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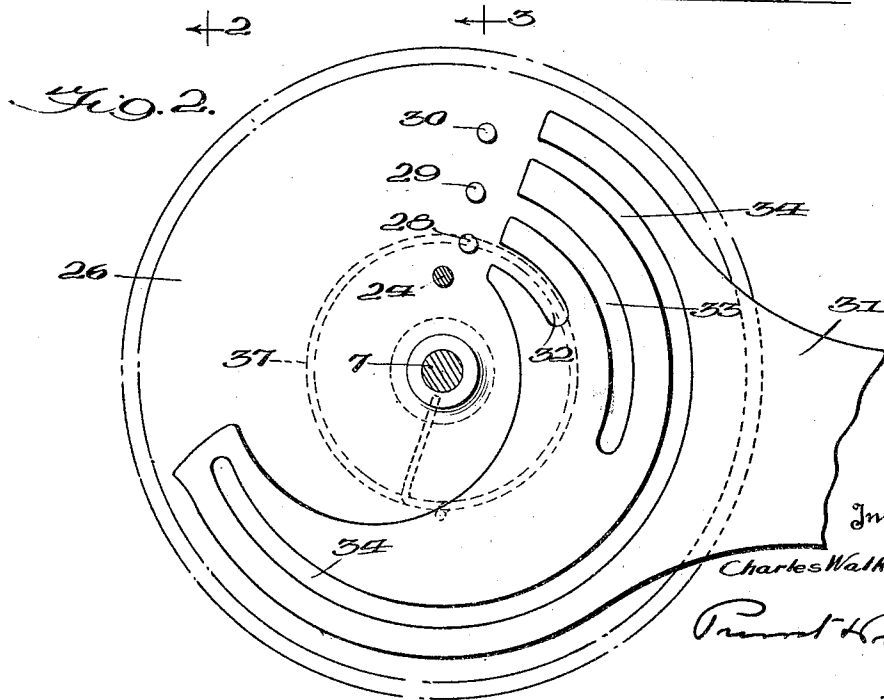
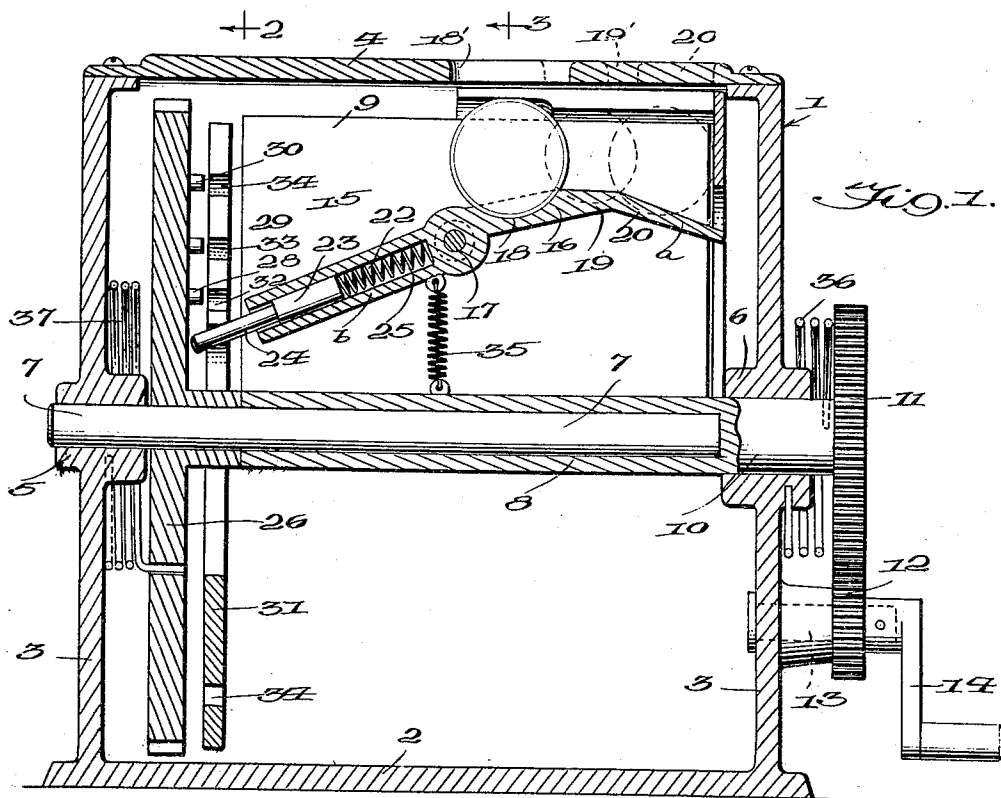
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VENDING MACHINE

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2 Sheets-Sheet 1



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Permit to Print

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UNITED STATES PATENT OFFICE

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VENDING MACHINE

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My invention consists in new and useful improvements in vending machines and relates more particularly to that type of machine adapted to vend liquid products such as gasoline or the like.

The primary object of my invention is to provide a vending machine of this character which is designed to vend varying quantities of liquid upon the insertion of the required coin, said machine being adapted to receive and be actuated by coins of different denominations.

Another object of my invention resides in my improved coin operated mechanism and the particular means for accommodating coins of various denominations to deliver respectively varying quantities of fluid.

A still further object of my invention is to provide a stop device for measuring and limiting the quantity of fluid vended for a given coin.

With the above and other objects in view which will appear as the description proceeds, my invention consists in the novel features herein set forth, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

Referring to the drawings in which numerals of like character designate similar parts throughout the several views,

Fig. 1 is a transverse vertical sectional view of my improved vending machine.

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1 showing the stop mechanism.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1 showing the coin control mechanism, and

Fig. 4 is a fragmentary top plan view of the machine.

In the drawings, 1 represents the housing which consists of a base 2, vertical walls 3 and a top or cover 4. The opposite side walls 3 are provided with bearings 5 and 6, the former supporting one end of a shaft 7 which extends transversely partially through the housing and terminates within a sleeve or bearing portion 8 of a semi-drum element 9, said shaft serving in co-operation with the bearing 6 to rotatably support the semi-drum 9. The sleeve 8 is provided with an extension

10 which is rotatably supported by, and extends through the bearing 6, carrying at its outer end a gear 11, the latter operatively engaging a complementary gear 12 fixed on a short shaft 13 mounted in the wall of the casing.

The outer end of the shaft 13 carries a handle 14 by means of which the gear 12 is caused to rotate, which in turn rotates the gear 11 and the semi-drum 9, all as hereinafter set forth more in detail.

The semi-drum element 9 is preferably semi-circular in cross section as clearly shown in Fig. 3 and is preferably provided with a longitudinally extending recess or chamber 15 located centrally of the drum and terminating axially thereof adjacent the sleeve 8, the latter forming the bottom of the chamber.

Within the chamber 15 and extending longitudinally thereof I provide a coin lever 16 which is substantially centrally fulcrumed intermediate the vertical extremities of the chamber 15 on a shaft or pivot 17, supported in the opposite walls of the chamber. One end *a* of the lever 16 forms a coin actuating arm and is provided in its upper surface with a plurality of coin receiving recesses 18, 19 and 20, each of which is located directly below the respective coin slots 18', 19' and 20' in the top 4 of the housing, said slots and recesses being adapted to receive twenty-five cent pieces, ten cent pieces and five cent pieces, respectively. As shown in the drawings, Figs. 1 and 3, a twenty-five cent piece has been inserted and is resting in the recess 18 preparatory to operating the machine. It will be noted that when in place on the arm *a* the edge of the coin projects beyond the annular surface of the drum.

Immediately adjacent the chamber 15 in the direction of the clockwise rotation of the drum 9 I provide a coin depressing abutment 21 which is rigidly secured to the top 4 of the housing on its underside. The abutment 21 as shown in Fig. 3 is downwardly inclined in cross section on its underside and the angle of inclination varies at predetermined points adjacent the different coins. In other words, the respective inclined surfaces

of the abutment 21 are such as to engage the corresponding coin upon the clockwise rotation of the drum 9 and through the depression of the coin, effect the rocking of the coin lever 16 to the desired degree upon its fulcrum 17 as hereinafter set forth.

The opposite end *b* of the coin control arm 16 serves both as an operating arm and a stop member for limiting the operation of the device. This arm is recessed internally as at 22 to receive the plunger 23 of a pin 24, the latter projecting outwardly beyond the extremity of the arm *b*. The plunger 23 and pin 24 are normally forced outwardly by a coil spring or the like 25 interposed between the inner extremity of the plunger and the end of the recess 22.

26 represents a gear wheel which is freely rotatable on the shaft 7 adjacent the drum 9, said gear having teeth which mesh with the teeth of a second gear 27, the latter being operatively connected to a fluid pump mechanism (not shown), which may be of any desired design. On the inner face of the gear wheel 26 and projecting toward the drum 9 I provide a plurality of lugs or projections 28, 29 and 30, each of which is adapted to be engaged by the end of the pin 24, when the arm 16 is rocked to the corresponding position by the respective coin, whereby upon the rotation of the drum and with it the lever 16, the pin 24 will cause the corresponding rotation of the gear wheel 26 to operate the fluid pump.

In order to control the extent of rotation of the gear 26 and in turn the amount of fluid pumped, for the coins of varying denominations, I provide a guide and stop arm 31 which is rigidly secured at one end to a suitable point in the housing, its free end terminating intermediate the gear wheel 26 and the drum 9. This free end is substantially semi-circular in shape and is provided with a plurality of arcuate guide slots of varying length 32, 33 and 34, the inner ends of said slots being closed and forming stops while their outer ends open adjacent the lugs 28, 29 and 30 respectively. These slots are adapted to receive the intermediate portion of the pin 24 when the arm 16 is rocked to the proper point and said pin is in engagement with any one of the lugs 28, 29 or 30.

In order to return the arm 16 to its normally inoperative position in the chamber 15, I provide a coil spring or the like 35 which is connected at suitable points to the arm 16 and to the sleeve 8 or bottom of the chamber 15. Also to return the drum 9 and the gear wheel 26 to their normal positions, I provide suitable spring means or the like 36 and 37 respectively, which may be of any convenient construction.

Having thus described the construction of my improved vending machine, its operation is as follows:—

We will assume that it is desired to vend twenty-five cents' worth of a fluid and the purchaser has deposited in the slot 18' a twenty-five cent piece, the coin having assumed the position in the recess 18 as shown in Figs. 1 and 3 of the drawings. Now, upon the rotation of the handle 14 in the proper direction, the drum 9 is caused to rotate in clockwise direction, through the medium of the gears 11 and 12 and the extension 10. As the drum rotates the upper edge of the coin engages the inclined surface of the abutment 21 which depresses the coin and causes the lever 16 to rock on its pivot 17 to a point where the pin 24 is adjacent the mouth of slot 34 and in engagement with the lug 30 on the gear wheel 26. The continued rotation of the drum brings the pin 24 within the slot 34 and at the same time rotates the gear wheel 26 until said pin has reached the terminus of the slot. During this operation the gear wheel 26, through the medium of the complementary gear 27, has operated a fluid pump and vended a predetermined quantity of fluid to the value of the inserted coin.

After the coin has passed the abutment 21 it is released by gravity or any other suitable means, and falls from the retaining recess into a suitable coin receptacle, the respective guide slots 32, 33 and 34 engaging the pin 24 and preventing the lever 16 from returning to its normal position until the drum is rotated to its extreme reverse position, whereupon the spring 35 again renders the mechanism inoperative.

It will be understood that coins of different size cause the rocking of the lever 16 to different extents and that the shape of the lever and the location of the arcuate slots are such as to bring about the proper functioning of the mechanism upon the insertion of the respective coin.

It may be desirable in the construction of a vending machine of this type to provide a ratchet mechanism to prevent the drum 9 from being rotated in the reverse direction until it has completed its operating stroke, in order to avoid the possibility of an operator obtaining more fluid than he is entitled to by reciprocating the drum in the slot intermediate its ends. Any suitable structure for performing this function may be employed.

It is obvious that while I have described this mechanism as particularly adapted for vending liquids or fluids, the principle may also be applied to machines for vending articles.

From the foregoing it is believed that the construction and advantages of my improved structure may be readily understood by those skilled in the art without further description, it being borne in mind that numerous changes may be made in the details disclosed without departing from the spirit of the in-

vention as set forth in the following claims.

What I claim and desire to secure by Letters Patent is:—

1. A vending machine comprising a housing, a movable element mounted in said housing, means for moving said element, a lever fulcrumed on and movable with said element, means on said lever for receiving a coin, an abutment mounted in said housing and adapted to be engaged by said coin upon the movement of said element, to rock said lever on its fulcrum, a vending device adjacent said element, and having means for operatively engaging said lever when the latter is rocked on its fulcrum, whereby the movement of said element is transmitted to said vending device, and means for limiting the operating movement of said element, comprising a guide member having a slot closed at one end and lying in the plane of movement of said movable element, said slot being adapted to receive a portion of said lever.

2. A vending machine comprising a housing, a rotary element mounted in said housing, means for rotating said element, a lever fulcrumed on and rotatable with said element, means on said lever for receiving a coin, an abutment mounted in said housing and adapted to be engaged by said coin upon the rotation of said element, to rock said lever on its fulcrum, a vending device adjacent said element and having means for operatively engaging said lever when the latter is rocked on its fulcrum, whereby the movement of said element is transmitted to said vending device, and means for limiting the rotation of said element, comprising a guide member having an arcuate slot closed at one end and lying in the plane of rotation of said rotary element, said slot being adapted to receive a portion of said lever.

3. A vending machine comprising a housing, a rotary element mounted in said housing, means for rotating said element, a lever fulcrumed intermediate its ends on said element and rotatable therewith, means on one arm of said lever for receiving a coin, an abutment mounted in said housing and adapted to be engaged by said coin upon the rotation of said element to rock said lever on its fulcrum, a vending device adjacent said element and having means for operatively engaging the other arm of said lever when the latter is rocked on its fulcrum, whereby the movement of said element is transmitted to said vending device, and means for limiting the rotation of said element, comprising a guide member having an arcuate slot closed at one end and lying in the plane of rotation of said rotary element, said slot being adapted to receive a portion of the last named arm of said lever.

4. A vending machine comprising a housing, a movable element mounted in said housing, means for moving said element, a lever

fulcrumed on said element, means on said lever for receiving coins of different denominations, a plurality of abutments mounted in said housing, each of which is adapted to be engaged by the respective coin supported on said lever upon the movement of said element to rock said lever a predetermined degree on its fulcrum, a vending device adjacent said element and having a plurality of means for operatively engaging said lever when the latter is rocked on its fulcrum, whereby the selected movement of said element is transmitted to said vending device, and means for limiting the movement of said element.

5. A vending machine comprising a housing, a rotary element mounted in said housing, means for rotating said element, a lever fulcrumed on said element, means on said lever for receiving a plurality of coins of different denominations, a series of abutments mounted in said housing and adapted to be engaged by the respective coins supported on said lever, upon the rotation of said element, to rock said lever on its fulcrum to the desired degree, a vending device adjacent said element and having a plurality of means for operatively engaging said lever when the latter is rocked on its fulcrum, whereby the selected rotation of said element is transmitted to said vending device, and means for limiting the rotation of said element.

6. A vending machine as claimed in claim 5 wherein said vending device includes a rotary element operatively connected to a fluid pump.

7. A vending machine as claimed in claim 5 wherein said last named means comprises a stationary member mounted in said housing transversely to the axis of said rotary element, said member having a plurality of arcuate slots of varying length, each of said slots being adapted to receive a portion of said lever when the latter is rocked on its fulcrum to the proper degree.

8. A vending machine as claimed in claim 5 wherein each of said abutments is inclined on its coin engaging surface, the angles of inclination varying to correspond to the diameter of the respective coin.

9. A fluid vending machine comprising a housing, a rotary element mounted in said housing and provided with a longitudinal radially extending recess, a lever fulcrumed intermediate its ends within said recess, means on one arm of said lever for receiving coins of different denominations, means for rotating said element, abutments mounted in said housing and adapted to be engaged by the respective coins upon the rotation of said element to rock said lever on its fulcrum, a vending gear adjacent said element and having a series of lugs for operatively engaging the other arm of said lever when the latter is

rocked on its fulcrum, the number of said lugs corresponding to the number of coin receiving means on said lever, whereby the selected rotation of said element is transmitted to said vending gear, and means for limiting the rotation of said element.

10. A fluid vending machine comprising a housing, a rotary element mounted in said housing and provided with a longitudinal radially extending recess, a lever fulcrumed intermediate its ends within said recess, means on one arm of said lever for receiving coins of different denominations, means for rotating said element, an abutment in said housing adjacent each of said coin receiving means and adapted to be engaged by the respective coin, when supported on said arm, upon the rotation of said element to rock said lever a predetermined degree on its fulcrum, a vending gear rotatably mounted in connection with said housing and having a plurality of lugs for operatively engaging the other arm of said lever when the latter is rocked on its fulcrum, whereby the selected rotation of said element is transmitted to said vending gear, a stationary member interposed between said vending gear and said element, and means on said member for guiding and controlling the extent of rotation of said element.

11. A vending machine as claimed in claim 10 wherein said last named means comprises a plurality of arcuate slots of varying length, said slots being adapted to receive a portion of said lever.

12. A vending machine as claimed in claim 10 wherein said last named means comprises a plurality of arcuate slotted of varying length, the end of said lever adjacent said vending gear being provided with a longitudinally yielding projection adapted to operatively engage any one of said lugs on the vending gear, the intermediate portion of said projection being adapted to ride within the respective arcuate slot for limiting the rotation of said element.

In testimony whereof I affix my signature.
CHARLES WALKER.