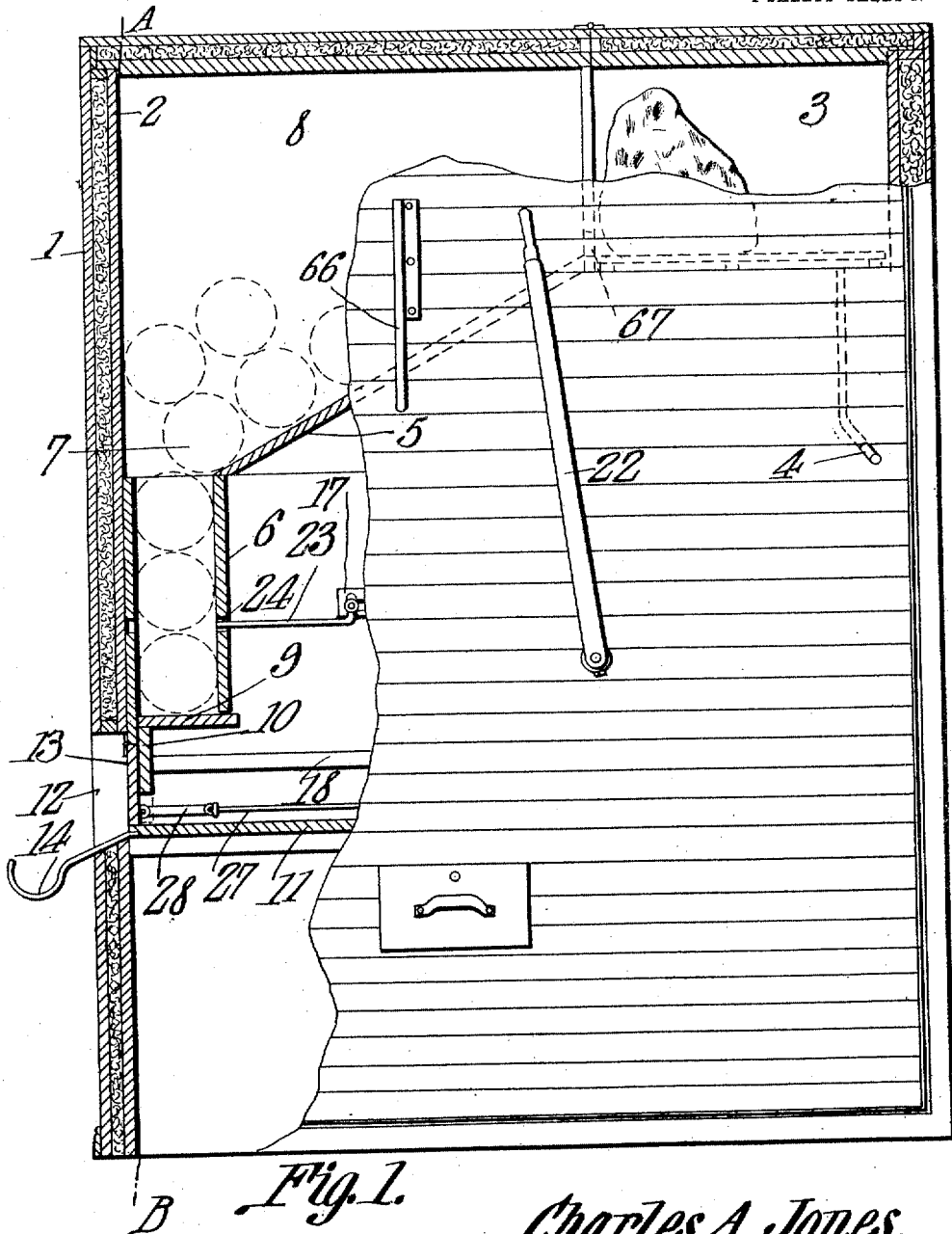


C. A. JONES.
BOTTLE VENDING MACHINE.
APPLICATION FILED APR. 1, 1910.

984,223.

Patented Feb. 14, 1911.

4 SHEETS—SHEET 1.



Witnesses

J. J. Tomlin
F. J. Chapman.

Charles A. Jones,
Inventor

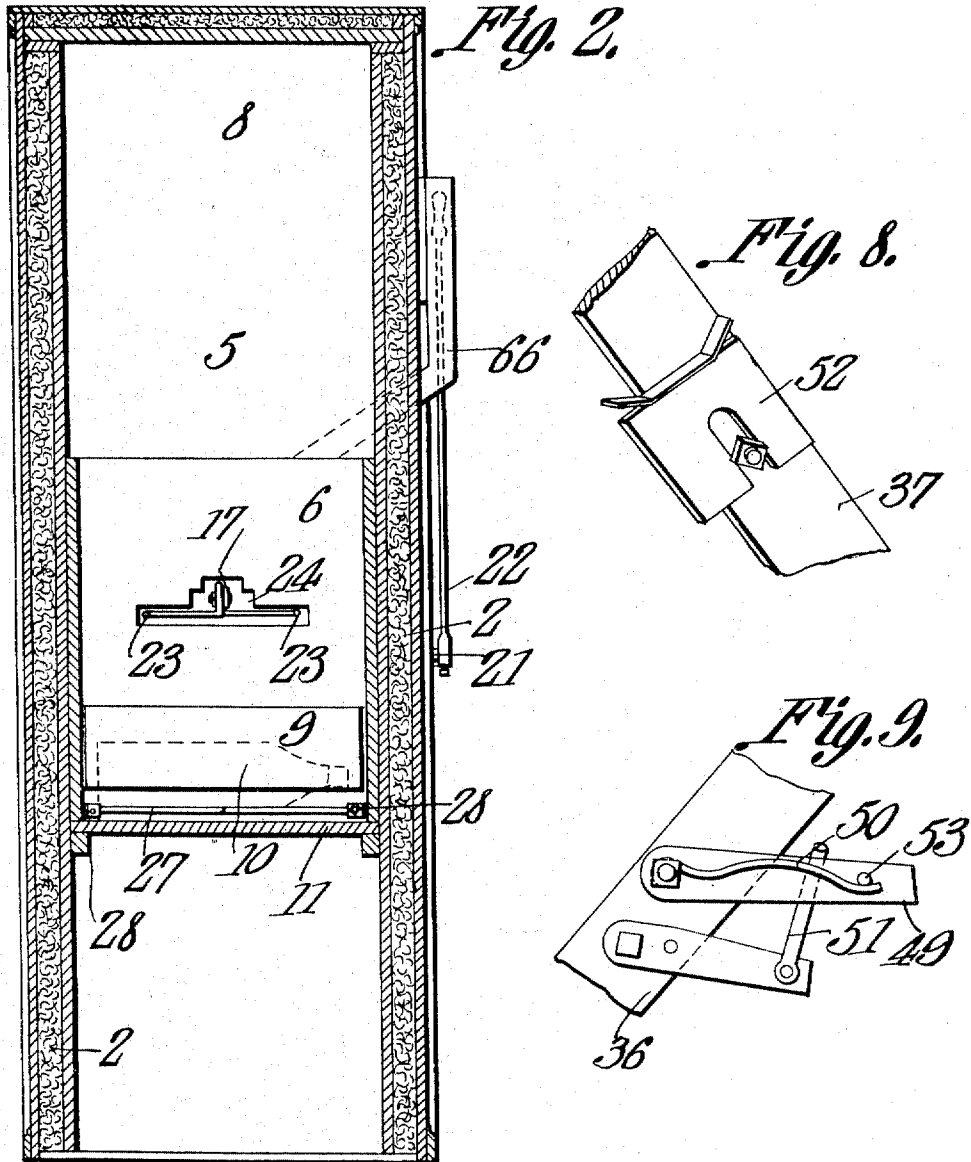
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4 SHEETS—SHEET 2



Witnesses
J. H. Amelin
H. T. Chapman.

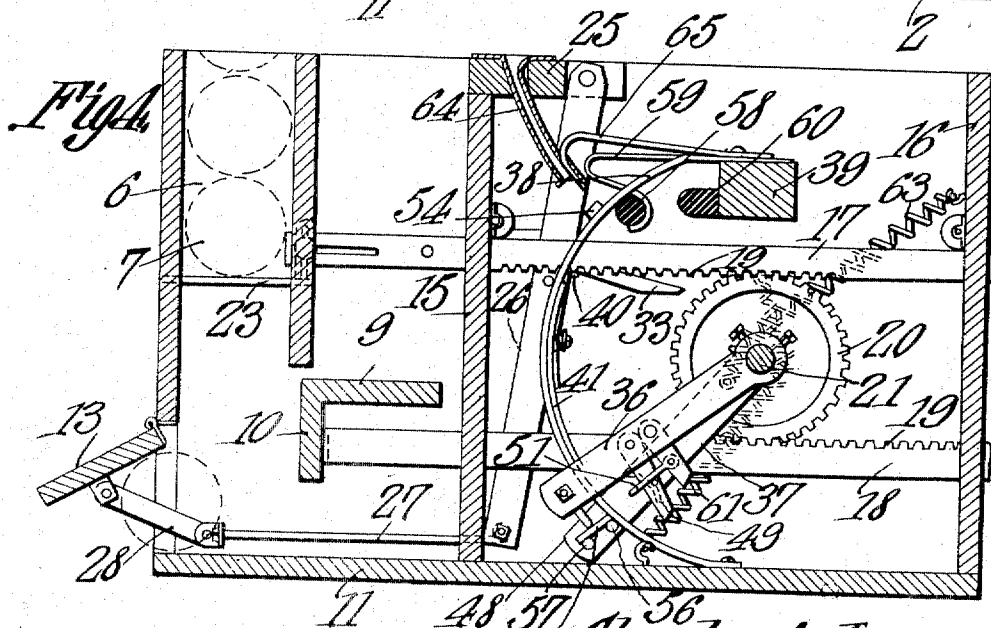
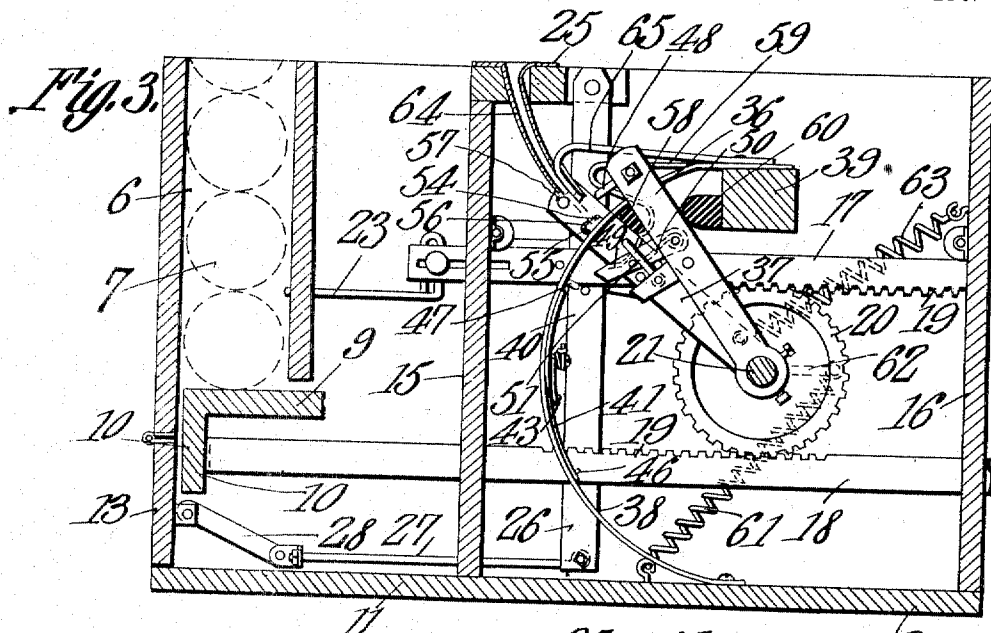
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4 SHEETS-SHEET 3.



Witnesses

J. T. Chapman
F. T. Chapman

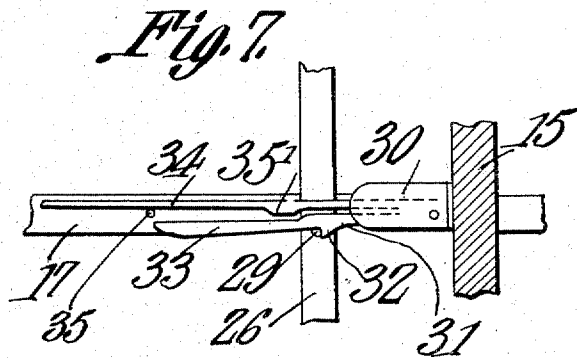
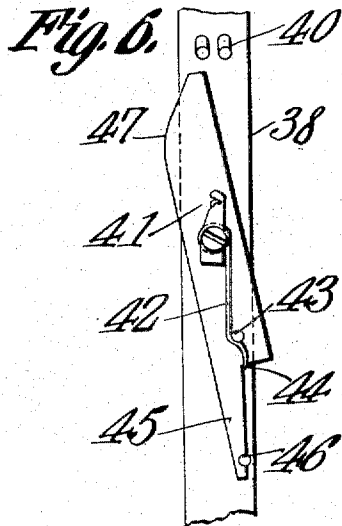
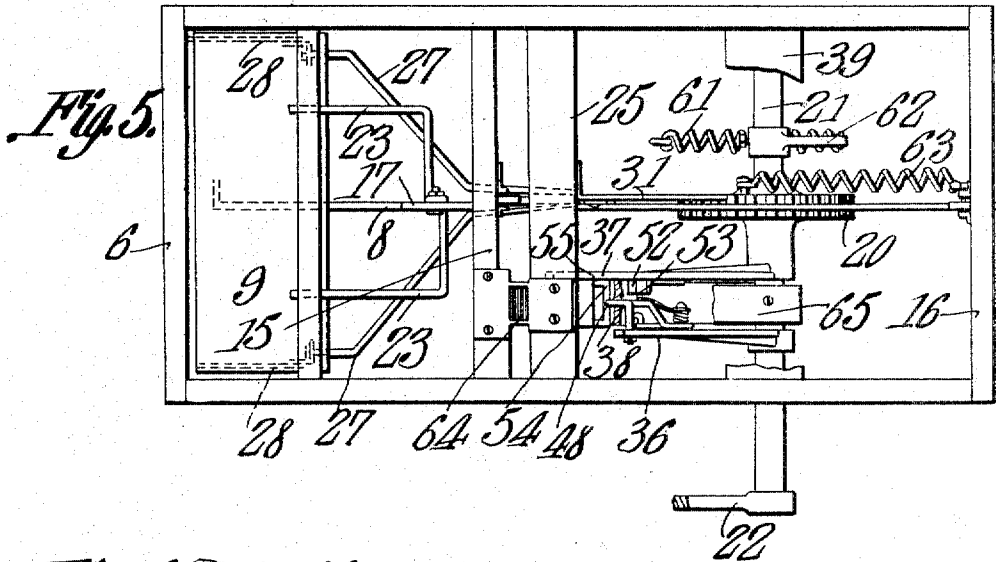
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

CHARLES A. JONES, OF CONCORD, NORTH CAROLINA, ASSIGNOR OF ONE-HALF TO
WALTER B. DORTON, OF CONCORD, NORTH CAROLINA.

BOTTLE-VENDING MACHINE.

984,223.

Specification of Letters Patent.

Patented Feb. 14, 1911.

Application filed April 1, 1910. Serial No. 552,817.

To all whom it may concern:

Be it known that I, CHARLES A. JONES, a citizen of the United States, residing at Concord, in the county of Cabarrus and State of North Carolina, have invented a new and useful Bottle-Vending Machine, of which the following is a specification.

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

The invention will be best understood from a consideration of the following detail description taken in connection with the accompanying drawings forming a part of this specification, in which drawings,—

Figure 1 is a side elevation with parts broken away and parts shown in section of a bottle vending machine constructed in accordance with the present invention. Fig. 2 is a section on the line A—B of Fig. 1. Fig. 3 is a section through the coin-controlled vending mechanism showing the parts in the initial or inactive position. Fig. 4 is a section similar to that of Fig. 3 but showing the parts at the completion of the active movement. Fig. 5 is a plan view of the vending mechanism of Figs. 3 and 4 with some parts in section and some parts broken away. Fig. 6 is a view in elevation of the mechanism for causing the discharge of the coin after the active operation of the vending mechanism. Fig. 7 is an elevation of a lock mechanism for the bottle-discharging side of the machine, this lock being responsive to the coin-controlled side of the machine. Fig. 8 is a perspective view of a pawl controlling means used in the machine. Fig. 9 is a view of the pawl with which the structure of Fig. 8 coacts, together with adjacent parts.

Referring to the drawings there is shown a box or casing 1 of refrigerator type, that is the box or casing is provided with double or cellular walls packed with heat insulating material 2 or otherwise formed after the

manner of an ordinary refrigerator to prevent access of external heat to the interior of the box so that the contents of the box may be maintained chilled as long as desired. At one part of the box there is formed a compartment 3 for the reception of ice or other refrigerant and this compartment may be provided with a drain pipe 4 for the discharge of water therefrom where ice is the refrigerant used. Leading from the compartment 3 is an inclined shelf 5 terminating at a short chute 6 of sufficient extent to receive two or more bottles indicated at 7, with the bottles in vertical series. The inclined shelf 5 defines the bottom of a compartment 8 designed to receive a supply of bottles 7 which tend constantly to gravitate toward the chute 6.

The bottom of the chute is composed of a slidable member 9 movable transverse of the length of the chute and this member terminates at one end in a downwardly directed partition 10 reaching close to a floor 11 within the box 1.

Through that wall of the box 1 which may be termed the front wall is a passage 12, a short distance below the bottom of the chute 6 and this passage is normally closed by a door 13 hinged at the upper edge so that the lower edge may swing outwardly and upwardly through the opening 12. An exterior receptacle 14 leading from the opening 12 is provided for receiving bottles discharged from the machine.

Carried by the floor or partition 11 back of the chute 6 is an upright partition 15 serving to support certain members, but it will be understood of course that this partition 15 may be replaced by any suitable supporting structure. The floor or partition 11 may also carry another upright partition 16 at a point still farther removed from the chute 6 than is the partition 15.

For convenience of inspection and repair the floor 11 together with the partitions 15 and 16 and also the chute 6 with the parts carried by these several structures may be bodily removable from the casing 1, but this does not preclude the fixing of the several parts in the casing. The spaced partitions or supports 15, 16 carry two parallel rack bars 17, 18, one above the other and so supported in the two partitions as to be readily movable therein in the direction of the length of the rack bars. The two bars 17,

18 are provided with rack teeth 19 on the adjacent edges and these teeth are engaged by the teeth of a gear wheel 20 mounted loose on a shaft 21 extending at one end through the corresponding side of the casing 1 to the exterior thereof where this shaft has attached thereto a manipulating arm or lever 22 accessible to an operator. When the gear wheel 20 is turned in a manner to be described the two rack bars 17, 18, are moved in opposite directions simultaneously. The rack bar 19 carries at one end the strip 10 which in turn supports the movable bottom member 9 of the chute 6. The bar 17 carries at its end adjacent to the chute 6 arms 23 having their free ends normally entering the rear wall of the chute 6 which has a passage 24 for these arms and when the bar 17 is moved toward the chute 6 then these arms will traverse the chute, and the spacing of the arms is such that a bottle 7 will be supported thereby when these arms are in traversing relation to the chute 6.

Since the bottom member 9 of the chute 6 and the arms 23 are carried by the respective bars 18 and 17 and these bars when moved travel in opposite directions, it will be seen that as the bottom member 9 is withdrawn from underlying relation to the lower end of the chute 6 the arms 23 are moved into traversing relation to the chute. Under normal conditions the arms 23 are withdrawn from the chute and the bottom member 9 is in position across the bottom of the chute so that bottles 7 within the chute are supported by the bottom member 9. When however, the bottom member 9 is withdrawn the arms 23 are inserted in the chute and the relation of these two members is such that the arms 23 will then under ride the bottle immediately above the one supported by the bottom member 9 and the latter bottle will fall to the floor 11 when the bottom member 9 is withdrawn from under the chute, the said bottle then moving out of the machine in a manner to be described.

At the top of the partition 15 there is a cross piece or ledge 25 from which depends a lever 26 extending to near the floor 11 and there connected to the like ends of divergent arms 27 leading to respective links 28 connected to the two ends of the door 13. When the lever 26 is rocked about its pivot support the door 13 is opened or closed in accordance with the direction of movement of the lever 26. The lever 26 is located quite close to the bar 17 and near the point where the bar and lever cross, the lever 26 carries a pin 29.

The partition 15 adjacent to the point where traversed by the bar 17 carries a pivot support 30 for a pawl member 31 having an intermediate tooth 32 adapted to be engaged by the pin 29, the pawl tending by

gravity or by the aid of a light spring toward the pin 29 which supports the pawl. This pawl 31 has two extended and substantially parallel members 33, 34, the member 34 being preferably though not necessarily longer than the member 33 and both of these members extend for a considerable distance beyond the tooth 32 in a direction away from the pivot support of the pawl.

On the bar 17 is a pin 35 which when the bar is moved longitudinally will move between the continuous edges of the extensions 33 and 34 which are separated for the purpose. At an intermediate point of the extensions 33 and 34 their opposing edges are suitably curved to form a cam projection 35' on the member 34 in the path of the pin 35, the arrangement being such that after the bar 17 has moved to near the limit of its travel in one direction, this being the entering movement of the pin 35 into the space between the extensions 33 and 34, the pin 35 will ultimately engage the cam projection 35' and the pawl will be turned about its pivot in a direction to lift the tooth 32 out of the path of the pin 29 thus releasing the lever 26 for movement about its pivot support in the ledge 25, and then continuous movement of the bar 17 will cause the pin 35 to engage the lever 26 and move it in a direction to cause the opening of the door 13, the space between the extensions 33 and 34 being long enough for this purpose. It will thus be seen that the movement of the bars 17 and 18 are sufficient to cause the withdrawal of the bottom member 9 from beneath the lowermost bottle and the introduction of the arms 23 under the next bottle above before the door 13 is opened so that a bottle is then all ready to roll out the door. Fast on the shaft 21 is a radially disposed arm 36 and fast on the gear wheel 20 to one side of but close to the arm 36 is another like arm 37.

The arms 36 and 37 are spaced apart sufficiently to travel on opposite sides of a curved strip 38 made fast at the bottom to the floor 11 and at the top to a cross piece 39 carried by the framework which supports the mechanism co-acting with this strip. The lower end of the strip is beneath the shaft 21 though not necessarily directly beneath the same, while the upper end of the strip is over the shaft 21 though not necessarily directly over the same. The curvature of the strip 38 is substantially concentric with the longitudinal axis of the shaft 21.

On the inner face of the strip 38 above the center thereof are stop pins 40, either one or two as desired, and these pins have a purpose which will presently appear. Below the pins 40 there is pivotally mounted on the strip 38 a lever 41 urged in a predetermined direction by a spring 42 fixed at one end to the strip 38 at the other end engaging a pin

43 on the said lever to one side of its pivot support. The same end of the lever carrying the pin 43 is provided with a shoulder 44 and beyond this with a projecting finger 45 adapted to engage a stop pin 46 in its path and carried by the strip 38. The other end of the lever 41 has an outcurved portion 47 normally projecting beyond the corresponding edge of the strip 38, this curved portion being gentle and continuous where projecting beyond the corresponding edge of the strip 38, the curve increasing from one end toward the center and then diminishing until the edge of the strip 38 is reached.

Each arm 36 and 37 extends radially beyond the outer face of the strip 38 and the arm 36 at the outer end is provided with an angularly bent pin 48 having its free end overriding the strip 38 at about midway of the width thereof. The arm 36 at a point interior to the strip 38 carries a pawl member 49 under the control of a spring 50 acting to urge the free end of the pawl 49 in a direction toward the inner face of the strip 38. This pawl may be overhung by an arm 51 limiting the movement of the pawl under the action of its spring 50.

On the arm 37 adjacent to the pawl 49 is a cam plate 52 normally underridden by a pin 53 on the pawl 49 thus holding the pawl back against the action of its spring 50. On the outer face of the strip 38 near the upper end thereof is a block 54 having a side wing 55 on the end remote from the arm 37. On the said arm 37 is a projecting pin 56 in position to engage the block 54 but this pin is short enough not to hit the wing 55. Spaced radially from the pin 56 is another pin 57 nearer the end of the arm 36 than is the pin 56. If the arm 37 were unimpeded in movement toward the upper limit of its travel then the pin 56 would engage the block 54, but an elastic buffer 58 is interposed in the path of the arm 37, being held by a bracket 59 carried by the cross piece 39. The upward movement of the arm 37 is therefore arrested with the pin 56 spaced a short distance from the corresponding edge of the block 54, this being for a purpose which will presently appear. The arm 36 is likewise arrested in movement in a like direction by an elastic buffer 60 carried by the cross piece 39. The arm 36 is moved normally toward the upper position into engagement with the buffer 60 by a spring 61 fast at one end to the floor 11 and at the other end to an arm 62 carried by the shaft 21, the spring 61 serving to move the arm 36 to the uppermost position, and a spring 63 fast at one end to the partition 16 and at the other end to the gear wheel 22 serves to maintain the bars 17 and 18 in position with the bottom piece 9 underriding the chute 6 and the arms 23 withdrawn from said chute and the arm 37 in the upper position.

The ledge 25 carries the terminal end 64 of a coin-chute, the lower end of this chute being upheld by a bracket 65 fast on the cross piece 39. The chute 64 is so located as to deliver a coin of proper size edgewise between the pin 56 and the block 54, the arm 37 preventing this coin from rolling in one direction and the wing 55 preventing the coin from rolling in the opposite direction while the lower flat face of the coin rests against the pins 56 and 57, these pins being properly spaced for the purpose. By regulating the space between these pins a coin of smaller size will escape while a coin of proper size will be caught by the pins and there held. A continuation 66 of the coin-chute leads to the exterior of the casing 1 in ready reach of the customer.

Let it be assumed that a suitable supply of bottles 7 is contained within the compartment 8 with the lowermost bottles within the chute 6 and lowest bottle resting upon the bottom member 9 of said chute, and let it also be assumed that a supply of ice or other refrigerant is contained within the compartment 3. Cold air flows readily from the compartment 3 to the compartment 8 through a passage 67 at the bottom of the compartment 3 leading to the shelf 5. The bottles 7 and their contents are thus maintained in the chilled condition, it being assumed that the bottles contain material which it is desirable should be chilled. If now a customer desires to obtain a bottle from the machine, a coin of proper size is dropped in the accessible chute 66 and gravitates to the chute terminal 64 and ultimately is arrested by engagement with the strip 38 and the pins 56 and 57 of the arm 37. Now by grasping the handle 22 and moving the same in a counterclockwise direction as viewed in Fig. 1, the arm 36, being fast on the shaft 31 to which the handle 22 is also fast, will be moved in a like direction, as viewed in Figs. 3 and 4. A short movement of the arm 36 brings the pin 48 into engagement with the coin and then the arm 37 is caused to participate in the further movement of the arm 36. While the two arms are in this relation the pin 53 of the pawl 49 is under the cam plate 52 on the arm 37 and the free end of the pawl 49 is thereby held against the action of its spring 50 so as to escape engagement with the stop pin 40 and the movement of the shaft 21 with the parts carried thereby under the impulse of force applied to the handle 22 may continue until ultimately the arms 36 and 37 are in their lowermost position shown in Fig. 4, any further movement being stopped by the engagement of any part of the apparatus with a fixed part of the structure. This movement results in withdrawing the bottom member 9 from beneath the lowermost bottle in the compart-

ment 6 and the introduction of the arms 23 under the next bottle above and the gravitating of the lowermost bottle to a position opposite the door 13, any suitable means for preventing injury to the bottle, as a soft pad at the lower limit of the travel of the bottle, being provided, and since now the door 13 is opened the bottle will pass out through the opening 12 and will be ultimately caught in the receptacle 14 to be removed therefrom by the customer. On releasing the handle 22 the springs 61 and 63 tend to return the parts to the normal position. The arm 36 returns to normal position unimpeded, while the arm 37 is caught by the shoulder 44 of the lever 41 which shoulder is normally in the path of the arm but has been moved out of the path of the arm on the downward movement of the latter. The arm 37 is thus arrested in its upward movement while the upward movement of the arm 36 continues. Ultimately the arm 36 reaches the outwardly curved portion 47 of the lever 41 then in the path of said arm 36 and because of the curvature of this part 47 the lever 41 is rocked on its pivot against the action of the spring 42 and the shoulder 44 is withdrawn from the path of the arm 36, but in the mean time the pin 48 has moved away from the coin held between this pin and the other pins 56 and 57 of the arm 37 and the coin not being then held will gravitate to a suitable receptacle. In the drawings this coin is indicated at 68. As soon as the coin has escaped and the arm 37 is released both arms return to first position under the action of the respective springs 61 and 63 and the door 13 is closed, the bottom member 9 of the chute returning to underriding position to the chute 6 and the arms 23 withdrawing from their transverse relation to the chute thus allowing the bottles to again gravitate until the lowermost bottle rests on the bottom member 9 ready for a second delivery.

Should the attempt be made to operate the machine without a coin being present the arm 36 is moved but because of the absence of a coin the pin 48 finds no resistance and moves between the pins 56 and 57 of the arm 37 without moving said arm so that the pin 53 of the pawl 49 rides from under the cam plate 52 and the spring 50 at once moves the pawl 49 so that its free end is caught by the stop pin or pins 40 and further movement of the arm 39 and consequently of the shaft 21 and parts controlled thereby is arrested, the extent of movement of the shaft 21 permitted, being wholly insufficient to operate the delivery side of the machine, the door 13 not being even disturbed, since this door is not opened until the full operation of the machine is nearly completed.

What is claimed is:—

1. In a vending machine, co-acting rock

arms each having a normal tendency toward the initial position, means for the locking together of said arms through the intermediary of a coin, and interacting means on the said arms for causing the locking of one arm when no coin is present.

2. In a vending machine, co-acting rock arms, one arm being the impelling arm and the other the impelled arm and each having a normal tendency toward the initial position, means for the locking together of said arms through the intermediary of a coin, and interacting means on said arms for causing the locking of the impelling arm against active movement when no coin is present.

3. In a vending machine, co-acting rock arms movable about a common axis and each having a normal tendency toward the initial position, means for the locking together of said arms through the intermediary of a coin, and interacting means on said arms for causing the locking of one arm against active movement when no coin is present comprising a pawl on one arm having a normal tendency in one direction and a retaining member on the other arm for the pawl active to hold the pawl against its normal tendency when the arms move actively together.

4. In a vending machine, two co-acting rock arms movable together or independently about a common axis and both having a normal tendency toward the inactive or initial position, one arm being the impelling arm and the other the impelled arm, coin-engaging means on the impelled arm, co-acting coin-engaging means on the impelling arm, a pawl on the impelling arm having a normal tendency in one direction, a fixed stop member in the path of the pawl when free to move under its normal tendency, and a pawl-engaging member on the impelled arm holding the pawl against its normal tendency while the arms move together.

5. In a vending machine, two co-acting rock arms movable together or independently about a common axis, and both having a normal tendency toward the inactive or initial position, one arm being the impelling arm and the other the impelled arm, coin-engaging means on the impelled arm, co-acting coin-engaging means on the impelling arm, a guide strip for the coin when engaged and moved toward the arms, and a stop member for the impelled arm yieldable to movement of the impelling arm toward the inactive position subsequent to the stoppage of the impelled arm in the same direction by the stop member.

6. In a vending machine, two co-acting rock arms movable together or independently about a common axis and both provided with co-acting coin-engaging means, a guide strip for the coin when engaged and moved by the arm, and a stop member in the path of one arm yieldable to move-

ment of the other arm toward the inactive position to release the first named arm after the second arm has left the first named arm on the return of the arms toward initial position.

7. In a vending machine, two co-acting rock arms movable together or independently about a common axis and both having a normal tendency toward the inactive or initial position, one arm being the impelling arm and the other the impelled arm, coin-engaging means on the impelled arm, co-acting coin-engaging means on the impelling arm, a pawl on the impelling arm having a normal tendency in one direction, a fixed stop member in the path of the pawl when free to move under its normal tendency, a pawl-engaging member on the impelled arm holding the pawl against its normal tendency while the arms move together, a guide strip for the coin when engaged and moved by the arms, and a stop member for the impelled arm yieldable to movement of the impelling arm toward the inactive position subsequent to the stopping of the impelled arm.

8. In a vending machine, two co-acting rock arms movable together or independently about a common axis, one arm being the impelling arm and the other the impelled arm, coin-engaging means on the impelled arm, co-acting coin-engaging means on the impelling arm, a guide strip

for the coin when engaged and moved by the arms and located intermediate of said arms, and a stop lever for the impelling arm carried by the strip and having a normal tendency to locking position with relation to the impelled arm on its return toward initial position, said stop member being in the path of the impelling arm of the return movement thereof and yieldable to said impelling arm to move out of the path of the impelled arm after the movement of the latter has been arrested by the stop member.

9. In a vending machine, two co-acting rock arms movable together or independently about a common axis, means for coupling the arms together through the intermediary of a coin, a stop member on one arm for arresting its independent active movement, said stop member being under the control of the second arm, and a vending mechanism and operating means therefor, the same operating means for actuating the vending mechanism serving to actuate the coin-controlled arms.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

CHARLES A. JONES.

Witnesses:

L. D. COLTRONE,
J. M. HENDRIX.