

March 7, 1944.

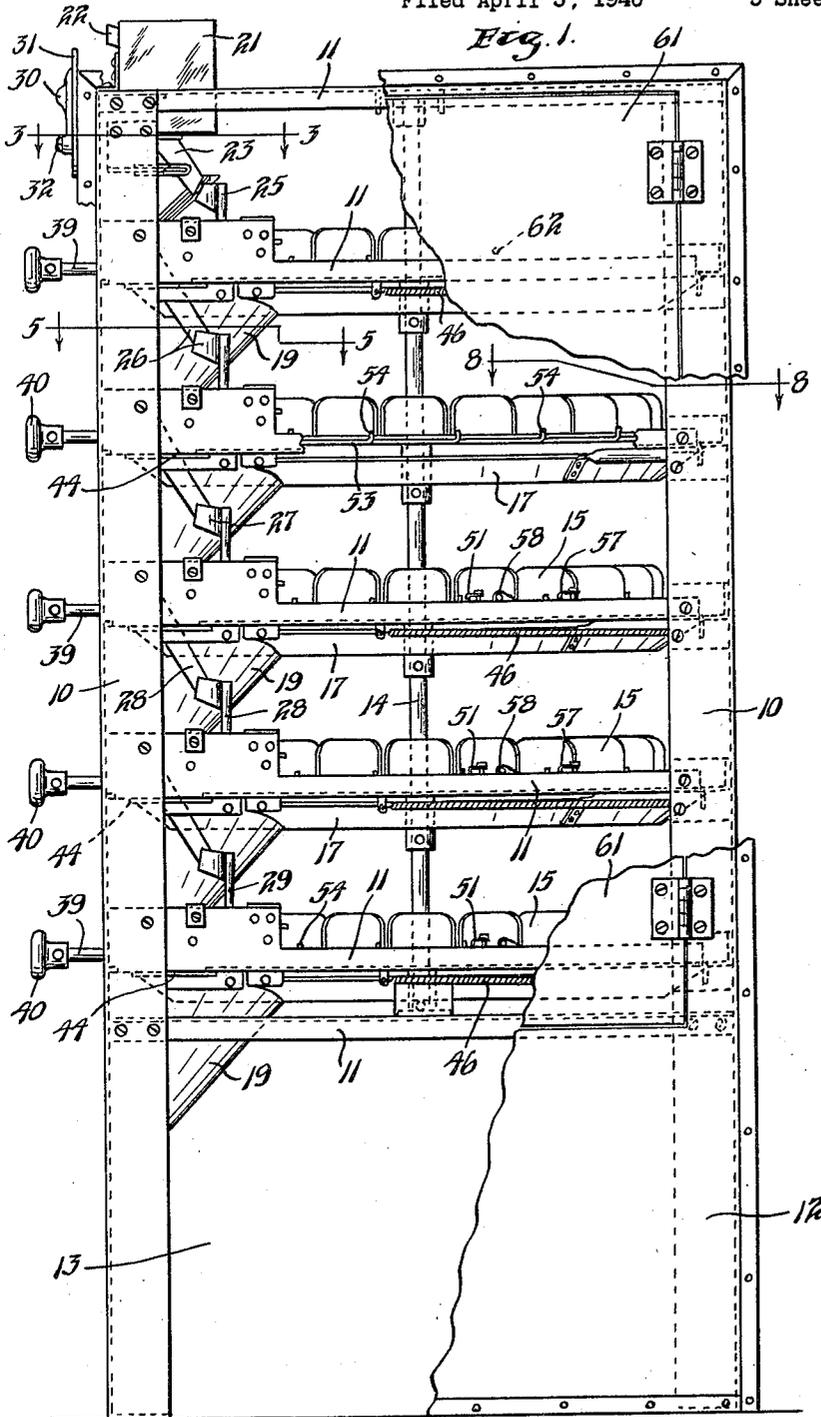
F. T. RABENS

2,343,578

COIN CONTROLLED DISPENSING MECHANISM

Filed April 3, 1940

5 Sheets-Sheet 1



INVENTOR.
FRED T. RABENS.
BY HIS ATTORNEYS.
Williamson & Williamson

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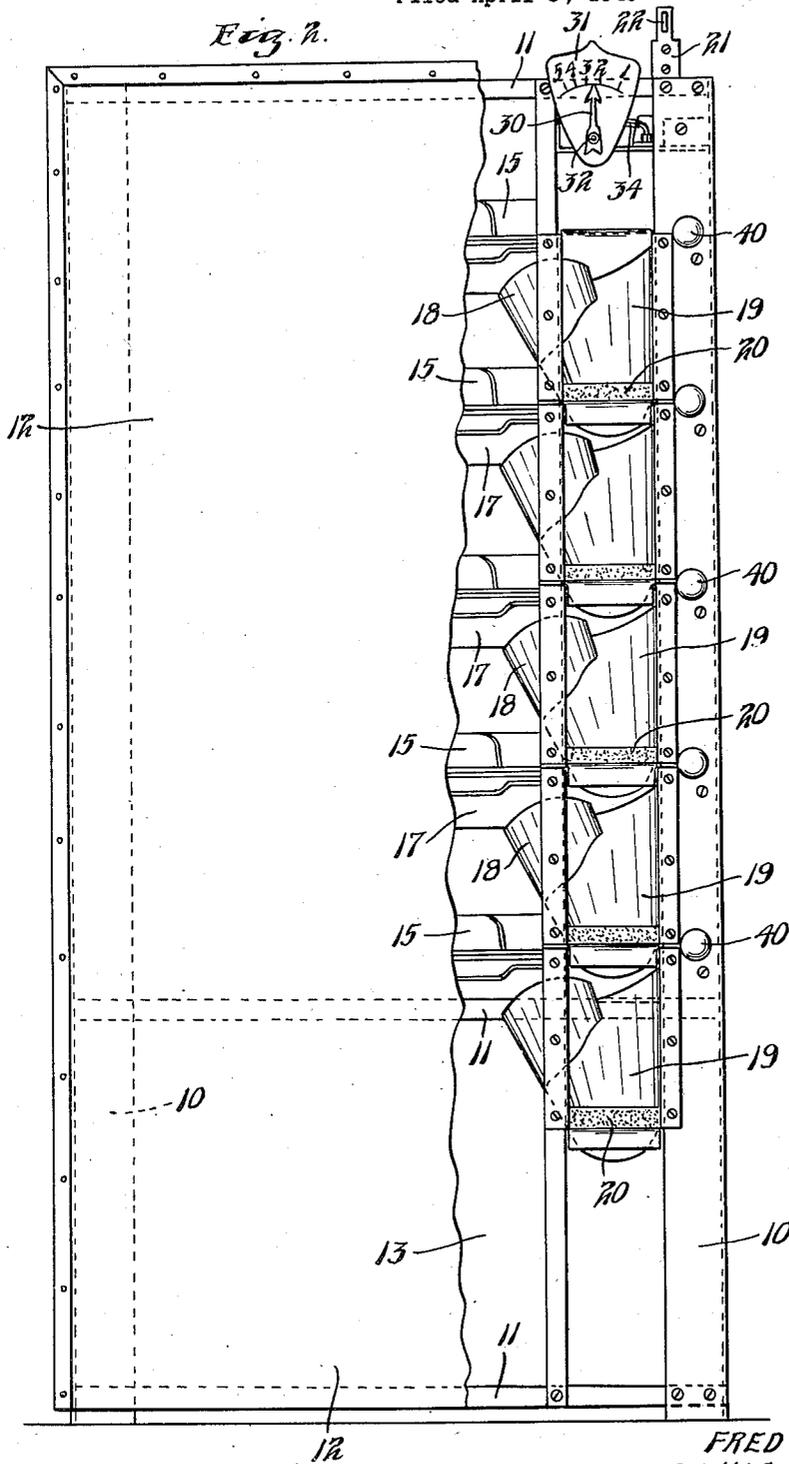
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5 Sheets-Sheet 2



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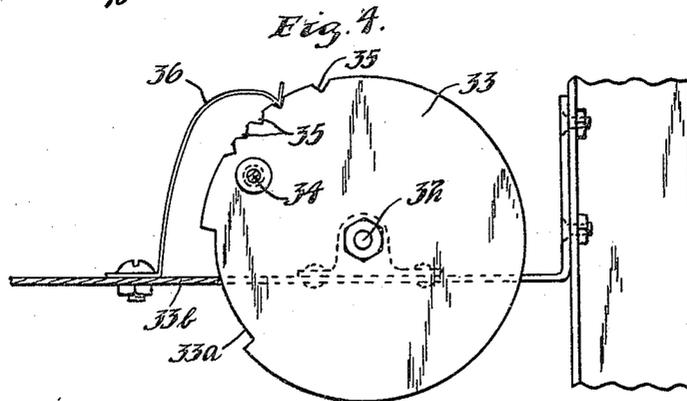
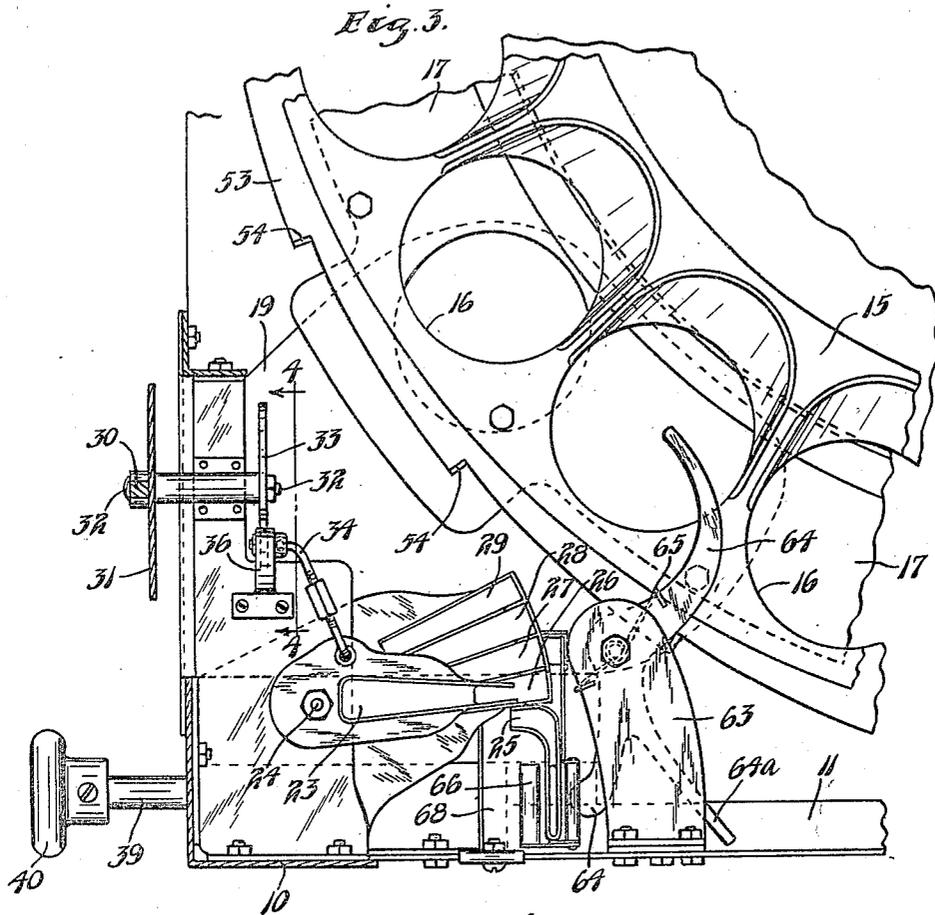
F. T. RABENS

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5 Sheets-Sheet 3



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BY HIS ATTORNEYS,
Williamson & Williamson

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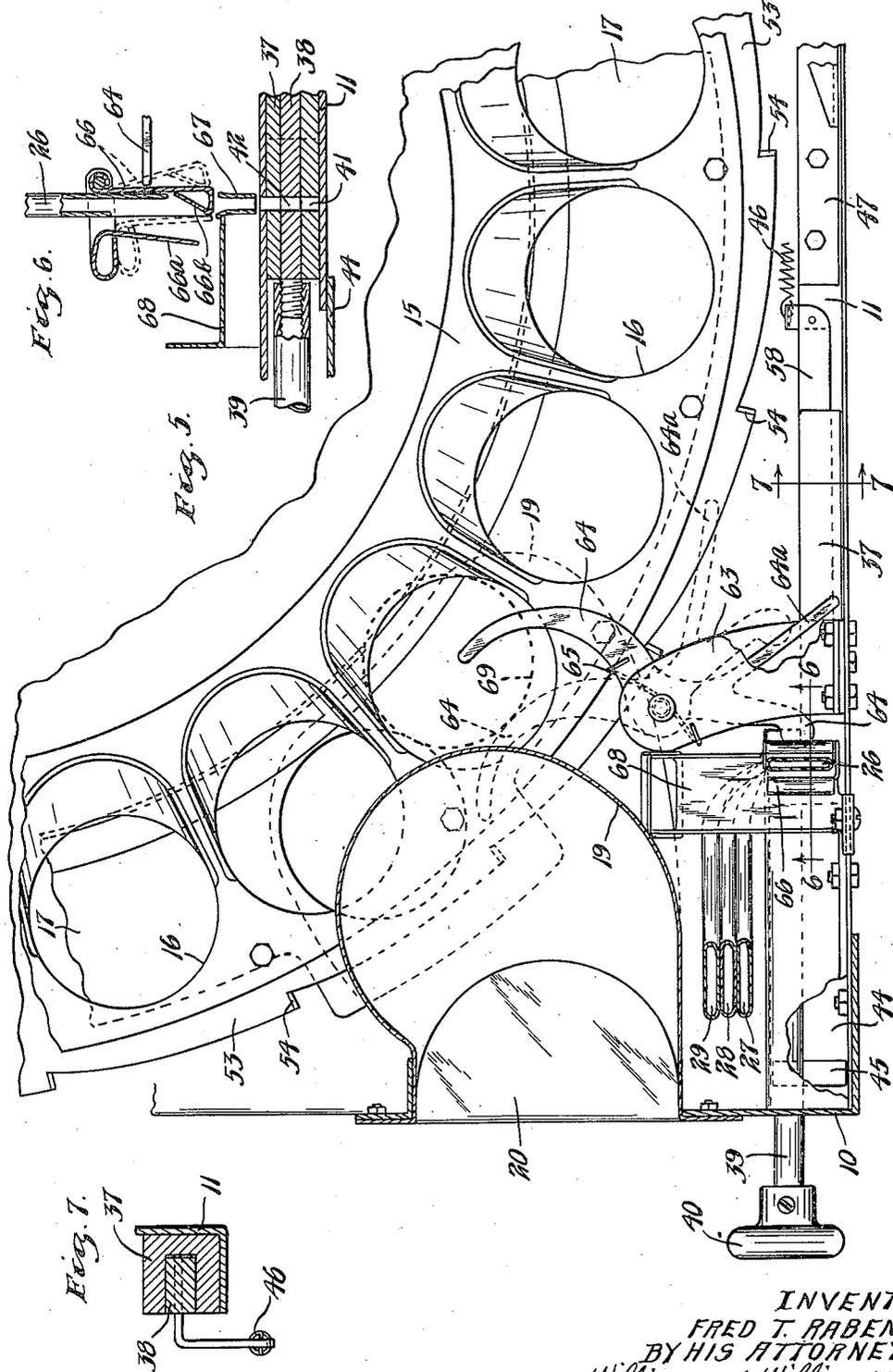
F. T. RABENS

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COIN CONTROLLED DISPENSING MECHANISM

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5 Sheets-Sheet 4



INVENTOR.
FRED T. RABENS.
BY HIS ATTORNEYS.
Williamson & Williamson

March 7, 1944.

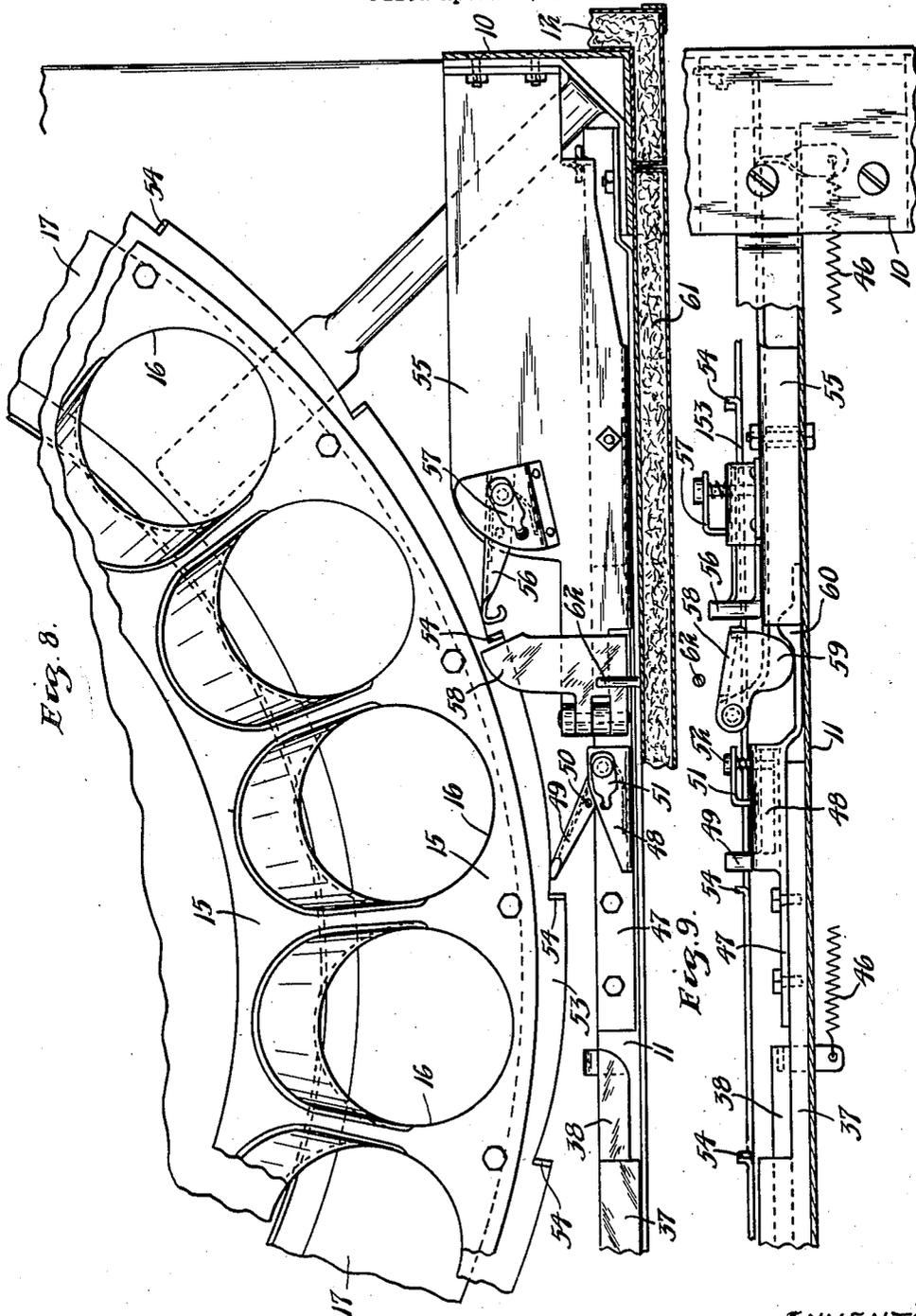
F. T. RABENS

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COIN-CONTROLLED DISPENSING MECHANISM

Filed April 3, 1940

5 Sheets-Sheet 5



INVENTOR.
FRED T. RABENS.
BY HIS ATTORNEYS.
Williamson & Williamson

UNITED STATES PATENT OFFICE

2,343,578

COIN CONTROLLED DISPENSING MECHANISM

Fred T. Rabens, St. Paul, Minn., assignor of one-half to George P. Wild, Bald Eagle Lake, Minn.

Application April 3, 1940, Serial No. 327,617

2 Claims. (Cl. 194—1)

This invention relates to dispensing apparatus and more particularly to coin controlled devices for dispensing liquids such as milk and soft drinks although it is, of course, adaptable for use with other similar types of articles.

One of the objects of the invention is to provide dispensing mechanism comprising a plurality of article holding magazines which will permit the selective dispensing of different types of products or of different quantity units of products.

Another object of the invention is to provide dispensing mechanism which is coin controlled and wherein the selective coin controlled mechanism for the individual magazines is simply and efficiently arranged for convenient operation by the customer.

A further object of the invention is to provide dispensing mechanism wherein each of the magazines is progressed in a step-by-step movement with an improved type of coin controlled unit.

Still another object of the invention is to provide improved means controlled by the presence or absence of articles in the magazines for either actuating the magazine progressing mechanism or for returning the coin should the magazine be empty.

Another object of the invention is to provide means in connection with the coin controlled magazine actuator and locking mechanism for rendering said actuator and said locking mechanism inoperative to facilitate reloading of the magazine.

Still a further object of the invention is to provide mechanism of the type set forth above which can be conveniently refrigerated by means of ice or mechanical refrigeration as desired.

These and other objects and advantages of the invention will more fully appear from the following description made in connection with the accompanying drawings, wherein like reference characters refer to the same parts throughout the views, and, in which:

Fig. 1 is a side elevation of the device with portions of the casing removed to show the general interior structure;

Fig. 2 is a front elevation of a portion of the front wall broken away;

Fig. 3 is a fragmentary sectional view taken approximately on the line 3—3 of Fig. 1;

Fig. 4 is a section taken on the line 4—4 of Fig. 3;

Fig. 5 is a section taken on the line 5—5 of Fig. 1;

Fig. 6 is a section taken on the line 6—6 of Fig. 5;

Fig. 7 is a section taken on the line 7—7 of Fig. 5;

Fig. 8 is a section taken approximately on the line 8—8 of Fig. 1; and

Fig. 9 is a side elevation of the coin actuated magazine progressing mechanism shown in the lower part of Fig. 8.

Referring particularly to Figs. 1 and 2 the dispenser includes a frame work comprising corner uprights 10 and connecting cross members 11. The frame is enclosed by suitable insulating panels 12, and the chamber 13 in the lower part of the casing is adapted to receive a suitable refrigerating means such as an ice chamber or a mechanical refrigerating unit. With the refrigerating unit in the bottom of the casing it is preferred that some means be provided to insure proper circulation of air throughout the entire casing.

Mounted for rotation on a vertical shaft 14 are independently movable rotary magazine elements 15 which include a plurality of openings 16 (as best shown in Figs. 3, 5 and 8) adapted to receive containers for products to be dispensed, and beneath each of the rotary magazine elements is disposed a stationary article supporting slide 17 which is at an angle and so disposed relative to the openings 16 in the rotary magazine element that products such as bottled or canned goods will rest upon the slide 17 only throughout a small portion of their bottom circumferences. The details of this mechanism are not fully described herein since they comprise the subject matter of Patent Number 2,111,730, issued to Fred T. Rabens and George P. Wild on March 22, 1938. It is sufficient for the purpose of this invention to understand that there is a movable magazine preferably rotary and a dispensing opening from which a dispensing chute 18 extends to a pocket or series of open pockets 19 which are accessible from the front face of the cabinet. The pockets 19 preferably have some cushioning member 20 in their bottoms to prevent bottled goods from receiving too hard a blow when dropped from the magazine.

At the top of the casing I provide a stationary coin inlet device 21 having a slot 22 to receive the coin and in conjunction with the coin inlet device I provide a suitable slug detector such as is well known in the art of coin controlled apparatus. From the coin inlet device the coin leads to a coin guide 23 whose flanged portion is pivoted at 24 to some stationary portion of the frame or cabinet structure or a suitable bracket

secured to such structure. The coin guide 23 opens downwardly and is adapted to register with the upper ends of stationary coin chutes 25, 26, 27, 28 and 29. These coin chutes in the order of their identification lead respectively to coin controlled magazine actuators for each of the five magazine units shown in Figs. 1 and 2 from top to bottom. Thus, as shown in Fig. 3, the coin guide 23 is in registry with the top of coin chute 26 which is the chute leading to the coin mechanism controlling actuation of the magazine next to the top. The coin guide is actuated by a combined pointer and knob 30 which, of course, is positioned outside of the casing, and an indicator plate 31 carries numerals 1 through 5 to identify the different magazines from top to bottom. The knob or pointer 30 is shown in Fig. 3 to be mounted on a shaft 32 which extends interiorly of the casing and on its inner end carries a notched disk 33. A link 34 connects the disk to the flanged portion of the pivoted coin guide 23. Notches 35 in the edge of the disk 33 are so positioned that the spring tooth 36, as best shown in Fig. 4, will seat in said notches, and they are also positioned in such manner that they will show on the indicator plate 31 the coin chute with which the guide 23 is in registry. The shoulders formed by the elongated cut-out 33a in disk 33 are adapted to engage the bracket 33b supporting shaft 32 and the disk to limit movement of the disk to the distance between the most widely separated notches 35.

Figs. 5 through 9 illustrate the coin controlled mechanism for actuating the rotary magazine elements 15. This mechanism includes a horizontally channeled bar 37 in whose channel is slidably positioned another bar 38. The bar 38 has one end secured to a rod 39 which extends out of the front wall of the casing and has an actuating knob 40 secured thereon. As best shown in Fig. 6, the channeled bar 37 has a slot 41 formed therethrough and the complementary bar 38 has a slot 42 which, when brought in registry with the first mentioned slot, provides a pocket for the reception of a coin to lock the two bars together. The bottom of the pocket is provided by a plate 43 which is smooth to permit sliding of the bar 37 and also of a coin which drops into the slot formed in said bars. As shown in Fig. 6, with a coin connecting the bars 37 and 38 they can be drawn to the left as a unit and when the complementary slots 41 and 42 pass the end of one of the cross frame members 11 which supports the bars, the coin will drop down past the end of said plate 43 onto a plate 44. The mechanism can then be returned to the position shown in Fig. 6 until the two bars have been drawn outwardly to the left and full stroke whereupon the coin can then drop through a slot 45 into a suitable coin receiver. This disconnects the two bars and they are drawn back to their original position as by a spring 46 which is connected to the intermediate bar 38 at one end and to a stationary portion of the frame structure at the other end. The bar 38 will return bar 37 due to the shoulder formed by the rod 39 whose inner end abuts the channeled rod 37.

The entire slidable rod 38 and the left hand end of the rod 37 are shown in Fig. 5. The right hand portions of rods 37 and 38 are shown in Figs. 8 and 9. The lower portion of rod 37 extends to the right farther than the remainder of the rod, as is shown best in Fig. 9, and this extended portion is connected to a bar 47 which extends to the right beyond and in alignment with the extension

of bar 37. On the bar 47 intermediate its ends is mounted a housing 48 from which extends a pivotally mounted dog or pawl 49. The dog 49 is provided with a small hole 50 which is adapted to receive a locking pin 51 which can be pressed into the opening in the dog when the latter is swung on its pivot pin 52 to a position more nearly above the bar 47. Normally the locking pin 51 is pressed upwardly by a small spring on the pivot pin 52, as shown. The edge of the rotatable magazine element 15 is provided with a notched rim 53, and the notches therein are formed with upstanding abutments 54. As the bars 37 and 38 and the element 47 are reciprocated by pulling on the actuated knob 40, the dog 49 will come into contact with one of the shouldered abutments 54 on the rotatable magazine element, and a pull on the knob 40 will move the magazine in a clockwise direction, as viewed in the drawings. However, when loading of the magazine is desired, the dog 49 can be locked out of operative position with respect to the notched rotary magazine element so that it can be turned by hand by a service man to facilitate loading of the several article receiving openings 16 in the magazine element.

A plate 55 is mounted in the corner of the frame, as shown in Fig. 8, and this plate carries a pivoted dog 56 which is positioned to engage the shouldered notches 54 on the rotary magazine element and this dog is provided with a spring lock mechanism 57 similar to the lock pin 51 above described. It will be seen from Fig. 8 that the dogs 49 and 56 are so spaced relative to each other and to the shouldered notches on the rotary magazine element that when the operating lever with its bars 37 and 38 returns to its normal position ready for another operation, the dog 56 will prevent drag of the dog 49 against the rotary magazine element from turning said element in a reverse direction, and because of the particular spacing of these dogs the actuating dog 49 will have slight clearance relative to one of the shouldered notches 54 so that it will snap behind said shoulder in proper position for a succeeding operation. In other words, the distance between the ends of dogs 49 and 56 in the return position of the operating lever and slide bars is less than the distance between succeeding shouldered notches.

The plate 55 has an extension on its left-hand end, as best shown in Fig. 8, and this extension pivotally supports a stop lever 58 whose extending end normally lies in the path of movement of the shoulders 54 adjacent the notches in the rotatable magazine element. Referring to Fig. 9, it will be seen that the pivoted stop lever 58 has a depending cam shaped portion 59 and that the right-hand end of the bar 47 has a cam portion 60 which is so positioned that when the knob 40 is pulled along with the locked bars 37 and 38 the cam on the element 47 will lift the stop lever 58 and permit the next succeeding abutment 54 on the magazine to pass beneath said stop lever. However, since the magazine actuating rods have moved a short distance the cam 59 will ride down the other side of cam 60 and the stop lever 58 will again be in a position to intercept the next abutment 54.

The side of the insulated casing is provided with a door 61, a portion of which is shown in Fig. 8, and extending inwardly from said door is a pin 62 which overlies the stop lever 58 in spaced relation thereto. The pin 62 prevents the stop lever 58 from being turned over beyond a vertical position to such a position where it would be

inoperative and fail to intercept the next abutment 54 on the rotary magazine element.

Provision is made for returning coins to the customer when a magazine is empty and a coin is directed to that particular magazine. Mounted on a portion of the frame of the cabinet is a bracket 63 which pivotally supports a switch lever 64. In Fig. 5 it will be seen that this lever has a curved portion extending out over the rotary magazine element 15 and over the opening 16 adapted to receive articles to be dispensed, and another portion of this lever extends in a substantially opposite direction to a point adjacent the coin chute 26 which appears to be the chute which guides coins to the coin mechanism for the next to the top dispensing unit. A spring 65 normally holds the switch lever 64 in full line position shown in Fig. 5, and the lever has an arm 64a extending therefrom to permit a service man to swing the lever conveniently for any desired reason incident to servicing of the machine. The coin chute 26, as shown in Fig. 6, has a swingable gate element 66 mounted at its lower end, and this gate is provided with a relatively straight side portion 66a and an opposite slanting side portion 66b, this latter portion, in the full line showing in Fig. 6, intercepting a short coin guide slot 67 which is positioned immediately above the aligned coin pocket portions 41 and 42 in the relatively slidable bars 37 and 38. In the full line position in Fig. 6 when a coin is dropped into the coin chute 26 the switch lever 64 will maintain the switch 66 in that position, and when there is no article to be dispensed in the rotary element 15, the switch lever spring 65 maintains said lever against the pivoted switch. In this case the coin will be deflected by the slanting wall 66b of the switch 66, and the coin will fall into a chute 68 which, as shown in Fig. 5, will conduct the coin to one of the pockets 19 which would otherwise receive a dispensed article, and since the pocket 19 is open at the front of the casing the customer can retrieve the money which was returned. However, if an article is in the magazine such as represented by the dotted circle 69, the switch lever 64 will be swung to the dotted position shown in Fig. 5, and it will permit the unbalanced switch 66 to swing to the dotted position shown in Fig. 6, whereupon the coin chute will have free communication with the small chute extension 67, and a coin can pass freely through and into the coin receiving cut-outs 41 and 42 in the magazine actuating bars 37 and 38. This switch mechanism provides for positive actuation of the device when articles are in the magazine and it also insures return of the coin if the magazine is empty.

From the foregoing description it will be seen that I have provided a dispensing mechanism wherein a plurality of articles such as beverage containers of glass, metal or paper can be placed and wherein a plurality of magazines for such articles can be utilized in a single dispensing unit with coin controlled mechanism which can be selectively controlled to operate any one of the magazines for dispensing at the will of the customer. While individual coin controlled magazine actuators are provided for each magazine, it will further be seen that it is necessary to utilize only one selector and a single coin inlet and counterfeit coin detector. Goods can be dispensed from one magazine even though

one or more of the other magazines are empty, and if coins are deposited for the actuation of units controlling the empty magazines those coins will be returned. There is also provided effective coin controlled means for actuating the different sections of the dispensing mechanism and the actuating mechanism is so designed that the operating handle must be moved through its complete cycle of normal operation with one coin before a succeeding operation and before another coin can be properly inserted. Means is provided for insuring return of the actuating mechanism to its proper position and successive operation on a succeeding article to be dispensed, and the various actuating and stop mechanisms can be so controlled that they are rendered inoperative when a service man opens the cabinet to refill the magazines. With these dogs and locks in inoperative position, the service man can swing the several magazines in either direction at will to facilitate filling. The entire mechanism is easily accessible after the service door is opened, but at the same time insulates the interior so that best advantages can be obtained from refrigeration units placed within the casing. It is, of course, contemplated that the several magazine operating knobs shall be properly identified and related with the symbols on the indicator plate 31 at the top front portion of the casing so that a customer will have no difficulty in selecting the particular type of article which he desires.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the various parts without departing from the scope of my invention.

What is claimed is:

1. An article dispenser comprising a substantially horizontal rotary article holding magazine, a coin controlled dispensing unit for said magazine, a coin return chute positioned adjacent said coin controlled unit, a coin inlet chute leading to said coin controlled unit, a switch device on said chute adjacent said coin controlled unit and said coin return chute movable to direct coins into said coin controlled unit or into said return chute, said switch device normally lying in a position for directing coins into said coin controlled unit, and a switch operator comprising a lever pivotally supported between its ends, one end of said lever terminating adjacent said switch device and the other end of said lever lying in the path of movement of articles placed in said article holding magazine and constituting a cam-like wiper arm, and spring means associated with said switch operating lever adapted to positively move said switch to coin return position relative to said coin return chute when said magazine has been emptied of articles to be dispensed, said switch operating lever and switch being automatically re-set by replacement of articles in said magazine and by actuation of said dispenser.

2. Coin return mechanism for a coin controlled dispensing machine having a coin inlet chute with primary and secondary outlets and a pair of movable elements positioned at the primary outlet end of said chute and adapted to receive a coin to interconnect them for unitary movement comprising, a gate adapted to be positioned adjacent the outlets of said chute above said pair of movable elements, said gate being pivotally supported adjacent said second-

ary outlet, a coin deflector on said gate movable with said gate to obstruct the primary outlet of said chute and to deflect coins laterally through said secondary outlet, said gate being supported in unbalanced condition whereby said coin deflector is normally swung out of the way by gravity to permit coins to fall through said primary outlet of said chute to interconnect said pair of movable elements,

a horizontally movable gate actuator held out of contact by articles to be dispensed, and fixed in location relative to said gate, and spring means for swinging said actuator into contact with said gate to bring said deflector into the path of coins falling through said chute when said actuator is out of contact with articles to be dispensed.

FRED T. RABENS.