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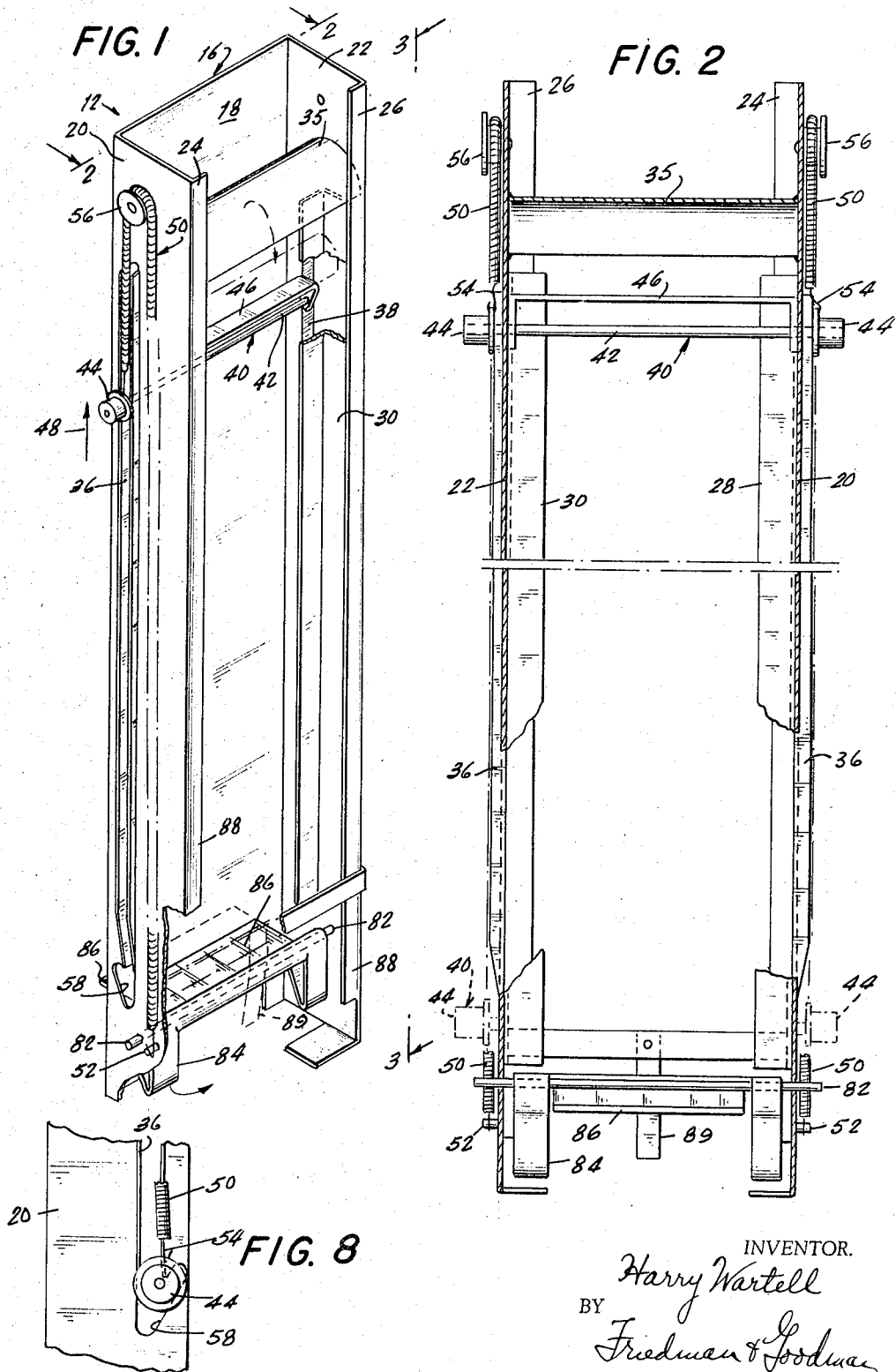
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ARTICLE DISPENSER HAVING EMPTY SUPPLY SOURCE RESPONSIVE MEANS

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2 Sheets-Sheet 1



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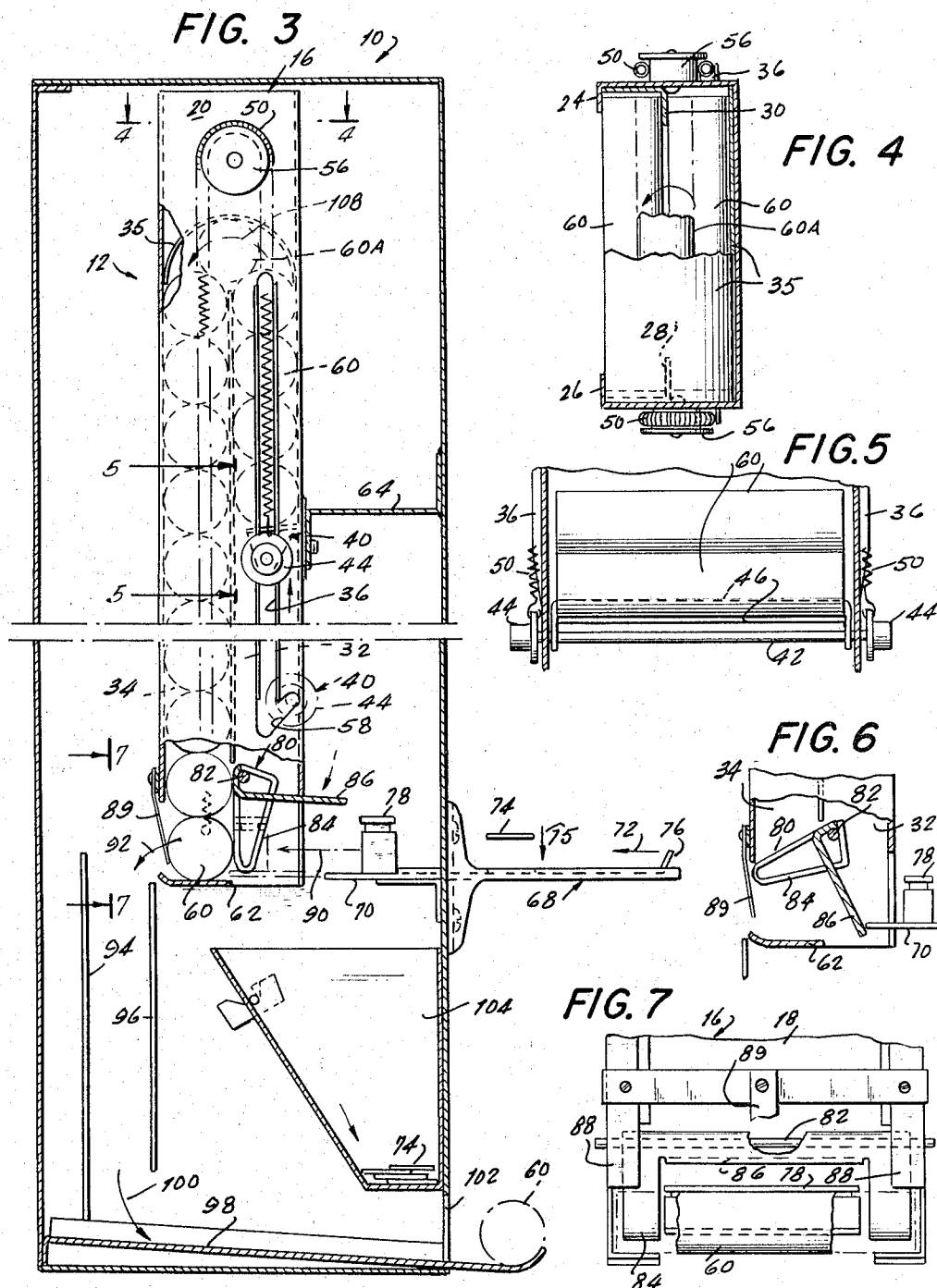
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ARTICLE DISPENSER HAVING EMPTY SUPPLY SOURCE RESPONSIVE MEANS

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1 Claim. (Cl. 221—19)

The present invention relates to an improved coin-controlled vending device for cylindrical articles or the like.

It is an object of the present invention to provide a vending device of the described type wherein a plurality of vertical chutes or stacks are provided for the disposition of the cylindrical articles in the vending machine.

In connection with the foregoing object, it is another object of the present invention to provide in such double-chute vending machine a highly novel means for moving one chute of articles in an upward direction toward a point where the articles move from said chute into the second chute in which they fall or move by gravity to the discharge outlet of the vending mechanism.

It is another object of the present invention to provide a highly novel spring plunger arrangement to move the articles in one chute in an upward direction until they move over into the second chute in which they fall downwardly by gravity.

It is a still further object of the present invention to provide a highly novel mechanism for latching the spring plunger in a retracted position thereof so as to facilitate the loading of the articles in the vending machine.

It is a still further object of the present invention to provide a vending machine which is highly efficient in operation and which will have a relatively long and useful life.

Other and further objects and advantages of the present invention will be readily apparent to one skilled in the art from a consideration of the following specification taken in connection with the appended drawings.

In the drawing which illustrate the best mode presently contemplated for carrying out the invention:

FIGURE 1 is a front elevation view of a vending machine pursuant to the present invention with the outer casing removed;

FIGURE 2 is a sectional view on an enlarged scale taken on the line 2—2 of FIGURE 1;

FIGURE 3 is a sectional view taken on the line 3—3 of FIGURE 1 and includes the casing or housing of the vending machine;

FIGURE 4 is a sectional view taken on the line 4—4 of FIGURE 3;

FIGURE 5 is a sectional view taken on the line 5—5 of FIGURE 3;

FIGURE 6 is a fragmentary detail view and illustrates a locking device utilized in the vending machine of the present invention and shows the locking device in the position thereof when the vending machine is empty;

FIGURE 7 is a view taken on the line 7—7 of FIGURE 3; and

FIGURE 8 is a fragmentary detail view in an enlarged condition and illustrates the latching means pursuant to the present invention.

Referring now to the drawings in detail, there is shown a vending machine 10 pursuant to the present invention. The vending machine 10 comprises a vending machine mechanism generally indicated by the reference numeral 12 which is contained within an outer housing or casing 14.

As best shown in FIGURE 1, the vending machine mechanism 12 comprises a channel-shaped casing or mounting 16 preferably formed of suitable sheet metal. The channel casing 16 is provided with a rear wall 18

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and a pair of opposing side walls 20 and 22. The side wall 20 is provided with an inturned flange 24 and the side wall 22 is provided with a similar inturned flange 26. The wall 20 is provided on the inner surface thereof with an angle member 28 and the wall 22 is also provided on its inner surface with an angle member 30. The angle members 28 and 30 cooperate to divide the interior of the channel casing 18 into a front chute generally indicated by the reference numeral 32 in FIGURE 3 between the angle members and the flanges 24 and 26 and a rear chute 34 between the angle members and the rear wall 18. An arcuate member 35 extends between the side walls 20 and 22 above the upper ends of the angle members 28 and 30. An elongated slot 36 is defined in the side wall 20 and a similar elongated slot 38 is defined in the side wall 22.

The slots 36 and 38 serve as vertical guides for a follower device generally indicated by the reference numeral 40. As best shown in FIGURE 2, the follower 40 comprises a rod or bar 42 which extends through the opposing slots 36 and 38 and which projects outwardly from each of said slots. Each projecting end of the rod 42 is provided with an enlarged cap 44 which rides along the outer surface of the associated side wall longitudinally of the longitudinal slot which is defined therein. It will be apparent that the utilization of the companion caps 44 retains the rod in position transversely of the slots 36 and 38. Between the companion side walls 20 and 22 the follower rod 42 mounts a pivoted follower member 46. Each follower member is urged upwardly along the associated slot as indicated by the arrow 48 in FIGURE 1. For this purpose provision is made for an elongated coil spring 50. One end of each spring is secured to a tie pin 52 mounted in the associated side wall of the channel casing 16. The other end of each spring is secured to the associated cap 44 as indicated at 54. Between each end thereof each spring 50 rides over an associated roller 56 which is mounted on the outer surface of the associated side wall of the casing 16. Consequently, it will be apparent that with one end of each spring 50 secured to the tie point 52 and the other end of each spring secured to the associated cap 44, the follower means 40 is biased upwardly of the casing 16 as indicated by the arrow 48 in FIGURE 1.

Pursuant to a highly novel feature of the present invention, each of the vertical slots 36 and 38 is provided with an angular offset 58 as best shown in FIGURES 1 and 8. Consequently, it will be understood that the follower rod 42 may be disposed in the offset portion 58 of the associated slots to retain the follower 40 in its lowermost or retracted or inoperative position as shown in the broken line position of the follower in FIGURE 2 against the bias of the associated springs 50. It will be understood that the follower 40 is positioned in said retracted disposition thereof in said latched condition thereof when it is desired to load the mechanism 12 with the cylindrical articles or cans 60 which are to be dispensed therefrom. It will be understood that with the follower 40 retained in its retracted position as shown in broken lines in FIGURES 2 and 3 a first stack cans of 60 may be mounted in the front chute 32, the stack extending upwardly from the follower member 46 toward the arcuate wall 35 and a second stack of cans 60 extending downwardly from said arcuate wall 35 to a bottom platform 62 provided on the channel casing 16.

The channel casing 16 is mounted within the housing 14 as by means of brackets 64. The housing 14 on the front wall 66 thereof is provided with a conventional coin-operated mechanism generally indicated by the reference numeral 68. The coin mechanism 68 includes a plunger 70 which is released for operation in the direction of the

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arrow 72 when a coin 74 is deposited in the coin mechanism as indicated by the arrow 75. The plunger 70 is provided at the end thereof externally of the casing or housing 14 with a finger piece 76 and at its inner end is provided with a discharge element 78. The discharge element 78 cooperates with a pivotally mounted means 80 to effect the discharge of the lowermost can 60 in the chute 34. More specifically, the pivoted means 80 comprises a pivot rod 82 which is mounted in the opposing side walls 20 and 22. The pivot rod 82 mounts a substantially triangular element 84 from which there extends a platform 86. The platform 86 is heavier than the triangular element 84 so that the normal condition of the pivoted means 84 appears as in FIGURE 6 wherein the platform 86 is in the path of movement of the plunger 70. However, when a can is in position in the chute 34 on the platform 62, the pivoted means 80 is pivoted so that the triangular portion 84 thereof is disposed by means of the lowermost can as shown in FIGURE 3 wherein the platform 86 is out of the path of movement of the plunger 70. It will be noted that the can at the bottom of the chute 34 is retained in position on the platform 62 between the leaf spring means 89 and the triangular element 84.

In order to discharge the lowermost can in the chute 34, the plunger 70 is pressed inwardly by means of the finger piece 76 after the coin 74 has been deposited in the coin mechanism as indicated by the arrow 75 so that viewing FIGURE 3, the discharge element 78 passes underneath the platform 86 to strike the triangular portion 84 as indicated by the arrow 90 so that the lowermost can 60 in the chute 34 is forced beyond the leaf springs 89 and off the platform 62 as indicated by the arrow 92 to fall downwardly between the guides 94 and 96 and onto the discharge platform 98 as indicated by the arrow 100. The lowermost can 60 then rolls down the inclined platform 98 through a discharge opening 102 in the housing wall 66 for delivery as shown. The coin 74 drops into a conventional coin receptacle 104 as indicated by the arrow 106.

As the lowermost can is discharged from the bottom of chute 34, the follower means 40 rides up the chute 32 to move the stack of cans in the chute 32 one can higher, the uppermost can engaging the arcuate roof member 35 and rolling over as indicated by the arrow 108 to be disposed between the two stacks of cans as indicated by the can 60a. As the next can at the bottom of the chute 34 is discharged, the intermediate can 108 falls downwardly into position at the top of the chute 34. Consequently, it will be apparent that each can in the chute 32 is moved upwardly under the bias of the springs 50 as the follower is moved upwardly in chute 32 to an intermediate position as indicated by the can 60a which thereafter falls by gravity as indicated by the arrow 108 to become the top can in the chute 34. Each can in the chute 34 moves down by gravity as the bottom-most can in the chute is discharged therefrom. When it is desired to load the chutes, the follower means 40 is retracted to the broken line position thereof shown in FIGURE 3 and is retained in the slot offsets 58 as shown in FIGURE 8 whereby the follower is retained in its retracted position while the chutes are loaded. After the chutes have been loaded, the follower is released from its latched position shown in FIGURE 8. After the last can has been discharged from the chute 34, the pivoted

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means 80 returns to its normal position shown in FIGURE 6 due to the off-center disposition thereof resulting from the fact that the platform 86 is heavier than the triangular means 84. It will be noted that in the position thereof shown in FIGURE 6 the platform 86 is disposed forwardly of the plunger 70 and in the path of movement thereof so that the coin mechanism 68 cannot be operated to cause the coin 74 to drop into the coin-collector 104.

In view of the foregoing, it will be apparent that there has been illustrated and described a highly novel vending machine mechanism for use in a vending machine especially adapted for vending cylindrical articles such as cans or cylindrical containers. It will be understood that various changes and modifications may be made within the construction of the vending machine pursuant to the present invention without, however, departing from the basic inventive concept thereof as set forth in the appended claim.

I claim:

An article vending device comprising a casing having means defining first and second chutes in vertical back to back relation for supporting the articles in stacked relation, said chutes being in communication at their upper ends, biased follower means operable in said first chute to move the articles stacked therein upwardly so that the uppermost article in said first chute moves to the top of said second chute as the lowermost article in the second chute is ejected from the bottom thereof, a support for the lowermost of the articles stacked in the second chute position for ejection, said second chute being open at its bottom, a reciprocable discharge element disposed in juxtaposition to said opening for ejecting the lowermost article through said opening, coin actuable means for reciprocating said discharge element and accepting a coin, means for preventing the reciprocation of said discharge element in the article ejecting direction after the last article in said stacks has been ejected therefrom, said means comprising a pivot rod mounted in opposing side walls of said second chute, an element mounted on said rod and a platform extending from said element in a direction normal thereto, said element being heavier than said platform whereby it forms an obstruction in the path of movement of said discharge element in its normal position preventing said coin actuable means from being operated and accepting a coin, the presence of an article at the bottom of said second chute causing said element to be pivoted so that said platform is maintained out of the path of travel of the discharge element, thereby permitting the coin actuable means to be operated and to accept a coin.

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