ABSTRACT OF THE DISCLOSURE

The disclosure is directed to a coin-controlled bag dispenser in which the bags to be dispensed are retained on a bar having a notch formed adjacent the dispensing end of the bar. A coin-actuated assembly including a cam gate is operatively associated with the notched end of the bar for movement between a release position to effect individual dispensing of a bag from the dispensing end of the bar when a coin of proper denomination is deposited and a bag loading position wherein the cam gate is rotated to a position beyond the release position of the cam gate.

This invention relates in general to an article dispenser, and more specifically to a coin-operated dispenser for dispensing articles which are displayed, merchandized, and dispensed from an open rack or bar.

Many retail outlets make shopping bags available for the convenience of their customers. Generally such shopping bags are distributed or dispensed from dispensers located at strategic positions throughout the store. Such shopping bag dispensers usually comprise an open rack or stand from which the shopping bags can be readily purchased by the customers who desire them. Since the dispensing of shopping bags constituted a mere complimentary service, such shopping bag dispensing stands were generally unattended. For this reason, the respective owners of such retail outlets relied solely on the customers' honor to pay for them. This was accomplished simply by locating a coin box adjacent an open stand containing a stack of shopping bags and relying upon the customers' integrity to deposit the proper coin if a bag was to be purchased. However, the operators of such outlets soon experienced that dispensing of shopping bags in this manner was not entirely satisfactory, as many purchasers would help themselves to the bags without paying for them.

To obviate the revenue loss resulting in dispensing such shopping bags by the customers' honor system, efforts have been made to develop a coin-operated means which would prohibit the removal of a shopping bag until a coin of proper denomination has been deposited. An example of such coin-operated dispenser is disclosed in U.S. Patent No. 3,119,484.

While the dispensers of the type disclosed in U.S. Patent No. 3,119,484 were intended to overcome the difficulties encountered by the honor system, it has been discovered that coin-operated dispensers of this type resulted in other difficulties and therefore has not proved to be entirely satisfactory.

Chieflly among the disadvantages noted in dispensers of the type evidenced by U.S. Patent No. 3,119,484 was that its operation was purely mechanical, which required that the coin deposited became an integral part of the operating mechanism. This construction resulted in the coins accumulating in the depository to jamb the operating mechanism, creating serious maintenance problems that frequently resulted in rendering the stand inoperative until such jamb was rectified. Even when corrected by removal of the coins such jambing was likely to occur again as soon as the coins accumulated.

It was also discovered that the loading of shopping bags onto such dispenser was rendered relatively complicated in that the dispensing device or control had to be removed from the stand to provide the necessary clearance for threading the bag handles onto the rod or bar from which such bags were dispensed. Difficulty was also encountered in removing the coins from the coin receptacle of the control device. This was because the construction of such dispenser required that the entire coin-control device be removed from the stand to gain access to the coins therein. Consequently, considerable time and effort were required on the part of an authorized employee to effect such removal.

Still another disadvantage noted in the dispensing device of Patent No. 3,119,484 was that two keys and/or locks were required to render the device completely operative. One lock was required to effect removal of the mechanism from the stand, and another lock was required to effect access to the coins deposited therein.

It is, therefore, an object of this invention to provide an improved coin-operated dispenser for dispensing shopping bags and/or the like, which is electrical-mechanical in operation to render the operation thereof possible both for dispensing an article and for loading the article thereon.

Another object of this invention is to provide in a dispensing device in which the coin-control means is electrical-mechanical in operation so that the coin deposited therein merely initiates the operating cycle without becoming integral part of the operating cycle. Another object of this invention is to provide an article dispenser of the type in which articles may be successively dispensed from open racks or bars with improved coin control means constructed and arranged to facilitate the loading of the articles onto the bar without effecting removal of the coin-control means therefrom.

Another object is to provide a shopping bag dispenser with a coin-control means arranged to effect dispensing of the article only after a coin of proper denomination has been deposited therein.

Another object of this invention is to provide an article dispenser of the type for dispensing articles from an open rack or bar constructed with a coin control device or meter which mechanically rejects an improper coin deposited therein.

Another object of this invention is to provide an improved coin-control means for an article dispenser which is relatively simple in construction, which can be readily fabricated, which can be readily and easily maintained, and which is positive in operation.

It is another object of this invention to provide an improved coin-control means for dispensing articles from an open rack or bar having a cam gate mounted for movement between a non-release position, a release position, and an article-loading position.

Another object of this invention is to provide an improved coin-operated control means for an article dispenser constructed to enable the device to be readily removed therefrom with a minimum of effort.

The foregoing objects and other features and advantages are attained by an article dispenser comprising essentially of a stand having a bar mounted thereon on which the articles to be dispensed are stacked or retained. One end of the bar from which the articles are successively removed defines a discharge station. A slot or notch is formed in the bar adjacent the discharge station.

A coin-operated means is operatively associated with the bar at the discharge station for prohibiting the removal of an article from the discharge end of the bar until a coin of proper denomination is deposited thereinto.

In accordance with this invention the coin-operated means comprises a meter housing which is connected to
the stand adjacent the notch formed at the discharge end of the bar. A means in the housing is provided for defining a coin receptacle for receiving the coins deposited therein. In communication with the coin slot is a coin receptacle. The arrangement of the coin slot is such that the associated means is provided for accepting only coins of proper denominations and effectively rejecting coins of improper denominations.

The coin-operated means includes a cam gate pivotally mounted in the housing for movement between a release position, a non-release position, and an article-loading position. The cam gate is formed with a slot in an extended portion thereof and it is normally arranged to extend within the notch formed in the bar, and a stop means is operatively associated therewith for normally prohibiting the movement of the cam gate to retain it in a non-release position to block the removal of any article from the discharge end of the bar.

In accordance with this invention, the stop means includes a normally de-energized locking solenoid which in its de-energized position, blocks the movement of the cam gate toward its release position or its article-loading position.

A coin-actuated switch means is connected in circuit with the solenoid and it is disposed so as to be closed by the deposit of a proper coin. Connected in circuit with the coin switch means and locking solenoid is a holding relay means which when energized upon the closing of the coin switch holds the locking solenoid energized for a predetermined interval of time to effect either the dispensing of an article or the loading of an article onto the stand. A switch means mounted on the cam gate is operatively connected in circuit with the locking solenoid and its holding relay to de-energize the same upon the dispensing of an article therefrom, and spring means are operatively connected to the cam gate for return of the cam gate to its normal, non-release position after each dispensing operation.

This invention in one embodiment thereof further contemplates the utilization of a key-actuated switch connected in parallel to the coin switch to activate the circuit to facilitate loading of articles onto the bar.

In another form of the invention a double pole, double throw switch means is operatively connected to the cam gate for effectively controlling its operation to effect either the dispensing operation or loading operation.

The coin control means is further provided with means for facilitating the removal of the coins therefrom without effecting removal of the coin box from the stand and with means for detachably connecting the coin box to the stand which is normally not rendered accessible to unauthoriz- ed personnel.

A feature of this invention resides in the utilization of a coin-control means for use with an article dispenser which is electrical-mechanical in operation.

Another feature of this invention resides in the provision of a coin-control device which is releasably secured to the stand by securing means, access to which can only be had when the access opening to the coin receptacle has been opened by authorized personnel.

Another feature of this invention resides in the provision of a coin-control device for use to dispense articles from open racks or bars which includes a cam gate which is operative to effect successive release of the articles to be dispensed from the respective position of articles onto the rack or bar without causing the removal of the coin-control device from the stand.

Another feature of this invention resides in the case in which the coin-control device can be readily modified to accept coins of various denominations.

One feature of the invention advantages will become more readily apparent when considered in view of the drawings and description in which:

FIG. 1 illustrates a perspective view of an article-dispensing device of this invention as applied for the dispensing of shopping bags.

FIG. 2 is an enlarged detail, front elevation view of the coin-control device of this invention having portions thereof shown in section.

FIG. 3 is a plan view of the coin-control device of FIG. 2.

FIG. 4 is a sectional view taken along line 4—4 on FIG. 2.

FIG. 5 is a fragmentary detail view taken along line 5—5 on FIG. 2.

FIG. 6 is a detail view of the coin rejecting device utilized in accordance with this invention.

FIG. 7 illustrates a schematic diagram of the electrical circuit of the coin-control device.

FIG. 8 illustrates a detailed perspective view of self-leveling leg constructions adapted to be used in the stand construction of FIG. 1 in a modified form of the invention.

FIG. 9 is a schematic circuit diagram of another modified form of the invention. FIG. 10 illustrates a further modification.

For purposes of description and illustration, the article dispenser 20 of this invention will be described as applied to the dispensing of shopping bags 21 of the type having a bale-like handle 22 connected adjacent the open end of the bag construction. However, it will be understood that the instant invention also has application for successively dispensing any article which may be displayed, merchandized and/or dispensed from an open rack or a display bar, as for example, various articles of manufac-ture packaged and distributed on cards, boxes or bags having a hole by which such article is suspended on a bar or the like.

Referring to FIG. 1, the article dispenser 20 for dispensing shopping bags comprises a stand having a base portion 23 that includes a bottom wall 24 on which a stack of bags 21 are supported. As illustrated the bottom wall inclines downwardly from front to rear. Spaced above the bottom wall 24 is a top wall 25 with opposed side walls 26 interconnecting the top wall 25 to the base portion 23 of the stand. The back wall of the stand is preferably defined by a pair of spaced apart longitudi-nally extending panels 27 to define an open central area in the back of the stand. Suitable legs 28 are provided for supporting the stand on a supporting surface.

If desired, self-leveling leg means may be provided to facilitate the leveling of a stand on an uneven supporting surface. Referring more specifically to FIG. 8, the self-leveling leg means may comprise a transversely extending channel member 29 connected to the undersurface of the base portion 23 adjacent the rear edge thereof.

A corresponding channel member 30 is extended transversely along the front edge of the base member. As shown, the depending opposed flange portions 29A of the rear channel 29 are each provided with an aligned incline slot 31 adjacent the end portions. Accordingly, the respective rear leg members 32 slidably connected within the opposed inclined slots 31 by means of a pin 33 extending between the opposed slots 31. It will be noted that the pin 33 supporting the respective leg members 32 between the incline slots 31 of the channel member 29 is free to move within the slots 31. Connecting the respective rear leg member 32 together for relative movement therebetween is a transversely extending connecting bar 34. Adjacent each end of bar 34 there is provided a hori-zontal pin 35 structurally secured into a portion of the channel member 30 supporting the rear legs 32 are extended. Accordingly, the rear legs 32 are rendered freely movable relative to one another to compensate for any unevenness in the floor. As to the front legs, one leg 36 is fixedly secured between the flanges of the front channel member 30, the other front leg 37 is adjustably secured between the flanges of channel 30 in a suitable sleeve or tapped bore 38 for adjustment. In the event the stand 20 is supported on an uneven supporting surface or floor, the stand can be readily levelled by merely adjusting the adjustable front leg 37.
Mounted on the bottom wall 34 of the stand is a dispensing bar 39 which extends upwardly therefrom. As best seen in FIG. 1, the bar 39 is bent forwardly at an intermediate point. The free end of the bar 39 at a point immediately below the top 25 of the stand is horizontally disposed to extend toward the open front end of the stand to define the dispensing station. Accordingly, the shopping bags 21 adapted to be dispensed from the stand are stacked within the stand so that the dispensing bar 39 extends up through the aligned hole handles 22 of the respective bags.

Referring to FIGS. 1 and 4 it will be noted that bar 39 is provided with a notch 40 adjacent the dispensing end portion of the bar. As illustrated, the notch 40 bifurcates the free end of the bar 39. However, it will be readily understood that the notch 39 need not extend through the diameter of the bar, it being sufficient that the notch extend only part way through the bar.

Cooperatively associated with the dispensing end of the bar 39 is a coin-operated control means 41. The coin control means is constructed and arranged so as to prohibit the unauthorized removal of the uppermost shopping bag 21 from the stack of shopping bags unless a coin of proper denomination is inserted thereinto, and then only to effect the release of one bag only.

In accordance with this invention, the coin-control mechanism 41 comprises a meter housing 42 which is detachably secured to the under surface of the top wall 25 of the stand. To accommodate or support the meter housing 42 of the coin control mechanism against the top of the stand, the top wall 25 is provided with a pair of spaced guide rails 43 for slidably receiving the meter housing 42.

Referring more specifically to FIGS. 2 and 3, it is to be noted that the meter housing 42 of the coin control mechanism comprises a box-shaped member defined by opposed front and rear wall portions 44, 45 interconnected by opposed side wall members 46 and 47. As shown in FIG. 2, the upper edges of the respective side walls 46, 47 terminate in outwardly bent flanges 46A, 47A which are slidably received in the guide rails 43 connected to the under surface of the top wall 25 of the stand.

The meter housing 42 is secured to the top of the stand 25 by a pair of set screws 48 which are threadedly engaged in tapped blocks 49 connected to the front wall 44 of the housing 42. As shown the blocks 49 for the set screws 48 are each provided with a tapped bore that extends therethrough. As it will be hereinafter described, access to set screws 49 can only be had by a tool adapted to extend upwardly through the bottom of the meter housing 42.

A pair of angle members 50 are oppositely secured to the inner surface of the front and rear walls 45, 46 of the meter housing 42 to define a slidable 51 for removably supporting an intermediate plate 52 which partitions the housing 42. As best seen in FIG. 2, the portion of the bottom of the meter housing to one side of the partition plate 52 is closed by a fixed bottom wall 53 extending between the opposed front and rear wall of the housing, and the side wall 46 of the housing. This portion of the bottom wall 53 is provided with an elongated slotted opening 53A which is adapted to receive a cam gate 54, as will be hereinafter described. Also, this bottom wall 53 is provided with an opening aligned with set screw 48 for receiving a tool to operate on the set screw 48.

The remainder of the bottom portion of the meter housing 42 is closed by a bottom wall 55 which is hingedly connected to the rear wall 46 and which is adapted to define the access opening to the coin receptor portion of the housing. This portion of the bottom extends between the intermediate plate 52 and the side wall 47 of the housing 42. As is best seen in FIG. 2, the bottom wall 55, which defines the hinge closure, is provided with opposed upwardly turned flange portions 55A which are adapted to nest, in the closed position of the meter housing, adjacent the intermediate plate 52 and the side wall 47 of the housing 42. Thus, in the closed position, the hinged bottom wall 55 defines the bottom of the coin receptor.

A key-actuated catch 56 is pivotally mounted on wall portion 47 of the housing to positively lock the hinged bottom wall 55 in the closed position thereof. As shown, the catch 56 comprises a hooked shaped member rotatably connected to the rotary portion of a tumbler lock 57, and a cooperating latch 58 is connected to the side flange 55A of the hinged bottom wall 55. In the locked portion, the hook end of the catch 56 engages the latch 58 to prohibit pivoting of the hinged bottom wall 55 outwardly of the housing. To unlatch, the catch 56 is rotated counterclockwise by a key, as viewed in FIG. 5, to release the catch 56, thereby permitting the bottom wall 55 to swing outwardly to open position as viewed in FIGS. 2 and 4 in the dotted line showing therein. Accordingly, any coins deposited therein are automatically removed upon the opening of the hinged closures 55. It is also to be noted that access to the other set screw to attach or detach the meter housing to the stand can only be had through the opening defining when the hinged closure 55 is in its open position. In this manner, only a person with a key for opening the hinged closure 55 may attain authorized access to the set screw 48 which secures the box to the stand.

Referring to FIG. 2, the front 45 of the housing is provided with a coin opening 59 sized to receive the appropriate coin denomination. For example, the illustrated slot 59 may be sufficiently sized so as to receive a five-cent coin. Connected immediately to the rear of the coin slot 59 there is provided a means which will reject coins of improper denomination or size.

Referring to FIG. 6, the coin-rejecting means 60 comprises an incline plane 61 formed with a central cut-out portion 62. The sides of the incline plane 61 are provided with side-forming guides or rails 63, which are spaced a distance sufficient to accommodate the diameter of the property sized coin to be deposited. Accordingly, the arrangement is such that a properly sized coin will slide down the chute defined by the incline plane 61 and the connected side guides 63. The central cut-out portion 62 of the plane is proportioned so that the coins of lesser diameter will drop therethrough automatically by gravity. Thus, if the coin slot 59 and guide 63 are sized to accept a five-cent piece, it will be noted that if either a penny or dime, which are both smaller in size than the nickel, is inserted through the coin slot opening 59, they being smaller will fall through the cut-out portion 62 of the incline plane by gravity, thereby rendering it impossible to actuate the coin meter as will be hereinafter described.

To return the rejected coins, a coin return chute 64 is connected in communication with the cut-out portion 62 of the coin-rejecter means. Therefore, if an unacceptable smaller coin is inserted through the coin slot, it is rejected by dropping through the cut-out portion of the incline coin rejector means, before it activates the coin switch, as will be described, and the coin rejected is discharged through return chute 64 for return to the depositor. Accordingly, the exit of the coin-return chute 64 is disposed in the bottom portion of the housing, and a cut-out portion 65 is provided in the hinged bottom wall portion 55 for accommodating the exit opening of the coin return chute 64 in its closed position.

A member defining a cam gate 54 is pivotally connectable to the intermediate partition 52 by a pivot 66. As shown, the end of the cam gate 54 extends outwardly of the housing through a slotted opening 57 which is opposed bottom wall portion 53 of the housing. The cam gate 54 comprises a substantially rectangular bar, pivotally connected intermediate the ends by pivot pin 66 to the intermediate plate 52. The extended end of the cam gate 54 has formed therein a radially extending slot 67. As best seen in FIG. 4,
the slotted end of the cam gate 54 is normally disposed so as to extend in the bar notch 40 adjacent the discharge end thereof. It is to be noted that the radial extent of the slot 67 formed in the cam gate 54 is greater than the amount it extends into the bar notch 40. Referring to FIG. 1, the slot 67 formed in the end of the cam gate 54 bifurcates the end thereof, and the arrangement is such that bifurcate portion 67A on the inlet side to said slot 67 is slightly shorter than bifurcate portion 67B on the other side of the slot.

In the arrangement illustrated, a pair of opposed acting springs 68, 69 counterbalance the movement of the cam gate 54 between a non-release position and a release position, as will be hereinafter described. The respective springs 68, 69 have one end thereof anchored respectively about anchor pins 68A and 69A connected to the cam gate 54 and have their other ends anchored respectively to suitable anchor pins 68B, 69B, mounted on the intermediate partition 52. A fixed stop 70 connected to the intermediate plate 52 to one side of the cam gate 54 limits angular movement of the cam plate 54 in a clockwise rotation about the pivot 66 as viewed in FIG. 4. Stop means for limiting the movement of the cam gate in a counterclockwise direction to a release position is also provided. The latter stop means comprises a locking solenoid 71, the plunger 71A of which is normally extended through an opening 72 formed in the intermediate plate 52 to block rotation of the cam gate 54 toward its release position.

As best seen in FIGS. 2 and 3, the solenoid 71 is supported on a side bracket 73 connected to the partition plate 52. The plunger 71A of the solenoid is normally urged toward its inoperative position, when in a de-energized state, by means of a spring 74. Thus, in the de-energized state, the plunger 71A of the solenoid 71 normally extends through the opening 71 of the intermediate plate 52 to block the cam gate 54 from rotating toward a release position.

In circuit with the locking solenoid 71 is a microswitch 75, actuated by a coin feeder 78 which extends into the vicinity of the coin slot to be actuated only by an acceptable coin. A holding relay means 79 is also connected in circuit between the coin switch 75 and the locking solenoid 71. The relay means 79, like the locking solenoid 71, is mounted on the bracket 73 connected to the intermediate plate 52.

Included in the circuitry of the coin control device 41 is a normally closed switch means 80 mounted on the cam gate 54 to rotate therewith. The latter switch means 80 comprises a mercury switch and is mounted on the cam gate as to be maintained in a normally closed position, in the non-release position of the cam gate 54. In operation, the rotation of the cam gate 54 to its release position causes the mercury in the mercury switch 80 to momentarily open the circuit to the locking solenoid 71 and holding relay 79 as will be hereinafter described.

In one embodiment of the invention, as disclosed in FIGS. 4 and 7, a key switch 81 is connected in parallel to the coin-actuated switch 75. The purpose of the key switch 81 is to effect the operation of the circuit so that the cam gate 54 is rendered free to pivot about its pivot 66 to facilitate the loading of a shopping bag onto the dispensing bar when the stack of bags has been depleted. Consequently, by rendering the cam gate 54 inoperative and maintaining the same inoperative during a loading operation, the bags may be loaded without the necessity of removing the coin control device 41 from the stand, as heretofore required.

Referring to FIG. 7, the operation of the dispenser is as follows:

With the dispenser 20 loaded with shopping bags 21, the cam gate 54 of the coin control device 41 is normally extended to the notch 40 of the bar 39 to block the removal of any shopping bags from the discharge end of the bar. Rotation of the cam gate 54 toward its release position is blocked by the extended plunger 71A of the de-energized locking solenoid 71. This position is noted by the solid line showing of the cam plate in FIG. 4. In non-release position of the cam gate 54, the mercury switch 80 mounted thereon is normally closed. To dispense a bag 21, a coin is deposited into the meter housing 22 through the coin slot 82 in the cam gate 54. The coin is deposited. It will slide down the inclined coin guide 61 and lift the coin feeder to actuate the coin switch 75 to close the circuit to the locking solenoid 71 and to the solenoid 79A of the holding relay 79, the latter in turn causing the relay switch 79B to close. The energization of the holding relay 79 thus maintains the circuit to the locking solenoid 71 energized until a bag is dispensed.

As soon as the locking solenoid 71 is energized, the solenoid plunger 71A is retracted to unblock the movement of the cam gate 54 toward its release position. With the cam gate 54 free to pivot, a shopping bag 21 can be readily removed from the end of the bar by sliding the bail handles 22 of the bag through the cam gate 54. In doing so, the bail handles 22 are guided by guide means 87 into the radial extent of the slot 67 formed in the cam gate 54 so that in pulling the bag therethrough, the bifurcate portion 67A following the slot 67 in its movement to release position moves through the notch 40 to prohibit removal of the next succeeding bag from the bar as the leading bifurcate portion 67B moves through the notch 40 to effect release of the handle 22 of the bag dispensing. The release position of the cam gate 54 is shown by the dotted line showing in FIG. 4.

In the release position of the cam gate, the mercury switch 80 is so displaced that the mercury therein causes the contacts to be exposed thereby opening the circuit to de-energize the locking solenoid 71 and the holding relay 79. When this occurs the solenoid spring 74 returns the solenoid plunger 71A to its normal blocking position, and the spring means 68, 69 automatically resets the cam gate 54 to its non-release position whereby its angular displacement is again restrained by the fixed stop 70 and the de-energized solenoid plunger 71A. In this position, the mercury switch 80 has again been displaced to assume its normally closed position in readiness for the next dispensing operation.

To positively guide the bag handles 22 to the slot 67 of the cam gate 54, a guide 87 is connected to the underside of the coin control device 41. Also, to provide an audible signal to indicate when the dispenser 41 is ready for operation, the holding relay 79 may be formed so as to emit an audible signal when energized.

If desired, a thermo switch 82 may be connected into the circuit to automatically open the circuit after a predetermined time interval, if for some unexplained reason the cam gate 54 is not actuated upon the deposit of a proper coin and/or the mercury switch 80 is not properly actuated to open the circuit upon completion of a dispensing operation.

To indicate the number of bags dispensed, a ratchet type counter 83 may be provided. As shown, the dials of the counter 83 are disposed behind a window 84 opening formed in the face 45 of the meter housing. The operating arm 85 of the counter is connected by a spring connector 86 to the cam gate 84. Accordingly, each time the gate 54 is rotated to a release position, the counter 83 is actuated to indicate the bag number dispensed.

To facilitate the loading of bags onto the bar without removing the control device 41 from the stand, a key-actuated switch 87 is connected in parallel with the coin switch 75. Thus, when a store operator desires to load the dispenser 20 upon the deletion or partial deletion of the bag 21 thereon, the operator by utilizing the proper key energizes the circuit by closing the key switch 81. As long as the key switch 81 remains closed, the locking solenoid 71 is energized, unblocking the cam gate 54. The solenoid 71 is maintained so energized until the key switch 81 is
opened. Thus, the cam gate 54 is rendered free swinging permitting the bail handles 22 of the bags to be threaded onto the bar to bypass the gate 54 without interference. When the dispenser bar 39 has been loaded the key switch 81 is opened, thereby placing the coin control device in operating condition for receiving a coin.

Removal of the coins from the coin receptacle of the housing 42 is attained by unlatching the hinged bottom wall 55 by use of a key adapted to fit the latch lock 57.

In an alternate form of the invention, the circuit of the coin control device has been modified so as to enable the cam gate 54 to be positively stowed in an out-of-the-way position to facilitate loading of the bags 21 onto the bar 39. Reference is made to FIG. 9 wherein the modified circuit 90 is illustrated.

In this form of the invention the coin control means is similar to that hereinbefore described with the exception that the double pole, double throw mercury switch 91 has been substituted for the single pole, single throw switch 80 hereinbefore described. Also the modified mercury switch 91 eliminates the need for a key switch 81 hereinbefore described with respect to circuit of FIG. 7.

In a dispensing operation, the circuit 90 of FIG. 9 operates in a manner similar to that herein described. That is, the locking solenoid 171, relay means 179 and coin switch 175 are operatively connected in circuit so that solenoid 171 and relay means 179 are energized only when a proper coin has actuated coin switch 175. Also one pole 91A of mercury switch 91 operates in a manner similar to the single pole switch 80 of the embodiment or circuit of FIG. 7. Thus, when a proper coin has been deposited, the closing of the coin microswitch energizes the locking solenoid 171 and its holding relay 179 to retract the blocking plungers of the locking solenoid 171. With the gate free to pivot a bag can be dispensed as previously described.

The movement of the gate 54 to its release position causes the pole 91A of mercury switch 91 to open the circuit to the relay means and locking solenoid causing them to de-energize; wherein springs 68, 69 returns the cam gate to a normal inoperative position.

However, to facilitate loading of bags onto the bar, the circuit 90 of FIG. 9 is arranged for positively stowing the out-of-the-way position as noted in the dot-dash lines of FIG. 4. Thus, to effect loading of the bags, the cam gate is positively stowed by an authorized operator depositing a proper coin in the coin slot. This will ready the gate for movement as the locking solenoid 171 is unlatched. The operator then manually rotates the portion for receiving the coins deposited therein, and means for effecting the removal of the coin from said receptacle.
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portion without effecting removal of said coin-operated means from the discharge end of said bar.

5. The invention as defined in claim 1 and including stop means for prohibiting the movement of said cam gate from its normal non-release position to its release position until the proper coin is deposited.

6. The invention as defined in claim 5 wherein said stop means includes a solenoid having a plunger which in its de-energized state blocks rotation of said gate toward its release position.

7. The invention as defined in claim 6 wherein said cam gate is formed with an angle adapted to receive said plunger in said state to limit angular rotation of said cam gate in either direction.

8. The invention as defined in claim 7 and including a normally open-coin actuated switch connected in circuit with said solenoid, said coin switch being closed to activate said solenoid upon deposit of a proper coin.

9. The invention as defined in claim 8 and including a holding relay means connected in circuit with said coin-switch and solenoid for maintaining said solenoid energized for a predetermined period of time to permit removal of the article past the cam gate as it is freed for rotation to move toward its release position.

10. The invention as defined in claim 5 and including a normally closed switch means mounted on said gate, said normally closed switch being connected in circuit with said relay means, whereby said normally closed switch is opened as said gate is moved to its release position to de-energize said solenoid.

11. The invention as defined in claim 10 wherein said normally closed switch comprises a mercury switch mounted on said gate in a position so that the contacts thereof are normally shorted by the mercury therein in the normal non-release position therein and wherein said contacts are open in the release position of said cam gate to open the circuit to said relay for de-energizing said solenoid.

12. The invention as defined in claim 11 wherein said mercury switch comprises a second pair of contacts connected in circuit with said relay means, said second pair of contacts being electrically closed only in the loading position of said cam gate.

13. The invention as defined in claim 1 and including a circuit for activating said cam gate, said circuit including an electrically energized stop means to prohibit rotation of said cam gate to release position until energized, a coin-activated switch connected in circuit with said stop means for energizing the same when a proper coin is deposited, and means operatively connected to said cam gate for de-energizing said stop means immediately upon effecting a dispensing operation.

14. The invention as defined in claim 13 wherein said means for de-energizing said stop means includes a single pole, single throw mercury switch.

15. The invention as defined in claim 13 and including a key switch connected in parallel to said coin switch to energize said stop means to permit the displacement of said cam gate to facilitate the loading of articles onto said bar.

16. A shopping bag dispenser comprising a stand having a top, bottom and interconnecting side-forming means, a bar mounted on said stand, said bar being adapted to extend through the aligned handles of a stack of shopping bags loaded on said stand, said bar having a discharge end portion from which said bags are dispensed, said discharge end having a notch formed therein, a coin-operated means for prohibiting the removal of a bag from said bar unless a coin of proper denomination is deposited therein, said coin-operated means including a housing connected to said stand adjacent the notch formed in said bar, means in said housing defining a coin receptacle for receiving the coins deposited therein, means defining a coin slot in communication with said coin receptacle, means operatively associated with said coin slot for rejecting improper coins and for accepting coins of proper denomination, a cam gate pivotally mounted on said housing for movement between a release position and a non-release position, said cam gate extending outwardly of said housing to normally extend into the notch in the non-release position thereof, stop means for normally prohibiting movement of said cam gate to release position, said stop means including a normally de-energized locking solenoid having its plunger extended in the de-energized state for blocking the movement of said cam gate, and a switch means connected in circuit with said locking solenoid for energizing the same to permit movement of said cam gate toward its release position, said switch means being disposed so as to be actuated by an acceptable coin.

17. The invention as defined in claim 16 and including a key switch connected in circuit with said locking solenoid to effect energizing said locking solenoid in the closed position of said key switch, said locking solenoid being energized so long as said key switch is closed to facilitate the loading of said articles past said cam gate.

18. The invention as defined in claim 16 and including means less for securing said housing to said stand, said securing means being disposed so as to be rendered accessible from within the housing only.

19. The invention as defined in claim 16 and including a mercury switch mounted on said cam gate to move therewith, said mercury switch being connected in circuit with said solenoid to open the circuit thereto and de-energize it as said cam gate is moved to release position.

20. The invention as defined in claim 19 and including spring means for returning said cam gate and connected mercury switch to their respective normal non-release positions after each dispensing operation.

21. The invention as defined in claim 16 wherein said housing includes a front wall, a rear wall, interconnecting opposite side walls, and a bottom wall, a partition plate removably connected between said front and rear walls intermediate the connected side wall, a pivot pivotally connected said cam gate to the side of said partition plate opposite said coin receptacle, said bottom wall having a slot formed therein through which the end of said cam gate extends.

22. The invention as defined in claim 21 wherein said coin receptacle includes a hingedly connected bottom wall portion to swing between open and closed positions, said hingedly connected bottom wall portion being disposed to side of said partition plate opposite the side to which said cam gate is pivoted, and means for locking said bottom wall portion in the closed position thereof.

23. The invention as defined in claim 19 and including a holding relay connected in circuit with said coin switch and said solenoid for maintaining said solenoid energized until a bag has been dispensed.

24. The invention as defined in claim 20 and including means for positively retaining said cam gate in a loading position whereby the bags can be readily loaded onto said bar.

25. The invention as defined in claim 16 wherein said cam gate includes a slot bifurcating the free end of said gate, said slot having a radial extent greater than the amount said gate extends into said notch with one bi-
13 furcate being longer than the other so that in the non-release position the shorter bifurcate is spaced from said bar in the non-release position to define an inlet to said notch for enabling the handle portion of the bag to be dispensed to be received within said slot.

26. The invention as defined in claim 23 and including a thermo switch connected in circuit to said holding relay to de-energize the same after a predetermined interval in the event a said holding relay fails to de-energize for any reason,

27. The invention as defined in claim 16 wherein said reject means comprises an inclined plane having side rails adapted to accommodate the diameter of an acceptable coin, said inclined plane having a cut-out portion spaced inwardly from said side rails so that undersize coins drop through said cut-out portion before engaging said coin switch, and a reject coin return means for receiving said rejected coins.

28. The invention as defined in claim 16 and including a counter operative connected to said cam gate.

29. The invention as defined in claim 16 and including means creating an audible signal whenever said solenoid is activated.

30. The invention as defined in claim 25 and including a means for guiding the handles of a bag to be dispensed into said gate slot.

No references cited.

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