the plate being beveled downwardly and away from the ledge, a pivoted member, a pin and slot connection between the pivoted member and the plate, a spring associated with the pivoted member for holding the plate in a predetermined position, a shaft, a ratchet wheel connected to said shaft, said ratchet wheel being actuated by the pivoted member when said plate is operated by a coin interposed between the plate and the rod and spring means associated with the rod for holding the same in a predetermined position so that a coin may be inserted in the continuous chute to be momentarily stopped on the ledge by the plate whereby the rod may be pushed inwardly to force the coin against the beveled end of the plate to slide said plate and the spring associated with the pivoted member will tend to force the coin down into the lower portion of the chute.

In testimony whereof I affix my signature.

HENRY M. T. CUNNINGHAM.