

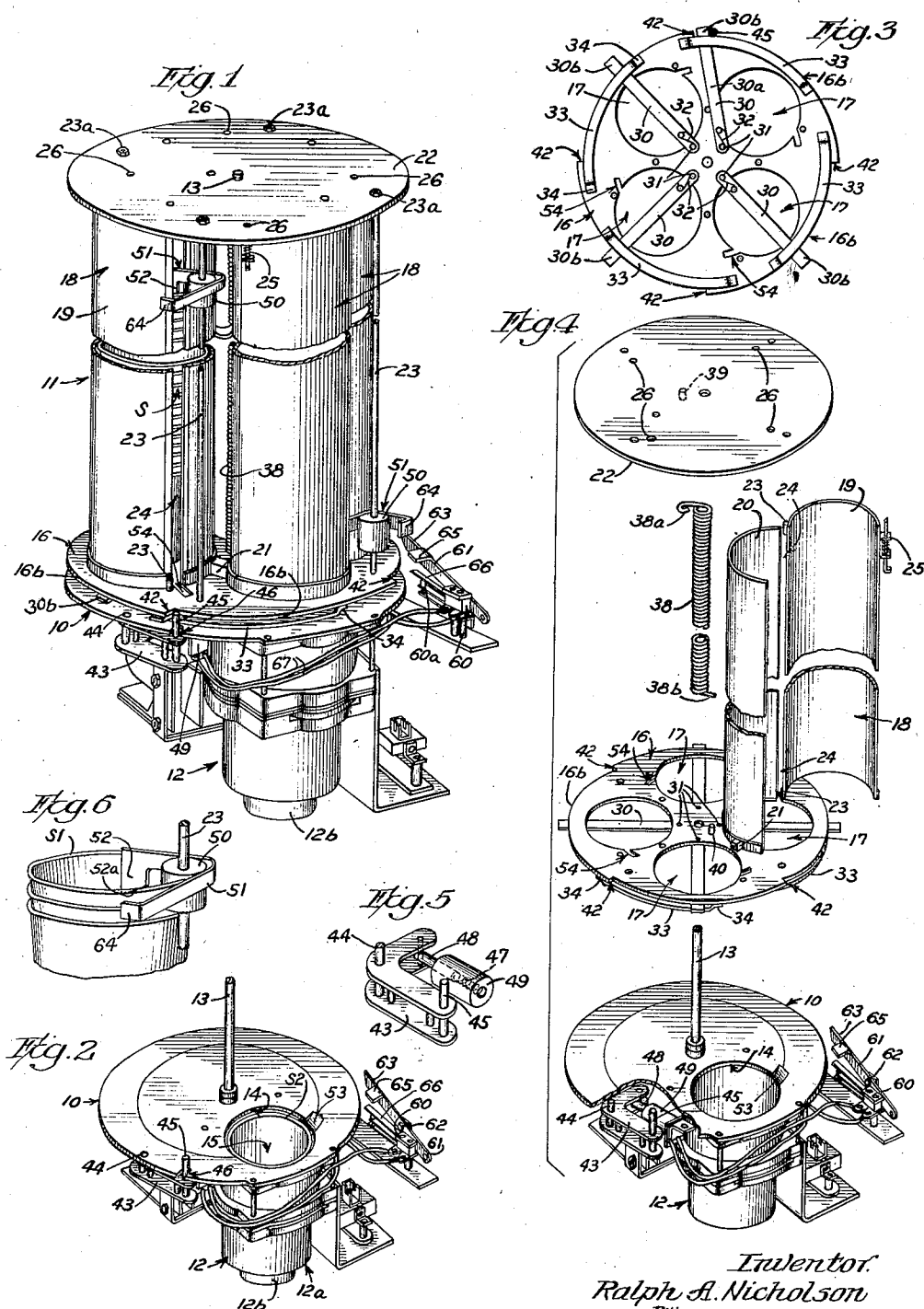
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DISPENSING APPARATUS

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DISPENSING APPARATUS

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This invention pertains to dispensing apparatus and has as one of its principal objects the provision of an improved magazine cup dispenser particularly adapted for use with the known type of dispensing mechanism and especially characterized by the fact that it includes a plurality of individual compartments or magazines for retaining stacks of the commodity to be dispensed, preferably paper cups or the like, together with means for automatically moving the magazines into dispensing relation to the dispensing mechanism as the magazines or compartments are emptied of their contents.

Viewed from another aspect it is an important object of the invention to provide a compact, rugged, simple mechanism of the class described which may be used with a variety of known types of dispensing mechanism; to provide a movable unit including a plurality of individual compartments adapted to retain a supply of the material to be dispensed in stacks; to provide mechanism for moving said unit so as to position one of said compartments or magazines in register with the dispensing mechanism; to provide means for assuring descent of the stacked articles in the registered compartment into the dispensing mechanism; to provide means for automatically moving said unit so as to register another of said magazines or compartments with the dispensing mechanism when a preceding compartment is emptied of its contents; to provide means for effectively and reliably detecting when one of said compartments has been emptied of its contents; to provide means for maintaining the contents of the several compartments clear of the stationary parts of the dispensing mechanism with respect to which the unit and the magazines thereof are moved in effecting registration as aforesaid, and further to automatically move said retaining means so as to permit the contents of the registered compartment to move into operative relationship with the dispensing mechanism upon register as aforesaid.

More specifically stated, it is an object of the invention to provide a magazine dispensing mechanism including a stationary member and associated dispensing means, a movable magazine carrier including a plurality of individual compartments each adapted to be moved into register with the dispensing means by movement of the carrier, together with means normally urging the carrier for movement to dispose the compartments or magazines in succession in alignment or register with the dispensing means, and means in each of the compartments or maga-

zines for effecting operation of the carrier moving means when the contents of that one of the compartments or magazines which happens to have been in register with the dispensing means becomes emptied of its contents whereby the next succeeding compartment or magazine and a fresh stock of articles to be dispensed will be brought into operative relationship to the dispensing means.

Other objects, advantages and novel aspects of the improved dispensing mechanism relate to certain structural details as well as the functional and structural relationship of the parts of the combination included in the preferred arrangement described hereinafter in view of the annexed drawing in which:

Fig. 1 is a perspective of the dispensing unit with portions broken away to reduce the height thereof for purposes of conserving space in the drawing;

Fig. 2 is a perspective of the base plate of the dispensing structure;

Fig. 3 is a bottom plan view of the movable carrier or magazine portion;

Fig. 4 is an exploded perspective of the device of Fig. 1 with all but one of the magazines or compartments removed to show the assembly relationship of the parts;

Fig. 5 is a perspective detail of the latching dog and solenoid means for releasing same;

Fig. 6 is a perspective detail of the tester or rider.

Referring to Fig. 1, the novel dispenser unit includes a base structure or plate 10 above which is rotatably mounted the magazine or carrier unit 11, and beneath which is mounted a dispensing mechanism 12.

The base plate 10 is shown in Fig. 2 and may be circular in form with a central post or axle 13 about which the carrier unit rotates as will be described hereinafter. The base plate includes an opening 14 which is in register with a well 15 constituting part of the dispenser mechanism 12.

The dispenser mechanism 12 may be one of a variety of known types of dispensing mechanism of the class into which articles are fed from above and ejected one at a time from the bottom region as at 12a, where there is shown in Fig. 2 the cup 12b emerging from the bottom of the well. Since the details of the dispensing mechanism itself do not constitute a part of the present invention, and since such devices are well known, the same is not described in detail.

Referring again to Fig. 1, the magazine struc-

ture or carrier includes a bottom plate 16 (Figs. 3 and 4 also) in which they are a plurality of openings 17 arranged radially about a central axis and adapted for registration with the opening 14 to the well in the base plate 10.

Mounted in vertical alignment with each of the openings 17 in the bottom plate of the carrier, is an article compartment 18. In the present case these compartments are circular in shape and are preferably constructed of a movable section 19 constituting a door, and a stationary section 20 (Fig. 4 particularly). The stationary section 20 is in the form of a semi-cylindrical or arcuate plate suitably anchored at its lower end as at 21 (Figs. 1 and 4) to the bottom plate 16. Similar attachment is effected between the stationary plate and a top plate 22 which is rigidly clamped against the top portions of the compartment structures by means of vertical tie rods 23 and means such as the nuts 23a. These tie rods also cooperate with certain testing means for determining when the several compartments are empty, as will be described presently.

The movable or door sections 19 of these compartments are hinged on pintles 23 at top and bottom, it being important to observe that a space 24 is left between the hinge edge of each door and the adjoining edge of the companion stationary plate 20 for purposes hereinafter described.

Each movable section or door 19 of the several magazine compartments is provided with means such as the detents 25 (Fig. 4), attached thereto at the upper ends thereof just beneath the top plate 22 so as to engage in locking holes 26 to releasably secure the doors in closed positions.

In Fig. 1 the several compartments are shown in closed condition, while in Fig. 4 the door 19 of one of the compartments is shown in open position ready to permit introduction into the magazine or compartment of a stack of cups S, such as seen through the vertical slot or spacing 24 between the adjoining edges of the stationary and movable parts of the compartment.

It is to be understood that the entire magazine unit or carrier including the bottom plate 16, the several magazines 18, and the top clamping plate 22, rotate about the axle 13 as a center, and under these circumstances it is desirable that the bottommost articles in each of the compartments be held clear of the base plate 10 for purposes of efficiency and preventing injury or soilage to the articles, for example paper cups, carried in the compartment. To this end each compartment is provided with a releasable bottom supporting member in the preferred form of an arm 30 (Fig. 3) each pivoted as at 31 on the bottom plate 16, and each provided with spring means 32 normally urging the same into a diametric position across the corresponding opening 17.

Means for limiting the movement of the supporting means or arms 30 is provided in the form of arcuate strips 33 each attached to the underside of bottom plate 16 by means of offset foot portions 34 so as to space the strips downwardly from the underside of the bottom plate 16 with the outer free end portions of the corresponding supporting arms 30 projecting outwardly between the upper surface of the corresponding strip 33 and the lower surface of plate 16, movement of the arms 30 in opposite directions being limited by the opposite end of the

corresponding strips 33 at their points of attachment 34 with plate 16.

One end of each of the strips 33 has its foot attachment 34 with the bottom plate so positioned as to limit the movements of the corresponding supporting arm 30 by its spring 32 to position said arm at the aforesaid diametric position, in which the arm is adapted to underlie the bottom of the corresponding magazine or compartment and thereby support the articles therein clear of the stationary or base plate 10 for the purpose aforesaid.

Means normally tending to rotate the magazine carrier is provided in the form of a coil spring 38 adapted to be mounted coaxially with the axle 13, the spring being clearly shown in Fig. 4 and being partly visible in Fig. 1, and having its upper end 38a offset and looped to engage a pin 39 on the underside of the top plate 22, with the lower end 38b of the spring offset to engage a stop pin 40 on the bottom plate 16.

In loading the device, the attendant rotates the entire magazine carrier in a clockwise direction to tension spring 38 an amount sufficient to carry the magazine through at least four complete movements to register each of the compartments with the well 15.

Means is provided for automatically locking the carrier into positions of registration with the dispensing mechanism 12, such means including the provision of formations such as the circumferential notches 42 (Figs. 1, 3, and 4) at equally spaced intervals around the edge of the bottom plate 16 of the carrier. Latching means in the form of an arm or dog 43 is pivoted as at 44 to the underside of the stationary base plate 10. This dog is provided with a pin 45 which fits into an aligning notch 46 (Figs. 1 and 2) in plate 10 so as to lie in the path of notches 42 in the carrier bottom plate 16 and the arrest movement of the latter under urgency of the spring 38.

The aligning or stop dog 43 is urged into latching position—that is with pin 45 disposed substantially in its aligning notch 46—by means of a spring 47 which normally urges the plunger 48 of solenoid 49 outwardly, rocking the dog in a counterclockwise direction about the pin 44 thus urging the latching pin 45 into its receiving notch where it will stop the carrier.

In order that the carrier may automatically move a loaded magazine into dispensing position when the preceding magazine is emptied of its contents, there is provided means for detecting the absence of articles to be dispensed in each magazine compartment and for automatically energizing the solenoid 49 to effect withdrawal of the stopping or latching pin 45 and permit the carrier to be rotated by the spring 38 to the next position.

The aforesaid testing means includes preferably a weighted element 50, also referred to as a rider, mounted for vertical sliding movement on the rods 23. On each rider 50 is a feeler arm 51 angled so as to project into the vertical slot or space 24 between the hinge edge of the door and the stationary wall plate of the corresponding magazine or compartment and to overlie the upper edge of the topmost article or cup in the stack S, the rider being moved to its uppermost limit when the magazine is loaded. Accordingly as the stack of cups S descends, the rider 50 will descend with it.

An important detail of the rider structure re-

sides in the provision at the inner end of the projection 51 of a nose portion 52 (Fig. 5) the lower edge portion of which is adapted to ride on the rim S' of the topmost cup in the stack as shown in Fig. 1 and in the fragmentary perspective of Fig. 6. In order to assure that the topmost article or cup in the stack will positively descend to below the plane of movement of the bottom of the carrier and particularly the bottom plate 16 thereof, the enlarged end portion 52 of the feeler arm on the rider is dimensioned to project below the lower surface of bottom plate 16 of the carrier and into a downwardly angled notch 53 (Fig. 2) provided in the base plate 10 and leading into the edge of the well opening 14 so as to be positioned opposite the upper edge of uppermost cup S2 of the remainder of the stack disposed in the well of the dispensing unit 12, it being observed in Fig. 2 that the upper edge of said uppermost cup S2 is well below the upper face of the base plate 10. In order to permit the nose portion 52 of the feeler to descend into the notch 53, there is provided an additional notch 54 at the bottom of each slot 24 in each magazine or compartment, said slots 54 being alignable with the slot 53 in the well of the dispensing portion of the device.

When the stack of cups in an aligned compartment has descended to the level shown in Fig. 2, the compartment is actually empty, although several cups remain in the well of the dispensing mechanism as exemplified by the upper cup S2 and the bottom of the lowermost cup 12b. When the compartment is thus emptied, means are provided for automatically releasing the dog 43 to withdraw pin 45 from the stopping notch 42 in the carrier, and this means includes the provision of a switch 60 and an operating arm 61 therefore pivoted as at 62 so as to project an end portion 63 thereof into the path of an offset 64 provided on each of the riders.

Thus as a compartment is emptied of its contents and the rider descends to the lower limit of its movement, the offset switch operating projection 64 on the rider will engage end 63 of the switch operating lever 61 and cause a projection 65 on this switch operating lever to engage the "leaf spring" 66 to close contacts 60a of switch 60.

The contacts of switch 60 are connected by conductors 67 in a power circuit to energize the solenoid 49 to attract the plunger 48 and pivot the dog 43 in a clockwise direction to withdraw the latching pin 45 in the manner and for the purpose aforesaid.

As soon as the latching dog is withdrawn as described above by operation of switch 60 by the rider, the carrier is free to move under urgency of spring 48 and the projection 64 on the rider is therefore immediately withdrawn from the switch operating lever 63, thus causing the switch to open quickly and deenergize the solenoid so that the latching pin 45 may be restored to latching position. Thus by the time the next succeeding latching notch 42 is moved up to the latching position of pin 45, the latter will be in position to stop the carrier with the next loaded compartment overlying the well 15 of the dispensing mechanism.

By referring to Fig. 3 it will be observed that each of the notches 42 is spaced ahead of the normally blocking or stack sustaining arm 30 in a clockwise direction, this being untrue, of course, for the one sustaining arm 30a which is shown in released position. As a consequence of such

spacing, because of the fact that each of the three end portions 30b of these sustaining arms projects slightly beyond the periphery of the bottom plate 16 of the carrier far enough to engage latch dog pin 45, and because of the fact that the solenoid 49 is very quickly deenergized as soon as the carrier starts to move, the supporting arm 30a (referring to Fig. 3 particularly) will be pivoted to the position shown in Fig. 3 by engagement with the pin 45 of the latch dog as the carrier rotates for the remainder of the distance until the notch 42 engages pin 45. In this manner the sustaining means is automatically withdrawn from beneath the compartment as it moves into registration with the dispensing mechanism.

Momentary withdrawal of the latching pin 45 when the magazine is next freed for movement, will permit the release of withdrawn sustaining arm 30a to spring back to its normal blocking position after leaving the dispensing station or position.

Summary of operation

The improved magazine dispenser is first loaded by withdrawing the latches or detents 25 to open the compartment or magazine doors 19 one by one so that the attendant may insert therein a stack of cups or other analogous articles, the door being closed, and in actual installations, the carrier being manually rotated to the next position by manually withdrawing the latch pin 45 and turning the carrier in a clockwise direction so that the spring 38 will be tensioned at the same time. In this manner each of the compartments is loaded, the rider 50 thereof being manually raised to the upper limit before insertion of the stack so that the riders will be held in elevated position by the stack at the time the compartment door is closed, the stacks being supported in their respective magazines by the arms 30 thereof.

Having loaded each of the compartments and tensioned the operating spring 38 as aforesaid, the supporting arm of that one of the compartments which happens to be in alignment or register with the dispensing mechanism 12, is manually retracted so as to be held by the latch pin 45. In this condition the device is ready for operation, it being understood that the improved dispensing unit is intended for use generally with coin operated dispensing machines; for example, the illustrative embodiment which dispenses cups, is intended for use with a drink vender, it being further understood that automatic mechanism is associated with the cup dispensing mechanism 12 to actuate the latter and effect dispensation of the cups one by one, as for example the lowermost cup 12b which is ejected from the bottom of unit 12.

As the cups are thus dispensed the rider or follower 50 in the corresponding compartment descends gradually until the stack of cups reaches the low level indicated by the cup S2 in Fig. 2, at which time the corresponding nose or feeler portion 52 of the corresponding rider will have descended below the level of the bottom plate 16 of the carrier and into the upwardly pitched or cammed notch 53 in the base plate 10, at which level the offset switch operating projection 64 will engage and pivot the switch operating arm 61 downwardly to close the contact 60a of switch 60 thereby energizing the solenoid 49 to cause withdrawal of the latch pin 45 and free the carrier for movement by spring 38 in a counterclockwise direction.

It is important to observe that the lower edge portion of the feeler arm nose 52 is cammed upwardly as at 52a (Fig. 6) and is cammed upwardly by the pitch of the notch 53 (Fig. 2) so that the enlarged nose portion 52 on the testing or feeler arm is cammed upwardly to the upper surface level of the base plate 10, thus assuring withdrawal of the testing means from the well of the dispensing mechanism at the time the carrier rotates to the next position.

Almost as soon as the carrier begins its movement, the switch operating projection 64 is withdrawn from the switch operating lever and circuit is broken to the dog releasing solenoid so that the dog 43 and hence the latch pin 45 thereof may be quickly restored toward normal position. Meanwhile the carrier continues to rotate and causes the free end portion 30b of the sustaining arm 30 on the next magazine to engage the latch pin 45 and cause said sustaining arm to be pivoted out of sustaining position with respect to the stack of articles in said compartment. As the carrier finally moves into alignment with the well of the dispensing mechanism, the latch dog pin 45 will be seated in the aligning notch 46 (Figs. 1 and 2) in which position it will be engaged by the notch portion 42 to arrest the carrier. It may be observed at this juncture that the peripheral edge portions of the bottom plate 16 of the carrier are relieved as at 16b between succeeding portions 42 so that pin 45 may be fully seated in the aligning notch 46 by the time the end of the notch portion 42 approaches it for stopping engagement. In this broad sense the relieved portion 16b really constitutes a portion of notches 42.

From the foregoing description it will be clear that the novel cup dispensing mechanism is of relatively simple construction, and that it provides a multiple magazine structure in which loaded magazines are automatically moved into a dispensing station or position as each preceding magazine becomes emptied of its contents, the invention residing particularly in the simple, rugged and relatively trouble free means by which such automatic action is accomplished, and as well in the structural detail of the magazine carrier itself. Of importance also are the structural details of the latching mechanism, the testing or rider (or follower) means, the means for releasing the latching mechanism, and the means for sustaining and releasing the stacks in the storage compartments.

Apart from the simplicity and relative lower manufacturing cost, as well as the reliability and efficiency of the operating characteristics of this dispensing means, importance also attaches to the fact that the structure makes it possible to store a much larger supply of dispensed articles in the machine thus reducing the frequency with which service visits will be necessary, and rendering the likelihood of loss business due to exhaustion of the supply of dispensed articles or cups before a regularly appointed service call, and when the load on the machine has been unusually heavy, much less likely.

Further advantages in the construction reside in the fact that jamming or injury to the cups at the time the magazine automatically moves into a new position, is obviated by the means for assuring descent of the remainder of each stack fully into the dispensing well before the automatic mechanism acts; and further the fact that the moving means, for example the coil spring 38, for the carrier is automatically energized or

tensioned by the action of rotating the magazines into loading position at the time the several compartments or magazines are loaded.

It is contemplated that changes may be made in various details of construction and operation of the device without departing from the spirit of the invention, which is to be broadly construed in conformity with the definition thereof set forth in the appended claims.

Having thus described my invention, what I claim as new and desire to protect by Letters Patent of the United States is:

1. The combination, with dispensing mechanism including an article receiving opening, of a revoluble magazine carrier including a plurality of open-bottom magazine compartments mounted for movement to successively register the open bottoms of said compartments with said opening, means normally tending to rotate said carrier with respect to said opening, releasable means for arresting said carrier to position any of said compartments with said opening, means controlled by movement of articles in that one of the compartments which is in alignment with said opening for effecting release of said arresting means to effect movement of the carrier to position the next succeeding compartment with said opening, means normally closing the bottoms of each of said compartments, and means functioning cooperatively with rotative movement of said carrier for effecting withdrawal of said bottom-closing means for that one of said compartments which is in register with said receiving opening whereby to permit movement of articles in said registered compartment into said opening.

2. In dispensing apparatus, the combination, with means for dispensing articles one at a time from a vertical stack and including an article-receiving opening, of magazine compartment means comprising: a revoluble carrier including a plurality of vertical open-bottom magazine compartments, means tending to rotate said carrier in a given direction, latch means operable to hold said carrier in positions of registration in which the open bottom portion of any selected one of said compartments is in registration with said article-receiving opening, means for withdrawing said latch means from latching position, means supported by the topmost article in each compartment for movement from an elevated position to a lowered position by descent of articles therein into said opening, and operating means for said latch-withdrawing means and arranged to be momentarily operated by said means movable with the articles when in lowered position as aforesaid whereby to effect momentary withdrawal of said latch means to permit said carrier to rotate an amount sufficient to bring another of said compartments into registration with said article-receiving opening, said latching means operating automatically to arrest said carrier in said registered position, releasable means for supporting the article stacks in each of said compartments which is not in registered position, and means for automatically effecting release of said supporting means during movement of a compartment into registered position.

3. In combination with dispensing mechanism adapted to receive articles from a vertical column, a magazine carrier, means mounting said carrier for rotation about a vertical axis with respect to said dispensing mechanism, a plurality of vertical magazine compartments in said carrier arranged about the axis of rotation thereof

and each having an open bottom portion, spring means adapted to be tensioned by rotating movements of the carrier in one direction to urge the carrier in the opposite direction, means providing a latch stop for each of said compartments on said carrier, latch means engageable with said stops one at a time to position the corresponding compartment in registration with said dispensing mechanism to feed articles to the latter, a rider mounted for vertical gravitating movement and associated with each said compartment, said riders each including a feeler portion projecting into the corresponding compartment and engageable with the topmost articles of a stack of articles therein to move downwardly with said stack as the articles are dispensed, means for effecting release of said latch means to render the latter ineffective to restrain the carrier against movement by said spring means, and means engageable with the rider of a compartment which is in position to feed articles to said dispensing mechanism when said rider reaches a predetermined lowered position, to actuate said latch-releasing means for a limited time sufficient to permit movement of said carrier in said opposite direction to present the next succeeding stop means for engagement by said latch means, whereby to position the next compartment in registration with said dispensing mechanism, and means for supporting the bottommost articles in each compartment in those compartments which are not in registered positions as aforesaid.

4. In a magazine carrier, a compartment structure comprising stationary and movable wall portions, said movable wall portion being adapted for a movement into open position to permit insertion of articles in the compartment formed thereby when in closed position, said stationary and movable portions having opposite vertical edges spaced apart, a vertically movable follower adjacent said spaced apart-edge portions and including a feeler portion projecting into said compartment through the space between said edge for engagement with articles therein, said carrier being adapted for rotation about a vertical axis, said follower being adapted to engage the upper portion of a stack of articles in said compartment and to move downwardly as the articles are fed therefrom through the bottom thereof, and being further adapted to engage and actuate a control device when descended to a certain predetermined lowered position.

5. In a device of the class described including a compartmented, rotatable magazine carrier and means for rotating the same with respect to a dispensing station to align the compartments thereof selectively with said station, the combination of: compartment-forming means including a vertical stationary wall member and a vertical movable wall member spaced apart horizontally, a rider mounted for vertical gravitating movement adjacent said spaced-apart wall members and including a feeler portion projecting into the compartment through the space between said members, to engage an article stack therein and control gravitating movement of the rider by descent of the stack, electrical release means for effecting rotating movements of the carrier as aforesaid, switch means for actuating said release means and operated by said rider when the latter is in a predetermined lowered position.

6. In a device of the class described, a rotatable magazine carrier, a plurality of magazines on said carrier each adapted to be moved into a dispensing station by rotating movement of the

carrier, means for rotating the carrier, means releasably latching said carrier in any of several positions to dispose any of said compartments at said station, means normally urging said latching means into latching position, and means governed by articles in a compartment at said station for momentarily effecting release of said latch means to permit movement of the carrier in a direction to bring the next succeeding compartment into position at said station, each of said compartments having a dispensing opening for registration at said station with dispensing mechanism means associated with each said compartment for movement into an article blocking position relative to each of said dispensing openings therein, means yieldably urging said blocking means into blocking position, and means cooperable with said latching means for moving the blocking means of a compartment at said station into non-blocking position.

7. In a dispensing device of the class described, a rotatable magazine carrier, means for rotating said carrier, releasable means normally holding said carrier against rotative movement by said moving means, and means controlled by the quantity of articles in said carrier for effecting release of said holding means for a predetermined period of time during which the carrier may rotate a predetermined amount, releasable means normally preventing movement of articles from the carrier, and means dependent upon rotative movement of the carrier and coacting with said holding means at a time during said predetermined period for releasing said preventing means so that articles may move out of the carrier at least by the time said carrier is at rest at the conclusion of said predetermined period.

8. In a dispensing device of the class which includes a magazine carrier rotatable about a vertical axis and open-bottom compartments situated about said axis; automatic rotating means characterized by the provision of: means normally urging said carrier in rotative movement, means to receive articles from the bottom of a compartment at a certain station along the path of movement of said carrier; means normally cooperating with said carrier to arrest the same with the open bottom of one of said compartments in alignment with said receiving means, means following the topmost article in an aligned compartment as articles descend from said compartment into said receiving means, control means actuated by said following means when the same descends to a certain level to render said arresting means ineffective for a predetermined time during which said carrier is free to rotate a distance sufficient to bring another compartment into alignment with said station, yieldable means normally closing the bottoms of all compartments and arranged and constructed to cooperate with said arresting means and carrier during movement of the latter in an interval less than said predetermined period so as to be disposed into non-closing position, whereby articles are freed for movement with the receiving means.

9. In a device of the class described including a rotatable carrier having open-bottomed vertical article compartments, means normally urging the carrier to rotate, latch means movable from a non-latching position into latching position relative to the carrier to hold the same against rotation, pivoted bottom-blocking means for each compartment and means yieldably urging each blocking means into blocking position, means for releasing said latch means momentarily, spaced

latch-engaging means on the carrier for cooperation with said latch means to arrest the carrier at certain position following movements thereof upon momentary release of the latch-means as aforesaid, said blocking means for one of the compartments engaging said latch means at a time during the momentary release thereof and prior to arrest of the carrier thereof, so as to be moved into non-blocking condition by rotative movement of the carrier into one of said certain positions.

10. In dispensing means of the class described which includes a movable magazine carrier having a plurality of magazine compartments each provided with an article exit and each adapted by movement of the carrier to be selectively disposed with said exits at a dispensing position wherein articles may be removed through said exit; improvements characterized by the provision of means normally tending to move said carrier for the purpose aforesaid, means movable into and out of latching cooperation with said carrier, means yieldably urging said latching means normally toward a latching position for latching cooperation as aforesaid, means governed by the quantity of articles in a compartment at said dispensing position for effecting withdrawal of said latching means for a certain length of time during which said carrier is freed to move a certain distance to bring another compartment into said dispensing position, said withdrawal-effecting means releasing said latching means by the time the carrier was moved substantially said certain distance; and means releasably retaining articles in said compartments against movement through the exits thereof, said retaining means being operatively engaged by said latching means after release as aforesaid for movement into non-retaining position by joint action of the carrier in moving during said predetermined period, and said latch means.

11. In a dispenser, a rotatable carrier, a plurality of compartments each adapted to have articles stacked therein for vertical descent into a dispensing receptacle situated at a certain dispensing position along the path of movement of the carrier; spring means adapted to be tensioned to rotate the carrier; releasable latch means for holding the carrier against rotation by the tensioned spring means, electromagnetic means energizable to release said latch means; switch means situated at a level below the normal top of a stack of articles in said compartment and operable to effect energization of said electromagnetic means, said switch means being positioned adjacent said dispensing position; and gravity operated means for following the descent of a stack of articles in a compartment at said dispensing position to the level of said switch means to operate the latter for the purpose aforesaid.

12. In a dispenser, including a compartmented rotatable magazine carrier, means for rotating the carrier; and relatively stationary dispensing means situated below the carrier and with respect to which compartments in the carrier are selectively positionable by rotation of the latter to feed articles of gravity in a stack from said compartments; improvements characterized by the provision of control means for said moving means comprising: a control device situated adjacent said stationary dispensing means at a level below a predetermined normal level of a stack of articles in a compartment at the dispensing position; a gravity operated follower

adapted to descend with said stack, as articles are dispensed therefrom by the dispensing means, whereby to actuate said control device and effect movement of the carrier to bring another compartment into dispensing position when the height of said stack descends below the level of said carrier; said follower following the stack below the bottom level of the carrier; and means below the bottom level of the carrier for elevating the follower a certain amount upon movement of the carrier for selective positioning as aforesaid.

13. In a dispenser, a stationary member including a receptacle for the bottom portion of a stack of articles to be dispensed, a rotatable magazine mounted above said stationary member and having open-bottom compartments each adapted to be aligned one at a time by rotative movement of the carrier to feed a stack of articles therein into said receptacle, a follower mounted for vertical movement alongside each compartment and each follower having a member in the corresponding compartment to engage the top of a stack therein to hold the follower in elevated positions corresponding to the height of the stack when the compartment is loaded, said stack being adapted to descend below the carrier into said receptacle as articles are dispensed therefrom, said follower member also descending below the carrier and following the remnant of a stack into said receptacle, and means on said stationary member for camming said follower member out of the receptacle upon compartment-aligning movement of the carrier.

14. In a dispenser including a vertically movable follower to follow to descent of a stack of articles in a vertical compartment therein; improvements comprising: at least two vertical wall members, one of which is pivotable about a vertical axis relative to the other into and out of relatively open and closed positions whereby in closed position to define a stack-receiving compartment, said wall members having vertical edges adjacent the pivotal axis of the one movable member, which edges are spaced from each other along a vertical line to define a vertical follower opening, said follower including a stack-engaging portion projecting into said compartment through said opening for elevation and stack-following movement, said follower being adapted to actuate control means when at a certain elevation.

15. In a dispenser including a rotatable carrier and means for rotating the same, latch means comprising a circular member constituting a bottom for said carrier and rotatable coaxially with the carrier, relieved portions on the periphery of said circular bottom member defining circumferentially spaced-apart stop formations, latch means engagable with said formations to stop said carrier at various positions in its rotative travel, and means for moving said latch means into and out of latching position.

16. The combination specified in claim 18 including further improvements characterized by the provision of a plurality of article exits arranged around the center of rotation on said member, releasable article blocking levers each pivoted on said member at one side of one of said exits toward said center and adapted to project diametrically across said exit with a free end portion projecting beyond said periphery of said member to engage with said latch means, means limiting movement of each of said levers in one direction to substantially said dia-

metric position, one of said projecting portions engaging a part of said latch means when the latch means is in released condition and upon each movement of the carrier to a new position to cause pivoting of the corresponding lever away from diametric position into non-blocking position.

17. In a dispenser, a movable article carrier having a bottom plate with an article passage therethrough, a relatively stationary member with respect to which said carrier and bottom plate move and including an article passage relative to which articles may move from said

5 article passage in the bottom plate, means following an article moving with respect to said passages in a direction from the passage in the bottom plate into the passage in said stationary member, said following means being arranged to follow an article as aforesaid a determined distance into said second-named passage in the stationary member, and means for effecting displacement of the following means from said second-mentioned passage responsive to movement of the carrier whereby the following means is prevented from interfering with said movement.

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