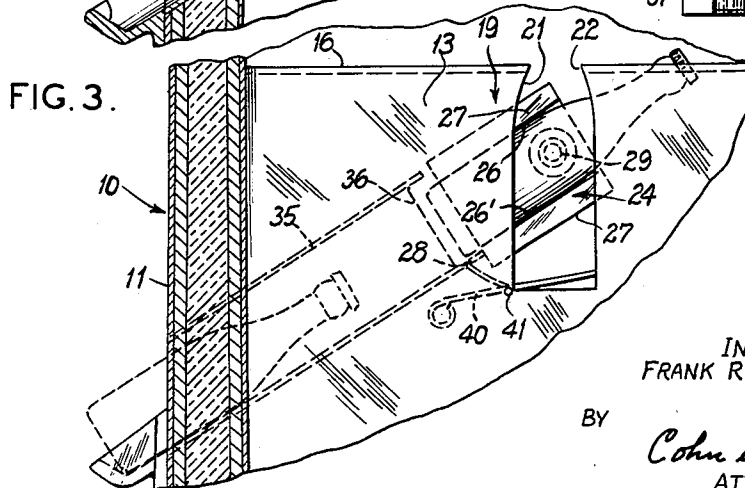
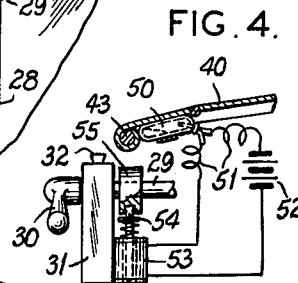
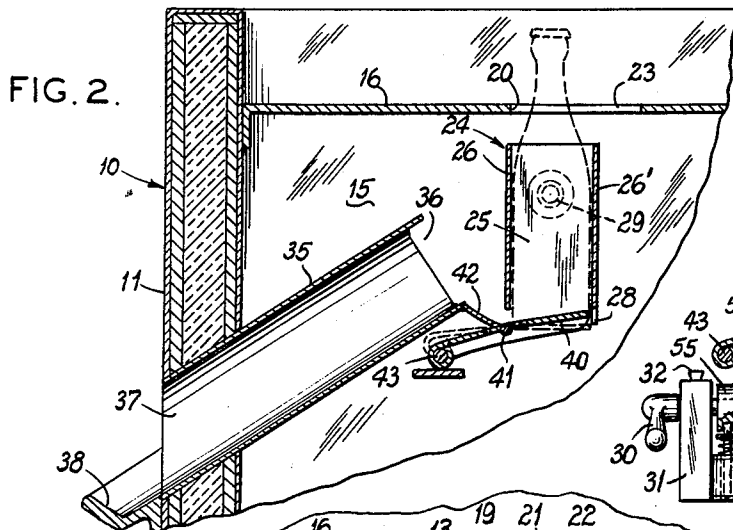
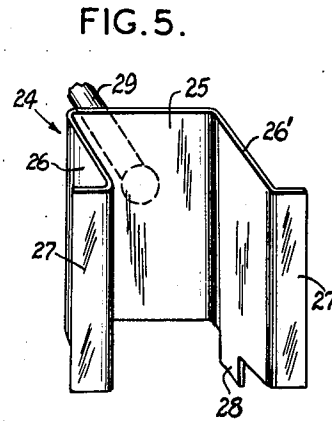
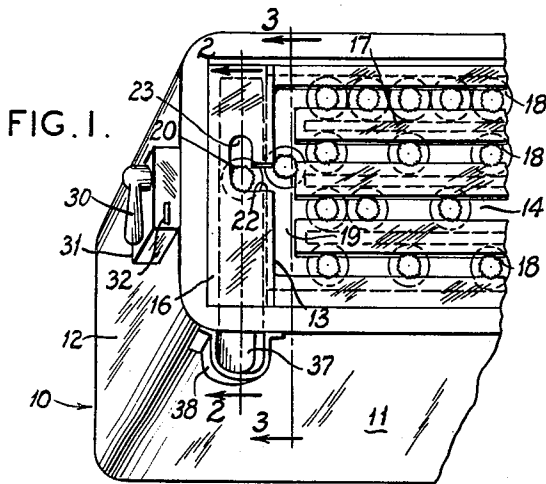


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BOTTLE VENDING MACHINES

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BOTTLE VENDING MACHINES

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1 Claim. (Cl. 221—133)

My invention relates to vending and dispensing machines generally and has special utility in connection with machines for dispensing bottled beverages.

The principal object of the invention is to afford improvements in vending cabinets for bottled beverages, of the type chiefly characterized by a coin-controlled gate that permits the user manually to withdraw a bottle through the gate opening for each deposit of an accepted coin. This type of vendor is illustrated and described in United States Letters Patent No. 2,174,712, of October 3, 1939.

Vending machines of this character have heretofore depended for their operation upon the purchaser to manipulate a selected bottle to a vending station and also to move the article through the gate or trap and remove it from the machine. Some difficulty, and on occasion injury to the fingers, has been experienced in connection with the withdrawal of a bottle through the pay-gate or trap. Such difficulty and hazard is presented where the vending gate fails to operate smoothly and resists the passage of the bottle. The bottle is generally held by its crown cap when manipulated and pulled through the gate passageway and where resistance is encountered, as aforesaid, the sharp edges of the cap are prone to injure the fingers of the purchaser.

The principal object of the present invention is to provide improvements in vending machines of the character described, the improvements being directed to means for facilitating removal of the bottle, and for eliminating potential injury to the purchaser as aforesaid. This objective is accomplished by improved dispensing and bottle-discharging provisions whereby the act of conveying the article through the pay-station and discharging it is performed without direct or personal contact with the article, as in the case of former vendors of this type.

An object of the invention is directed to the simplification and obtaining smooth operation of the dispensing mechanism, especially adapted for bottle vendors.

An important object of the invention is achieved in a machine of the character described in the provision of means for preventing loss of the deposited coin through failure to place a selected article in the dispensing station before operating the delivery mechanism.

The foregoing and other objects and advantages will be more fully described in the following specification setting forth a practical embodiment of the invention, reference being made to the drawing wherein:

Fig. 1 is a top perspective view of the release or vending end portion of a bottle dispensing cabinet containing the means of the present invention;

Fig. 2 is a fragmentary sectional view taken at line 2—2 of Fig. 1, showing a bottle as located in the dispensing station;

Fig. 3 is a fragmentary sectional view taken at line 3—3 of Fig. 1, illustrating an alternate operating position of the transfer or vending member;

Fig. 4 is a schematic diagram showing an alternate form of locking means for the transfer member; and

Fig. 5 is a perspective view of the transfer member.

In the drawings, reference numeral 10 designates a cabinet of the kind commonly employed for cooling and dispensing bottled beverages. The bottom, the side walls 11, and end walls 12 include insulating material in their construction, as does also a hinged cover panel (not shown).

Suitable means (not shown) are provided for refrigerating the interior of the cabinet which is divided by a transverse partition 13 into a main compartment 14, wherein the bottles are stored and cooled, and an auxiliary or dispensing compartment 15 located at one end of the cabinet, which accommodates dispensing mechanism to be hereinafter described. The dispensing compartment 15 has a top closure plate 16 that extends the full width of the interior, from the partition 13 to the end wall 12.

The main compartment 14 is provided with a rack assembly 17 for holding and guiding bottles to a dispensing station in compartment 15. Rack 17 is suitably formed to provide a series of slot-like passageways 18 interconnected by a transverse passageway 19 that extends adjacent and parallel to partition 13. Passageways 18 and 19 are of appropriate width to accommodate the narrow neck portions of beverage bottles for supporting them in suspension. The bottles are adapted to be manipulated, as by their outwardly protruding head portions, along the passageways to the dispensing station indicated at 20, but they may not be directly withdrawn, due to the narrowness of the passageways.

An opening 21 in partition wall 13 permits bottles to be passed singly into the dispensing compartment 15, and more specifically into a channel-shaped, stall-like transfer member 24, whose open forward side confronts and registers with the opening 21 in the partition wall when the said transfer member is in its normal, vertical position. The top plate 16 has a restricted opening 22 overlying and communicating with the opening 21 in partition 13, to accommodate the projecting upper ends of the bottles as they are passed into the dispensing compartment. The opening 22 has a right angular appendage opening 23 that extends parallel to the partition wall and allows the bottles to be tilted and discharged, as will subsequently appear, without interfering with the top plate 16.

The transfer member 24 defines what has heretofore been referred to as the dispensing station 21. Member 24 is constituted by a rear wall 25, and opposed parallel side walls 26 and 26' which are spaced apart sufficiently to receive between them with slight clearance a beverage bottle of the usual size. The upper and lower ends, and the front of the said transfer member are open and unobstructed. The side walls 26 and 26' are provided at their forward margins with wide, laterally projecting flanges 27 that extend in a plane closely adjacent the partition wall 12. The said flanges serve to obstruct the opening 21 in the partition 13 when the stall member is rotated to an angular, bottle-discharging position as shown in Fig. 3. In the normal, upright position of the stall the flanges 27 are positioned behind the vertical margins of the opening 21. The side wall 26' of the stall member is provided with a downward projection 28 that coacts with an auxiliary locking device to be hereinafter described, for preventing rotation of the transfer member 24 except under certain conditions.

The transfer member 24 is mounted for rocking movement on the inner end of a horizontal shaft 29, and is fixedly secured to said shaft so as to be turned thereby. Shaft 29 is adapted to be turned by means of a lever 30 fixed to its outer end, but only when released by coin-actuated mechanism 31 having a coin-receiving slot 32, and also from the auxiliary locking device. The coin-operating mechanism indicated generally at 31 may

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be of the kind commonly employed in vending machines, and which include the usual provision for testing and rejecting spurious coins. In the present instance it serves to prevent rotation of the shaft 28 except upon the deposit of an acceptable coin in the coin slot. Deposit of a proper coin conditions the shaft for movement by lever 30, or by an electric motor (not shown), for a single forward angular stroke and a single reverse or restoring stroke, whereupon the coin mechanism locks the shaft against subsequent movement, or until another coin is deposited. Coin mechanisms suited to the purposes aforesaid are well known in the art, and are available in the trade.

A discharge chute 35 of tubular construction slopes downwardly from its open inlet end 36 which is positioned to register with the open lower end of the stall when the latter is in an angular or discharging position, as shown in Fig. 3. The discharge passageway formed by chute 35 extends through the front wall 11 of the cabinet at a discharge opening 37, where it terminates at an outwardly projecting trough member 38 which checks the outward movement of the beverage bottle and holds it for ready removal by the purchaser.

Underlying the open lower end of the transfer member 24, when the latter is in normal, upright position, is a movable platform 40 which is adapted to be depressed by the weight of a bottle installed in said member. In the present example the platform 40 consists of a plate mounted on a horizontal pivot 41 extending at a right angle to the bottle discharge chute. Pivot 41 is carried at the lower end of an inclined ramp member 42 that slopes downwardly from the lower margin of the inlet opening 36 of the discharge chute 35. Pivoted platform 40 extends rearwardly from its pivotal axis 41 and is suitably counterweighted as indicated at 43, so as to be held by the counterweight, and in the absence of a bottle in the stall member, in a slightly angular position, as shown in Fig. 2. In such position the forward end of the platform is held elevated by the counterbalance so as to lie in the normal path of arcuate movement of the projection 28, to obstruct the movement of that projection and accordingly to prevent the bottle stall from moving from its normal upright position to its angular discharge position. A bottle in the transfer member 24 rests upon the platform 40 and its weight depresses the platform so as to clear the projection 28. Consequently a bottle placed in the transfer device effects removal of the obstruction presented by the platform 40. In the absence of a bottle in the dispensing station the transfer member cannot be moved to discharge position, even though a coin has been deposited in the coin slot.

From the foregoing description it will be understood that with the vending mechanism of my invention two conditions must be satisfied before the mechanism can be operated. One of these conditions is the placement of a bottle in the transfer member or dispensing stall, so as to release that member for angular movement, and the second condition is, of course, the insertion of the proper coin in the coin box. When both of these conditions are satisfied the dispensing stall may be caused to be rocked to the angular position for discharge of the bottle, by means of the lever 30, or by a suitable power means (not shown). The ramp 42 is desirably of arcuate trend with its center of curvature located on the axis of the stall shaft 29, so that the bottle will slide smoothly over its surface and with a minimum of friction.

In lieu of the mechanical type locking means for the transfer member afforded by the depressible platform 40, electrical means of the type illustrated diagrammatically in Fig. 4 may be employed. In such alternate construction a mercury switch 50 is mounted on the pivoted platform 40 and suitably arranged so that depression of said platform, by the weight of a bottle placed thereon, closes an electrical circuit represented by conductors 51 and including energizing means 52. The solenoid 53 in

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the said circuit controls the withdrawal movement of a plunger 54, causing that member to be retracted from a locking recess in a collar 55 secured to the shaft 29 responsive to energization by the closing of switch 50. In the described electrical arrangement the placement of a bottle on the platform effects an electrical unlocking of the shaft and prepares it for rotation, as by lever 30, but subject to the requirement of the deposit of a coin in the coin slot 32.

When an electric motor is provided for rotating the dispensing stall, a switch such as 50 mounted on the pivoted platform 40 may be placed in series circuit relation with the energizing circuit of the motor, so that the motor circuit cannot be energized until the said switch is closed by a weight on the platform.

It will be understood that the described locking means, whether either mechanical or electrical, acts to prevent a purchaser from operating the vending mechanism until a bottle is placed in the vending stall, and prevents the occurrence of a vending operation, and loss of the purchase coin, with an empty transfer stall.

The described means facilitates vending operations by eliminating the need for manually pulling a bottle through a sometime recalcitrant gate device, and simplifies the vending operation generally. Whereas the present invention has been described with reference to several practical embodiments, and with special regard to the vending of bottle goods, it will be understood that the invention is not so limited, and that changes can be made in the means illustrated without departing from the spirit and intentment of the invention, which is defined by the appended claim.

I claim as my invention:

In a bottle vending machine including a cabinet, a vertical partition having an opening restricted in size for the passage of a single bottle, a transfer receptacle having a side-receiving opening, a top opening and a bottom discharge opening, means pivotally mounting said transfer receptacle for movement from a substantially vertical receiving position to an inclined discharge position, the receptacle being mounted with its side opening adjacent and aligned with the partition opening when disposed in the vertical position, an inclined discharge chute having a lower outlet opening in the cabinet and having an upper inlet opening positioned to register with said discharge opening with said transfer receptacle when the receptacle is in an inclined discharge position, a wall over the transfer receptacle provided with an L-shaped slot communicating with the top opening of the receptacle and said partition opening, the L-shaped slot enabling movement of the bottle into the receptacle and tilting of the bottle upon pivotal movement of the receptacle to the inclined discharge position, an inclined ramp extending downwardly from the inlet opening of said discharge chute along and closely underlying the path of movement of said bottom opening in the said receptacle, the ramp providing a sliding support of the bottle being transferred by said receptacle to said discharge chute, a platform pivoted to said ramp and underlying the bottom of said receptacle when in the vertical position so as to support the bottle in the receptacle, the platform normally engaging said receptacle to prevent pivotal movement from the vertical position, the platform pivoting to disengage the receptacle when supporting a bottle in said receptacle, hence permitting the receptacle to be pivoted into alignment with the discharge chute, the bottle being discharged through the cabinet outlet opening bottom first.

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