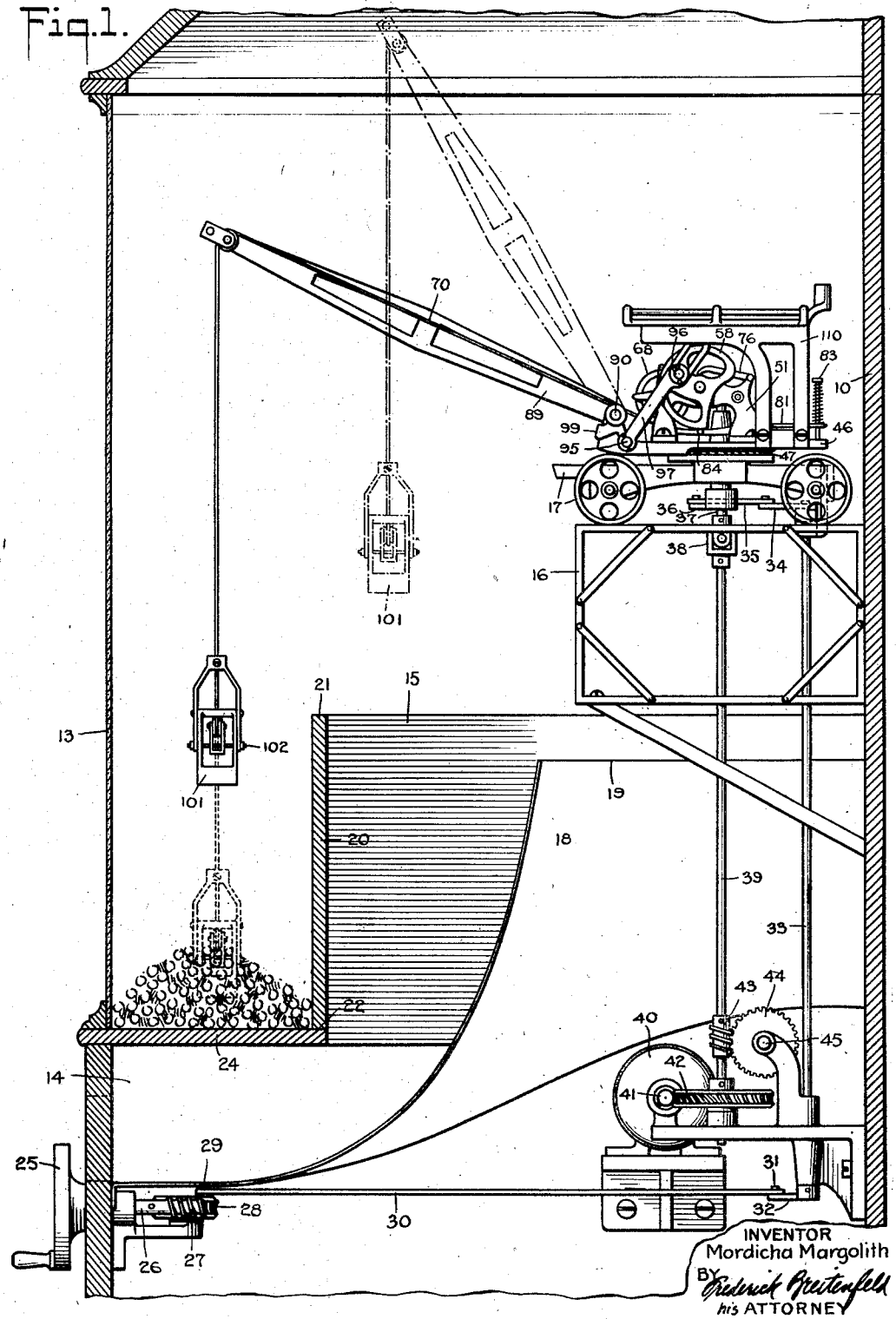
May 24, 1927. 1,630,195

M. MARGOLITH

VENDING MACHINE

Filed Feb. 20, 1926 4 Sheets-Sheet 1

Fig. 1.



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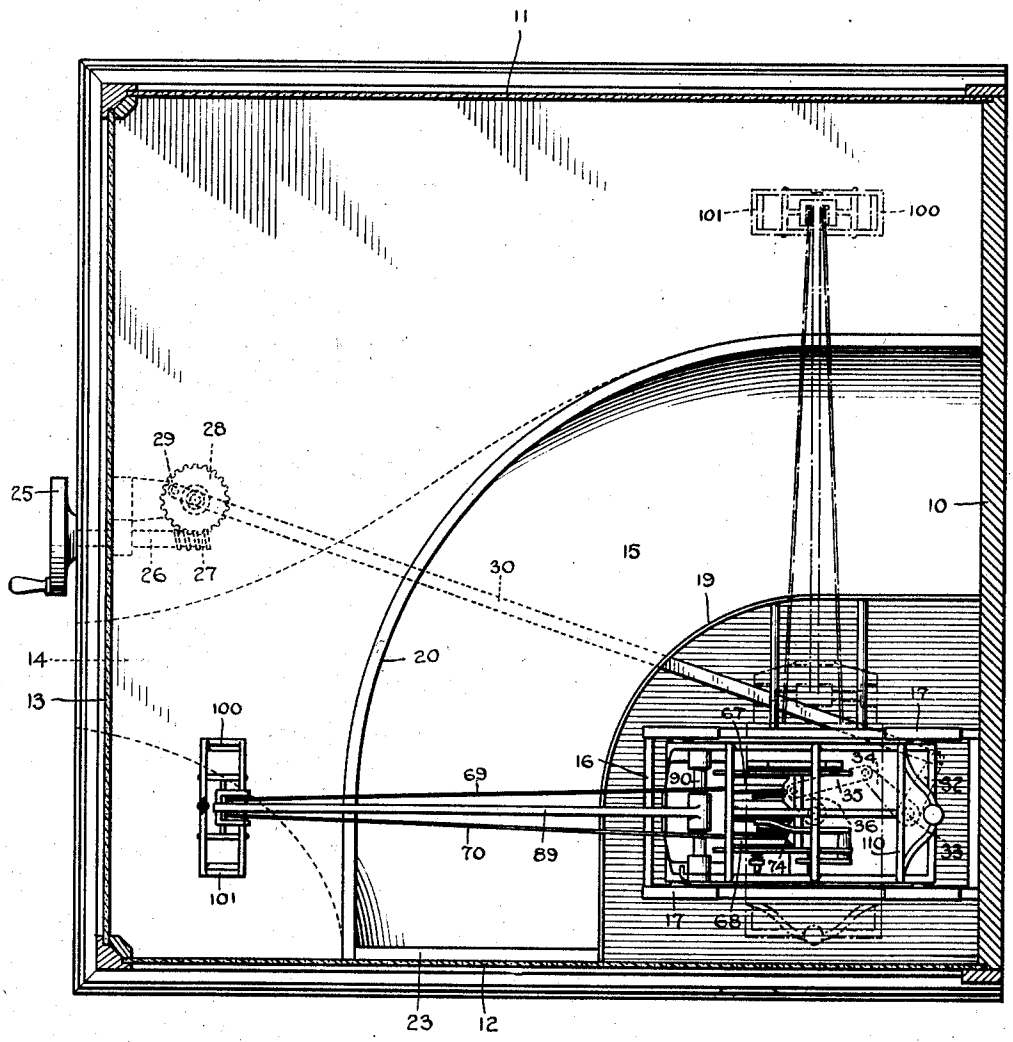
May 24, 1927. 1,630,195

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Filed Feb. 20, 1926 4 Sheets-Sheet 2

Fig. 2.



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Filed Feb. 20, 1926 4 Sheets-Sheet 3

Fig. 3.

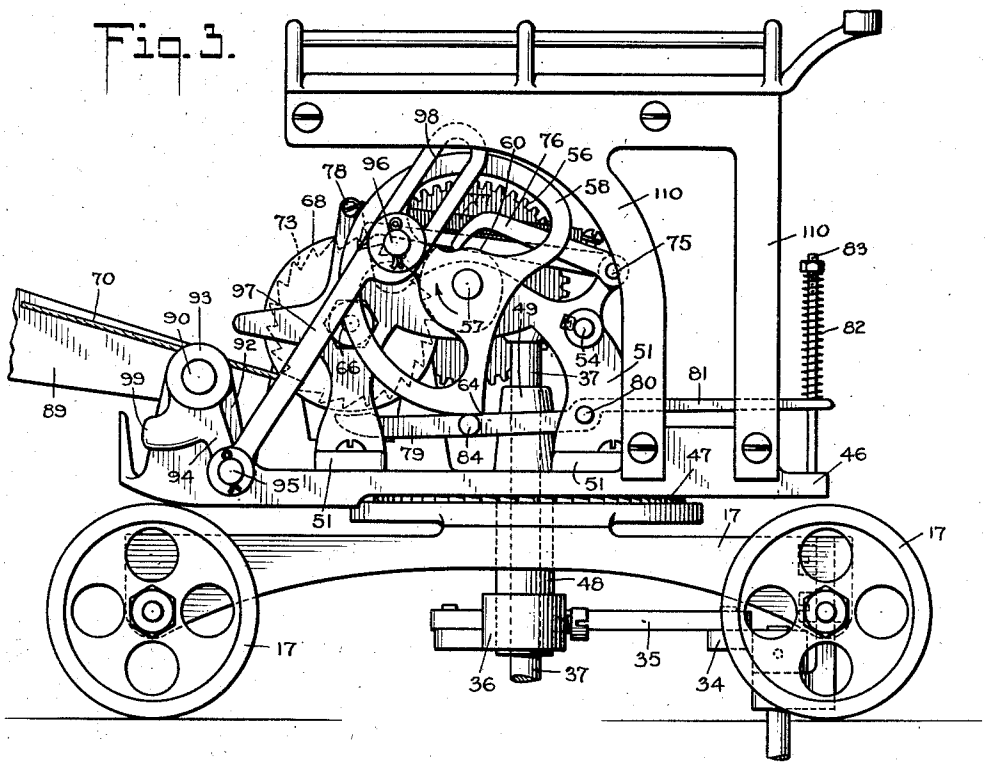
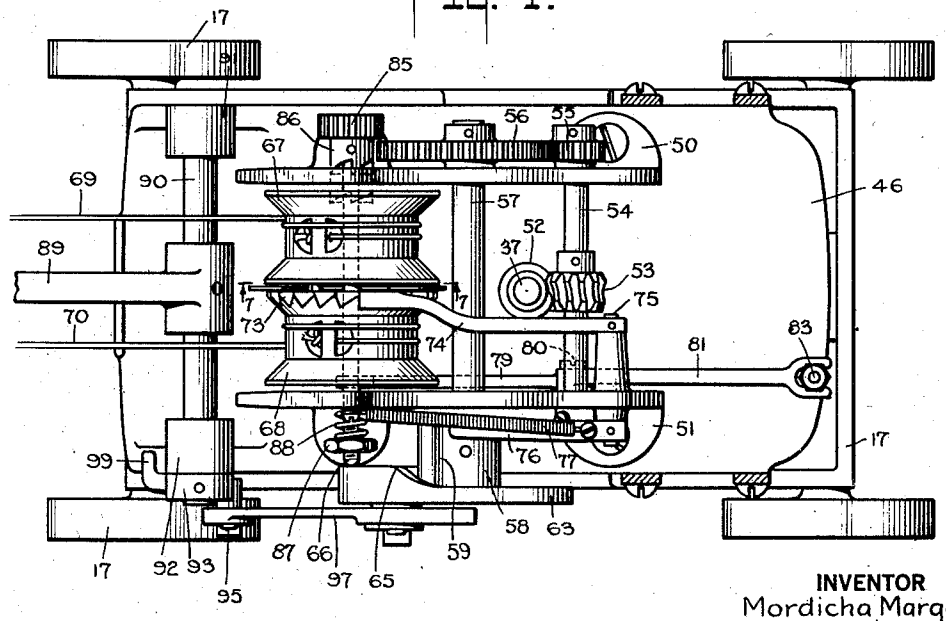


Fig. 4.



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VENDING MACHINE

Filed Feb. 20, 1926 4 Sheets-Sheet 4

Fig. 5.

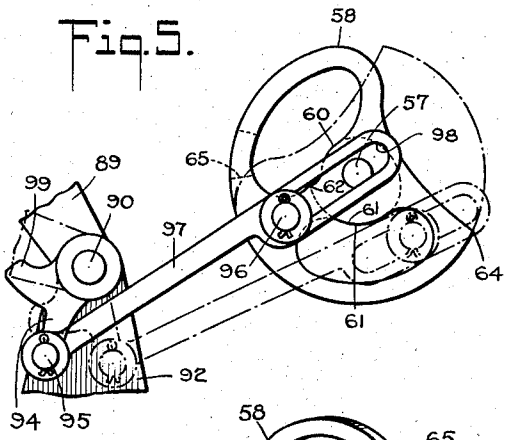


Fig. 11.

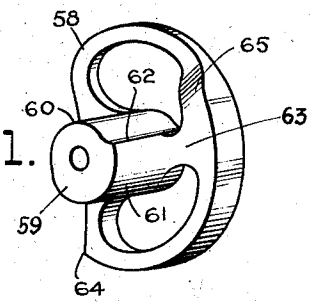


Fig. 6.

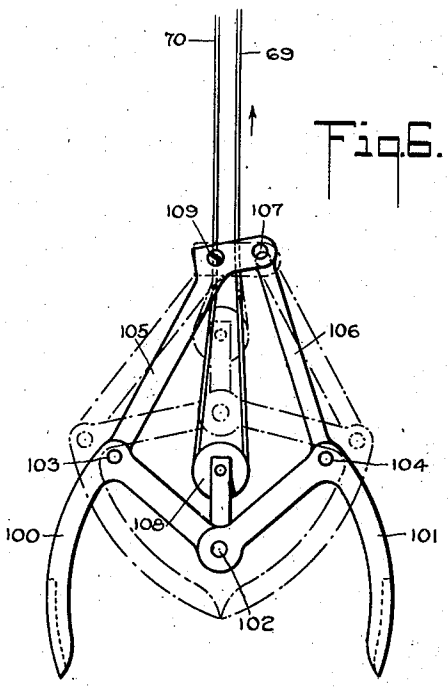


Fig. 7.

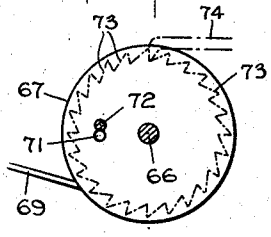


Fig. 8.

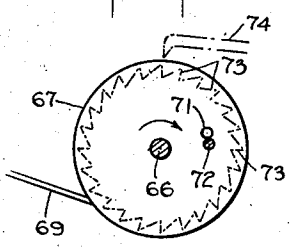


Fig. 9.

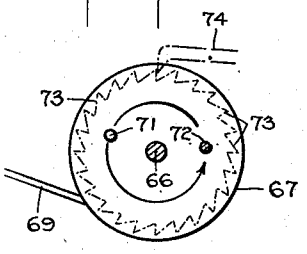
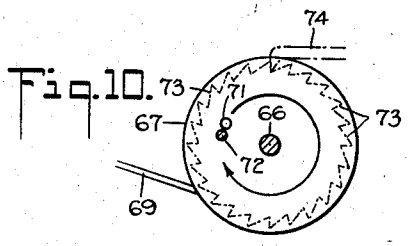


Fig. 10.



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Patented May 24, 1927. 1,630,195

UNITED STATES PATENT OFFICE.

MORDICHA MARGOLITH, OF NEW YORK, N. Y.

VENDING MACHINE.

Application filed February 20, 1926. Serial No. 89,624.

My present invention relates to vending machines or delivering cabinets, and has particular reference to a device which functions in a peculiarly attractive manner so that purchasers will be induced to buy by a natural curiosity to witness the operation.

It is an object of the invention to provide a device of this character which may be made to operate and function either by hand or by driving mechanism such as a motor, the driving or motivating force being in either case applied in an extremely simple manner, as for example, by the rotation of a shaft.

It is an object of the invention to provide a mechanism which will cause the machine to complete its cycle of functions upon continuous rotation of a shaft in one direction.

It is another object of the invention to provide an arrangement whereby a variety of commodities, such as candies, may be displayed in an attractive manner, and whereby it is possible for the purchaser to effect an initial manipulation of the machine so that any desired articles will be delivered to him when the machine is set into operation.

An important object of the invention is to provide a device of this character wherein relatively few operating parts are required so that its cost of manufacture and assembly is substantially reduced to a minimum, and so that the likelihood of defective operation is practically eliminated.

A feature of the invention lies in constructing the device so as to simulate a derrick, a scoop or grasping device being provided to pick up desired articles and thereupon convey them to a delivery area. More particularly, it is a feature of the invention to provide an overhanging arm or supporting beam from the end of which the scoop is adjustably suspended; the scoop is constructed in a manner which will permit of its opening and closing; and mechanism is provided for causing opening and closing of the scoop, dropping and hoisting thereof, and movement of the supporting beam in properly correlated time intervals, so that the movements and maneuvers of a genuine steam driven derrick are substantially reproduced.

In a preferred embodiment, the operating mechanism and its housing are mounted to rotate about a vertical axis whereby the end of the forwardly projecting supporting beam may be made to sweep through an arc and thereby bring the grasping device or scoop over desired articles which are displayed upon a supporting platform underneath the path of such movement. In the preferred embodiment referred to, a delivering chute is provided having an inner opening arranged along an arcuate area adjacent to and of a smaller radius than the supporting display platform. This area constitutes the delivery area, and articles dropped into any portion thereof will travel through the chute to a relatively smaller common delivery opening accessible to the purchaser. I also prefer to provide a manually controllable wheel or handle similarly accessible to the purchaser and operatively associated with the rotatable operating mechanism and housing hereinbefore referred to whereby the purchaser may initially bring the scoop over any desired article or articles.

A preferred embodiment also includes a driving shaft which may be made to rotate continuously by a motor which may be set into operation in any desired manner, as for example by a coin-depositing device. When the shaft is made to rotate, the device operates preferably by dropping the scoop upon the articles, closing the scoop to pick them up and retain them, hoisting the scoop, and pivotally moving the supporting beam so as to bring the scoop to the delivery area, and finally returning the scoop to its original position over the display platform.

A feature of my invention lies in providing a mechanism wherein a single cam member controls by its movement the timing and operation of each of the steps outlined. The provision of a single member of this character, operatively associated with the other elements of the mechanism, serves to simplify the construction of the device to a degree which reduces substantially the number of parts required and the consequent cost of manufacture and assembly.

Briefly, the elements of the device include a grasping device or scoop of the character hereinbefore referred to, a scoop control device, locking means therefor, and beam moving mechanism. These elements will be described separately and more fully hereinafter.

For the attainment of the foregoing objects and such other objects as may hereinafter appear or be pointed out, I have illustrated a preferred embodiment of the

invention in the accompanying drawings, in which—

Fig. 1 is a side elevation of the complete device, showing its mounting within a suitable cabinet or casing, the latter being shown in section; and showing in dotted lines several positions of certain elements;

Fig. 2 is a top view of the complete device, the cabinet being shown in cross-section, and various positions of certain elements being shown by dotted lines;

Fig. 3 is an elevational view of the operating mechanism, shown from the same position as Fig. 1 but upon a greatly enlarged scale;

Fig. 4 is a plan view of the operating mechanism, certain portions of the housing being broken away more clearly to disclose the mechanism;

Fig. 5 is a fragmentary elevational view of the cam member and the beam moving mechanism, shown by itself; this view being taken from substantially the same position as Fig. 3;

Fig. 6 is an enlarged view of the scoop, showing in dotted lines the position assumed thereby when it is closed;

Figs. 7, 8, 9, and 10 are fragmentary cross-sections taken substantially along the line 7—7 of Fig. 4, showing respectively various positions of certain elements of the device during the operation of the machine; and

Fig. 11 is a perspective view of the cam member shown by itself.

Referring now to the drawings, and particularly to Figs. 1 and 2, it will be observed that I have shown a cabinet or casing which may be substantially rectangular in horizontal cross-section, and having preferably a back wall 10, and side and front walls 11, 12, and 13, the latter walls being preferably constituted of glass or other transparent material so that the complete device may be observed during its operation from three sides of the cabinet. A delivery chute is provided having an external opening 14, preferably in the front wall 13 and adjacent the lower portion of the cabinet, and having an inner opening 15 which is substantially arcuate in shape, preferably extending from the rear wall 10 to the side wall 12. The device itself is preferably mounted by suitably attaching it to the rear wall 10, and is arranged in one corner of the cabinet so that rotation thereof about a vertical axis will cause the overhanging beam to sweep through an arcuate area concentric with that of the opening 15.

More particularly, I have shown in the illustrated embodiment, a structural support 16 suitably attached to the rear wall 10 in the corner of the cabinet which is in the lower right-hand corner of Fig. 2. I prefer to make the top portion of the structure 16 of a casting 17 which is of a shape to simulate the chassis and wheels of a full-sized derrick. The shorter wall of the delivery chute is constituted of a suitable configured partition 18 whose upper edge 19 is substantially horizontal and disposed along an arc whose center is at the vertical axis of rotation of the operating mechanism. The longer or outer wall of the delivery chute is constituted of a substantially cylindrical partition 20 whose upper and lower walls 21 and 22 are substantially horizontal and lie along arcs concentric with but of a larger radius than the arc 19. Preferably, the upper edge 21 is higher than the upper edge 19, and preferably, the end of the chute which is abutting the side wall 12 is closed off from view by a wall 23. The supporting platform for the articles to be displayed is provided by a flooring 24 which is bounded by the lower edge 22 of the wall 20, the side wall 11 and the front wall 13, and portions of the rear wall 10 and the side wall 12. Preferably, the walls of the cabinet lying below the flooring 24 are of wood or other material which is not transparent, it being understood that by thus constructing the cabinet, only the articles to be sold will be visible, and only that portion of the device whose operation will be attractive will be capable of observation by the purchaser. I do not however mean to limit myself to any of the structural features hereinbefore described except in so far as it may be necessary in view of prior art of which I am not at present aware.

A hand wheel 25 is preferably provided adjacent to the opening 14 of the delivery chute, and suitable mechanism is provided for causing rotation of the device about its vertical axis by movement of the wheel 25. Briefly, I have illustratively shown a shaft 26 carrying a worm 27, the latter engaging with a worm wheel 28 constituting a crank. More specifically, a crank pin 29 has a connecting rod 30 mounted thereon, the other end of the connecting rod being connected to a crank pin 31 mounted upon the end of a crank lever 32. The latter is suitably mounted to cause rotation of a vertical shaft 33 at whose upper end a similar crank lever 34 is provided. A connecting rod 35 transmits the motion of the lever 34 to a lever 36 whose movement moves the entire device and housing about a vertical axis.

The lever 36 is preferably constructed to permit passage therethrough of a vertical rotating driving shaft 37 which transmits to the operating mechanism the driving power therefor. In the embodiment shown, I have shown the shaft 37 connected by a universal joint 38 to a vertical shaft 39 which is driven by a motor 40 through the instrumentality and cooperation of a worm 41, and a worm wheel 42. Reference to Fig.

1 will show clearly that the motor and the allied incidental mechanism is mounted within the lower portion of the cabinet, and preferably underneath the wall 18. Preferably, I provide an automatic stop device for shutting off the motor after the cycle of operation of the delivering device has been completed. The particular stop device is optional, but I have shown a worm 43 carried by the shaft 39 and engaging a worm wheel 44 driving a shaft 45 which may be led back to the motor to operate a switch or similar device (not shown) at a specified and predetermined time depending upon the gearing proportions utilized. I do not mean to limit myself to the use of a motor, nor to any particular stop mechanism, but I have illustrated the foregoing mechanism merely to point out illustratively how the device as a whole may be operated if desired.

Having now described the supporting cabinet, the supporting platform for the articles to be displayed and delivered, the delivery chute, the mechanism for initially manipulating the entire device, and the driving mechanism, I shall now proceed to describe the operating device itself, it being understood that the only portion of the mechanism hereinbefore described which is essential to the operation of the device, is the driving shaft 37 projecting upwardly through the base 17 into the operating mechanism itself.

Referring to Figs. 3 and 4, it will be observed that I have shown a platform 46 mounted to move with the crank member 36, and supported upon the frame-work 17 by a plurality of ball bearings 47 which permit rotation of the platform 46 with respect to the frame-work 17. The crank 36, as has been described, is provided with sleeve portions 48 and 49 through which the shaft 37 may extend, the shaft 37 thus constituting a pivot about which the platform 46 may rotate. Mounted upon the platform 46 are two juxtaposed standards 50 and 51 between which and in association with which the operating mechanism is mounted. At its upper end, the shaft 37 is provided with a worm 52 which engages with a worm wheel 53 carried substantially midway of a horizontal shaft 54 extending between the standards 50 and 51 and journaled therein. The shaft 54 extends through the standard 50 and carries at its outer end a small pinion 55. The latter meshes with a relatively larger gear 56 carried similarly at the outer end of a shaft 57 which is similarly mounted between the standards 50 and 51 and which carries at its opposite end the cam member 58. It will thus be seen that the cam member 58 and the gear 56 will be constantly rotating as long as the driving shaft 37 is in operation. In the construction illustrated, the cam has been designed to rotate in a clock-wise direction (Fig. 3), as indicated by the arrow.

Before proceeding to describe the construction of the cam member, I shall describe the scoop control mechanism whose operations the cam member is designed to control.

Freely mounted upon a shaft 66 which is supported between the standards 50 and 51 forwardly of the shaft 57, I provide two similarly constructed drums or spools 67 and 68. To each thereof is attached the end of a cable which extends outwardly along the overhanging beam and thence down to the scoop. Without at this time describing the scoop in great detail, it might be explained that the scoop is so constructed that when both cables are released or tightened simultaneously, the scoop will drop or be hoisted. On the other hand, if the cables are moved relatively of each other, that is, if one is held stationary, while the other is tightened or released, then the scoop will be made to close or open. It thus becomes the functions of the drums 67 and 68 to accomplish the simultaneous and relative movements of the cables at the proper intervals of time.

Referring to Fig. 4, it will be seen that I have shown a cable 69 wound about the drum 67, and a cable 70 wound about the drum 68, these cables being so wound that counter clock-wise movement of the drums will wind the cables upon the drums.

The drums are provided with means for causing movement of one to move the other in the same direction, at the same time permitting a relative movement of the drums of approximately 360°. This will be clearly understood when it is pointed out that on their inner faces the drums are provided with pins which are adapted to engage one another.

Referring to Figs. 7–10, I have shown a pin 71 carried by the drum 67, and a pin 72 carried by the drum 68. The drum 68 is provided with a plurality of peripheral teeth 73 which are technically not visible in Figs. 7–10, but are indicated by dot and dash lines for the sake of clearly explaining the relative movements of the two drums.

A pawl 74 is adapted to engage with the teeth 73 at predetermined intervals, during which intervals movement of the drum 68 in a clockwise direction will be prevented. Referring to Fig. 7, it will be observed that I have shown the pawl 74 in engagement with the teeth 73. It will also be observed that if clockwise movement be termed "forward" movement, then the pin 71 of drum 67 lies behind pin 72 of drum 68, and inasmuch as the drum 68 is restrained from moving in a clockwise direction, the drum 67 will be similarly restrained. It is quite ob-

vious that when the scoop is in a suspended position, its weight pulls on the cables 69 and 70 in a manner which tends to move both drums in a clockwise direction. Consequently the scoop may be prevented from falling and may be held suspended by merely causing engagement of the pawl 74 with the teeth 73. Should the pawl 74 be suddenly released, as indicated in Fig. 8, both drums will be free to move simultaneously in a clockwise direction, and exact simultaneous movement may be assured by braking drum 68, so that the pin 71 will push and remain in contact with the pin 72. This movement will take place until the scoop has unwound both of the cables 69 and 70 from the drums 67 and 68. If the drum 67 were now positively to be driven to move in a counter clock-wise direction, as indicated in Fig. 9, it would not carry the drum 68 with it until after a relatively free movement of substantially 360° had been effected. Thereafter, both drums would be constrained to move together in a counter clock-wise direction.

It will thus be seen that if both drums move in a clock-wise direction, the bucket will be caused to drop to its fullest extent; if the drum 67 thereafter be made to rotate in a counter clock-wise direction, relative movement of the drums 67 and 68 will take place for a short period of time, and during this time the cable 69 will be drawn tight and wound up while the cable 70 remains unaffected. During this period of time, the bucket will be caused to close. As soon as the pin 71 again engages with the pin 72, this time from the opposite side, both drums will be caused to move in a counter clock-wise direction, and consequently both cables will be wound up simultaneously, thereby hoisting the bucket. If, after the bucket is hoisted, the drum 68 be prevented from retractive movement in a clock-wise direction, and the motivating power be released from the drum 67, the weight of the bucket will cause the drum 67 to return through a range of approximately 360° (Fig. 10) until the relative positions of Fig. 7 are resumed. During this last relative movement of the drums, the bucket or scoop will open.

I shall now describe how I effect these relative movements of the drums 67 and 68. The cam member 58 (Fig. 11) comprises a hub portion 59 whose outer surface is concentric with the axis of the shaft 57 throughout two diametrically opposed portions, one of which has a smaller radius than the other, the hub surface between these portions constituting shoulders or cams whose functions will be presently described. Reference to Fig. 5 and Fig. 11 will make the construction of the hub portion 59 clear, the portion of less radius being denoted by the reference numeral 60, the portion of greater radius by the reference numeral 61, and one of the shoulders between these portions being indicated by the reference numeral 62. Carried by the hub portion 59 is a wheel portion 63 whose outer periphery is circular and concentric with the shaft 57, but which extends through only approximately 225°, whereby a relatively sharp corner 64 is provided at which point the outer periphery decreases in radius very suddenly. The function of the outer periphery just referred to will be presently described.

A third feature of the cam member 58 lies in the thickening of the periphery thereof from the point 64 to a point slightly over 90° therefrom, the last named point being clearly shown in Fig. 4 by the reference numeral 65, at which point the thickness of the periphery decreases rather suddenly to a thickness substantially half of the enlarged portion. The functions of this thickened portion will be presently described.

Engaging with the teeth 73 is a pawl 74 attached at its rear end to a spindle or pivot 75 which is mounted upon the standard 51. The opposite or outer end of the pivot 75 carries an arm 76 whose forward end is constrained to rest upon the hub portion 59 of the cam member. For this purpose, I provide preferably a spring 77 tensioned between the rear upper portion of the arm 76 and the upper end 78 of the forward portion of the standard 51. The surfaces 60, 62, and 61 of the hub portion 59 are so proportioned and arranged that at the proper intervals of time the arm 76 will be raised against the action of the spring 77, thereby lifting the pawl 74 from engagement with the teeth 73.

Adapted to contact with the untoothed periphery of the drum 68 is a brake shoe 79 pivotally mounted in the lower portion of the standard 51, as at the point 80. The rear or opposite end 81 of the brake shoe 79 is constantly urged downwardly by a compression spring 82 mounted upon a pin 83 carried by the platform 46. Thus, the normal tendency of the brake shoe 79 is to contact with and brake the drum 68. However, between the pivot 80 and the forward end of the brake shoe 79, I provide a pin 84 which is engageable by the outer periphery of the wheel portion 63 of the cam member 58. Throughout the largest portion of the rotation of the cam member 58, and more specifically, throughout a movement of substantially 225°, the periphery 63 engages with the pin 84 to hold the brake shoe 79 away from the drum 68. When the relatively sharp point 64 passes the pin 84, the spring 82 functions to force the forward end of the brake shoe 79 into contact with the drum 68. The point 64 is so positioned with respect to the cam surfaces of the hub 59

that the brake becomes operative at the same instant of time that the pawl 74 is released from the teeth 73. The purpose of the brake is to prevent too rapid fall of the scoop when the pawl 74 is released, and to assure exact simultaneous unwinding of the drums.

Before describing further, it will be obvious at this point that if the normal position of the bucket is a suspended one with the bucket open, the sudden release of the pawl 74, and the engagement of the brake 79 will cause the bucket to drop, not too suddenly, to the fullest extent possible in view of the lengths of the cables 69 and 70. The relative positions of the drums and the pawl 74 when the scoop is in normal inoperative position, are clearly shown in Fig. 7. The relative positions of the drums and the pawl 74, while the scoop is dropping, are clearly shown in Fig. 8.

For the purpose of now causing the rewinding of the drums, I provide a pinion 85 at the outer end of the shaft 66, and carried by the pinion is a clutch 86 adapted to be engaged and disengaged from a complementary clutch portion carried by the drum 67. The forward end of the shaft 66 is provided with a nut 87 between which and the standard 51 there is arranged a compression spring 88 normally tending to push the shaft 66 forwardly to a position wherein the gear 85 will mesh with the gear 86. However, the shaft 66 is normally held inwardly against the pressure of the spring 88 by the thickened portion of the cam member 58, so that the pinion 85 does not normally mesh with the gear 86. This is clearly shown in Fig. 4, and it will be observed that the disengagement of the pinion 85 from the gear 56 has just taken place as the point 65 moved past the end of the shaft 66. When the point 64 passes the end of the shaft 66, the latter is suddenly released, and the spring 88 moves the shaft 66 so that a sudden engagement occurs not only between the gear 56 and the pinion 85 but between the clutch 86 and the drum 67. The thickened portion of the wheel portion 63 is so designed and arranged that the last mentioned engagement will occur immediately after the bucket has dropped to its fullest extent.

It will now be obvious that when the pinion 85 is made to mesh with the gear 56, after the bucket has dropped upon the articles, the rotation of the pinion 85 will start to rotate the drum 67 in a counter clock-wise direction. During the rotation of the drum through approximately 360° (see Fig. 9), the drum 68 will remain stationary, and consequently this initial relative rotation of the drums 67 and 68 will cause the scoop or bucket to close, thereby picking up the articles upon which it has dropped. When the drum 67 has rotated through approximately 360°, the pin 71 will engage with the pin 72, and thereafter both drums will be made to rotate in a counter clock-wise direction so that the scoop will be hoisted, thereby carrying the articles upwards. During this hoisting period, the pawl 74 will be caused to drop upon the teeth 73, but it will be understood that this will not interfere with the counter clock-wise movement of the drums. When the proper time for opening the scoop has arrived, the point 65 will force the shaft 66 inwardly against the tension of the spring 88, thereby disengaging the clutch 86 and releasing the driving force of the gear 56 from the drum 67. When this occurs, the tendency of both drums will be to rotate clock-wise under the influence of the weight of the scoop and the articles therein. The drum 68 will be restrained from such retractive movement, but the drum 67 will not be restrained until it has again turned through approximately 360° (see Fig. 10). During this last-mentioned rotation of the drum 67, the scoop will be caused to open and thereby release the articles. It will be obvious that the drums will then have resumed the relative positions which they initially held (see Fig. 7).

Toward the end of the upward movement of the closed bucket, the over-hanging beam will be caused to rise so that when the bucket is opened, the articles will drop from the bucket into the delivery chute. After this has occurred, the beam will lower to its original position, and the cycle of operations will then have been completed.

Reference to Figs. 3 and 4 will show that I have provided an over-hanging beam or arm 89 which is rigidly mounted upon a shaft 90, the shaft 90 being journaled in bearings 91 and 92 carried at the forward end of the carriage 46. The end of the shaft 90 is made to project through the bearings 92, and carries at its end a collar 93 which is an integral part of a crank arm 94 provided with a crank pin 95 at its end. The crank pin 95 is operatively connected with a similar crank pin 96 carried by the cam member 58. In the embodiment shown, I have provided a connecting rod 97 having a slot 98 engaging with the crank pin 96. The purpose of this slot will be obvious, it being desirable to have the crank arm 94 moved only during certain portions of the rotation of the cam member 58. The unslotted portion of the connecting rod 97 is made of such a length that the extreme upward movement of the beam 89 will bring the scoop over the delivery area. To limit the lowering movement of the beam 89, I provide the collar 93 with a stop 99 adapted to encounter the bearing 92. After the stop 99 has encountered the bearing 92, subsequent rotation of the cam member 58 will not affect the beam, it being understood that the pin 96 will slide freely within the slot

98. The pin 96 is carried by the cam member 58 in such a position with respect to the other cam surfaces that the movement of the beam will be effected at the proper time interval hereinbefore described. The engagement between the pin 96 and the connecting rod 97 is clearly illustrated in Fig. 5 wherein the parts are shown in the relative positions they assume when the beam is at its highest point, and wherein the relative positions when the beam is at its lowest point are shown in dotted lines.

The scoop may be of any desired construction, just so long as it is openable and closable by relative movements of the cables. In Fig. 6, I have illustrated a preferred type of scoop having two angular jaws 100 and 101, pivoted together at their ends 102. At the angles 103 and 104 of the jaws, are pivotally connected rods 105 and 106 extending upwardly and pivoted to each other at 107. A pulley 108 is preferably carried above the pivot 102. The cables 69 and 70 extend downwardly, forming a loop which engages around the pulley 108, and one of the cables, for example, the cable 70, is made fast and immovable with respect to the arm 105 by means of a set screw 109. When both cables move together, the bucket will be raised or lowered. When the cable 70 is held stationary and the cable 69 is moved upwardly or downwardly, the bucket will be made to close or open because of the displacement of the pivot point 102 as indicated by dotted lines.

For the sake of improving and completing the appearance of the device, I provide a frame-work or roof 110 for the mechanism, but it will be obvious that no utilitarian purpose is accomplished thereby.

In operation, the purchaser manipulates the handle 25 until he has brought the scoop in an arcuate path above the particular articles which he desires. He thereupon sets the mechanism into operation, as for example, by starting the motor 40 by means of a switch or coin device, and thereupon the rotation of the shaft 37 will cause the device to go through its various operations as hereinbefore described, the operations being entirely automatic and properly timed with respect to each other until the return of the beam and bucket to their original positions which are indicated in full lines in Fig. 1. The operations of the machine during the single cycle referred to will have grasped the articles desired, carried them to the delivery area, and thereupon dropped them into the chute so that they become accessible to the purchaser.

It will be obvious that many changes in the details herein described and illustrated for the purpose of explaining the nature of my invention may be made by those skilled in the art without departing from the spirit and scope of the invention as expressed in the appended claims. It is therefore intended that these claims be interpreted as illustrative and not in a limiting sense.

I claim:—

1. In a vending machine having a supporting platform for articles of merchandise, the combination of delivering mechanism, a source of driving energy, means operable by said source for causing the delivering mechanism to function, and independently operable means for initially moving the delivering mechanism into desired positional relation with respect to said articles.

2. In a vending machine having a supporting platform for articles of merchandise, the combination of delivering mechanism, a source of driving energy, means operable by said source for causing the delivering mechanism to function, and independently operable means for initially moving the delivering mechanism into desired positional relation with respect to said articles, said last named means including a manually operable element extending out of the machine.

3. In a vending machine having a supporting platform for articles of merchandise, the combination of delivering mechanism, a source of driving energy, means operable by said source for causing the delivering mechanism to function, and independently operable means for initially moving the delivering mechanism into desired positional relation with respect to said articles, said last named means comprising a manually operable crank arranged exteriorly of the machine and operatively connected with the delivering mechanism in a manner whereby rotation of the crank will cause movement of the delivering mechanism.

4. In a vending machine having a supporting platform for articles of merchandise, the combination of pivotally mounted delivering mechanism, a source of driving energy, means operable by said source for causing the delivering mechanism to function, and independently operable means for initially moving the delivering mechanism into desired positional relation with respect to said articles, said last named means comprising a manually operable crank arranged exteriorly of the machine and operatively connected with the delivering mechanism in a manner whereby rotation of the crank will cause pivotal movement of the delivering mechanism.

5. In a vending machine, an arcuate supporting platform for articles of merchandise, delivering mechanism pivotally mounted within said arc, a source of driving energy, means operable by said source for causing the delivering mechanism to function, and independently operable means for initially pivoting the delivering mecha-

nism into desired positional relation with respect to said articles, said last named means comprising a pivotal support for said delivering mechanism, and a manually controllable element arranged in an accessible position for pivoting said support.

6. In a vending machine having a supporting platform for articles of merchandise, the combination of a pivotally mounted delivering mechanism, a source of driving energy including a shaft arranged in coincidence with said pivot axis, means operable by said source for causing the delivering mechanism to function, and independently operable means for initially pivoting the delivering mechanism into desired positional relation with respect to said articles.

7. In a vending machine having a supporting platform for articles of merchandise, the combination of a pivotally mounted delivering mechanism, a source of driving energy including a shaft arranged in coincidence with said pivot axis, means operable by said source for causing the delivering mechanism to function, and independently operable means for initially pivoting the delivering mechanism into desired positional relation with respect to said articles, said last named means comprising a pivotal support for said delivering mechanism, said support being arranged and constructed to permit association therewith of said shaft, and a manually controllable element arranged in an accessible manner and operatively associated with said support for pivoting the latter.

8. In a vending machine having a delivery area and a supporting platform for articles of merchandise, delivering mechanism comprising a source of driving energy, and means operable by said source for causing said mechanism to grasp said articles and carry them into relatively close position with respect to said delivery area.

9. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a hoistable grasping device, a source of driving energy, and means operable by said source for causing said device to grasp and lift certain articles of merchandise.

10. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a grasping device normally positioned above said articles, a source of driving energy, and means operable by said source for causing said device to fall upon, grasp, and lift certain of said articles.

11. In a vending machine having a supporting platform for articles of merchandise, and a delivery area, delivering mechanism comprising a grasping device normally positioned above said articles, a source of driving energy, and means operable by said source for causing said device to fall upon, grasp, and lift certain of said articles and thereupon transport them to the delivery area.

12. In a vending machine having a delivery area and a supporting platform for articles of merchandise, delivering mechanism comprising a grasping device, a source of driving energy, and means operable by said source for causing said device to grasp certain articles, transport them to the delivery area and there release said articles.

13. In a vending machine having a delivery area and a supporting platform for articles of merchandise, delivering mechanism comprising a source of driving energy, and means operable by said source for causing said mechanism to grasp certain articles, transport them to the delivery area, release them, and thereupon return to its original position.

14. In a vending machine having a delivery area and a supporting platform for articles of merchandise, delivering mechanism comprising a movable beam, a grasping device carried thereby, a continuously rotating driving shaft, and means driven by said shaft for causing the device to grasp certain articles, for moving said beam to convey the device to the delivery area, and for thereupon causing the device to release said articles.

15. In a vending machine having a delivery area and a supporting platform for articles of merchandise, delivering mechanism comprising a horizontally pivoted beam, a grasping device suspended therefrom, a source of driving energy, means operable by said source for causing said device to grasp certain articles and for pivotally moving said beam to transport the device to the delivery area, and independently operable means for initially moving said beam axially of the pivot, whereby the delivering mechanism will function with respect to selected articles over which the device has been positioned.

16. In a vending machine having a delivery area and a supporting platform for articles of merchandise, delivering mechanism comprising a horizontally pivoted beam, a grasping device suspended therefrom and positioned above said articles, independently operable manually controlled means for initially moving said beam axially of the pivot to position said device over desired articles, a source of driving energy comprising a continuously rotating driving shaft, and means driven by said shaft for causing the device to grasp said selected articles, for pivotally moving said beam to transport said device to the delivery area, and for thereupon causing said device to release said articles.

17. In a vending machine having a delivery area and a supporting platform for ar-

ticles of merchandise, delivering mechanism comprising a horizontally pivoted beam, a grasping device adjustably suspended therefrom so as to be disposed above said articles, a source of driving energy comprising a continuously rotating driving shaft and means driven by said shaft for causing the device to drop upon, grasp, and lift certain articles beneath it, for pivotally moving said beam to convey the device in a vertical plane to a position above said delivery area, and for thereupon causing the device to release said articles.

18. In a vending machine having a supporting platform for articles of merchandise, the combination of delivering mechanism comprising a hoistable and openable grasping device, a source of driving energy, and means operable by said source for causing said device to function; and manually controlled means independent of said driving source for initially moving said grasping device so as to position it over desired articles of merchandise.

19. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a hoistable and openable grasping device, a source of driving energy, and means operable by said source for causing said device to drop upon certain articles, grasp them, lift and then release them.

20. In a vending machine, the combination of an arcuate supporting platform for a display of loose articles of merchandise, a delivery chute having an arcuate inner opening of less radius than and substantially concentric with said platform, a source of driving energy and delivering mechanism operable by said source for grasping desired articles and dropping them into said chute.

21. In a vending machine, the combination of an arcuate supporting platform for a display of loose articles of merchandise, a delivery chute having an arcuate inner opening of less radius than and substantially concentric with said platform, a source of driving energy and delivering mechanism operable by said source for grasping desired articles and dropping them into said chute, said delivering mechanism comprising a grasping device so arranged and constructed as to be lowerable, hoistable, and movable in a radial direction with respect to said arc.

22. In a vending machine, the combination of an arcuate supporting platform for a display of loose articles of merchandise, a delivery chute having an arcuate inner opening of less radius than and substantially concentric with said platform, a source of driving energy and delivering mechanism operable by said source for grasping desired articles and dropping them into said chute, said delivering mechanism comprising a grasping device and a horizontally pivoted radially disposed beam for supporting said device from one end thereof, whereby pivoting of the beam will move said device between positions over said platform and over said chute.

23. In a vending machine, the combination of an arcuate supporting platform for articles of merchandise, a delivery chute having an arcuate inner opening of less radius than and substantially concentric with said platform, delivering mechanism comprising a grasping device and a movable supporting beam for said device, a source of driving energy, and means operable by said source for causing said device to grasp certain articles and for moving said beam to transport said device in a radial direction to said chute.

24. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a hoistable grasping scoop, a driving shaft, scoop-lifting means, locking means cooperating with the latter for normally holding the scoop in suspended position over said articles, a cam member driven by the shaft, and means operable by said cam member for releasing said locking means whereby the scoop will drop upon said articles at a predetermined time; said cam member comprising a hub portion having a cam surface, and said locking means comprising a cam-follower, and a spring constraining the follower to engage the hub portion.

25. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a hoistable grasping scoop, a driving shaft, scoop-lifting means, a clutch operatively interposed between said shaft and said lifting means, a cam member driven by the shaft, and means operable by said cam member for causing engagement and disengagement of said clutch, whereby the lifting means and hence the scoop will be caused to function in a predetermined manner.

26. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a hoistable grasping scoop, a driving shaft, scoop-lifting means, a clutch operatively interposed between said shaft and said lifting means, a cam member driven by the shaft, means operable by said cam member for causing engagement and disengagement of said clutch, and means associated with said scoop-lifting means for closing and opening said scoop respectively when the clutch is engaged and disengaged, whereby said scoop will be caused to function in a predetermined manner to grasp and lift certain articles.

27. In a vending machine having a supporting platform for articles of merchan-

dise, delivering mechanism comprising a hoistable grasping scoop, a driving shaft, scoop-lifting means, a clutch operatively interposed between said shaft and said lifting means, a cam member driven by the shaft, and means operable by said cam member for causing engagement and disengagement of said clutch, whereby the lifting means and hence the scoop will be caused to function in a predetermined manner, said last named means comprising an axially shiftable spindle associated with the clutch and engageable by the cam member, and a spring constraining the spindle to engage and follow the cam member.

28. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a hoistable grasping scoop, a driving shaft, scoop-lifting means, locking means cooperating with the latter for normally holding the scoop in suspended position over said articles, a clutch operatively interposed between said shaft and said lifting means, a cam member driven by the shaft, means operable by the cam member for causing engagement or release of the locking means, and means operable by the cam member for causing engagement and disengagement of said clutch, whereby the lifting means and hence the scoop will be caused to function in a predetermined manner to fall upon and lift certain articles.

29. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a hoistable grasping scoop, a driving shaft, scoop-lifting means, locking means cooperating with the lifting means for normally holding the scoop in suspended position over certain articles, a clutch operatively interposed between said shaft and said lifting means, a cam member driven by the shaft, means operable by the cam member for releasing the locking means whereby the scoop will drop upon said articles, and means operable by the cam member for normally holding said clutch out of engagement and for causing engagement thereof after the scoop has dropped, whereby the latter will predeterminedly drop upon and lift said articles.

30. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a hoistable grasping scoop, a driving shaft, scoop-lifting means, locking means cooperating with the lifting means for normally holding the scoop in suspended position over said articles, a clutch operatively interposed between said shaft and said lifting means, a cam member driven by the shaft, means operable by the cam member for releasing the locking means whereby the scoop will drop upon said articles, and means operable by the cam member for normally holding said clutch out of engagement and for causing engagement thereof after the scoop has dropped, said scoop-lifting means comprising rotatable drums one of which is provided with teeth, and said locking means comprising a pawl engageable with said teeth.

31. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a hoistable openable grasping scoop, a driving shaft, scoop-lifting means, locking means cooperating with the lifting means for normally holding the scoop in suspended opened position over said articles, a clutch operatively interposed between said shaft and said lifting means, a cam member driven by the shaft, means operable by the cam member for releasing the locking means whereby the scoop will drop upon said articles, means operable by the cam member for normally holding said clutch out of engagement and for causing engagement thereof after the scoop has dropped, and means associated with said scoop-lifting means for closing and opening said scoop respectively when the clutch is engaged and disengaged, whereby the scoop will predeterminedly fall upon the articles, grasp them, lift them, and subsequently release them.

32. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a hoistable grasping scoop, a driving shaft, scoop-lifting means, a cam member driven by said shaft, and means controllable by said cam member for normally holding the scoop suspended over said articles, for dropping the scoop thereupon, and for thereupon rendering the lifting means operative.

33. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a hoistable grasping scoop, a driving shaft, scoop-lifting means, locking means cooperating with the latter for holding the scoop normally suspended over said articles, a cam member driven by the shaft, and means controllable by the cam member for normally holding the lifting means inoperative and the locking means operative, for releasing the latter to drop the scoop upon the articles, and for thereupon rendering the lifting means operative to hoist the scoop.

34. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a hoistable and openable grasping scoop; a driving shaft; scoop-lifting means; locking means cooperating with the latter for holding the scoop normally suspended in open position over said articles; a cam member driven by the shaft; means controllable by the cam member (1) for normally holding the lifting means inoperative and the locking means

operative, (2) for releasing the latter to drop the scoop upon the articles, (3) for thereupon rendering the lifting means operative to hoist the scoop, and (4) for thereupon again rendering the lifting means inoperative and the locking means operative; and means associated with the lifting means for closing the scoop at the initiation of step (3) so as to grasp the articles and again opening the scoop at the initiation of step (4) so as to release the articles.

35. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a pivotal beam and a hoistable grasping scoop suspended therefrom; a driving shaft; scoop-lifting means; a cam member driven by said shaft; and means controllable by said cam member (1) for normally holding the scoop suspended over said articles, (2) for dropping the scoop upon the articles, (3) for thereupon rendering the lifting means operative to hoist the scoop, and (4) for moving the beam to shift the scoop horizontally.

36. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a pivotal beam and a hoistable grasping scoop suspended therefrom; a driving shaft; scoop-lifting means; locking means cooperating with the latter for holding the scoop normally suspended over said articles; a cam member driven by the shaft; and means controllable by the cam member for successively (1) holding the lifting means inoperative and the locking means operative, (2) releasing the latter to drop the scoop upon the articles, (3) rendering the lifting means operative to hoist the scoop, (4) moving the beam to shift the scoop horizontally, (5) again rendering the lifting means inoperative and the locking means operative, and (6) returning the beam to its initial position, whereby a cycle of operations will have been completed.

37. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a pivotal beam and a hoistable grasping scoop suspended therefrom, a driving shaft, a cam member driven by the latter, and means operable by the cam member for pivotally moving the beam at predetermined time intervals to shift the scoop horizontally, whereby grasped articles may be transported horizontally from their locations of display.

38. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a pivotal beam and a hoistable grasping scoop suspended therefrom, a driving shaft, a cam member driven by the latter, and means operable by the cam member for pivotally moving the beam at predetermined time intervals to shift the scoop horizontally, whereby grasped articles may be transported horizontally from their display locations, said means comprising a crank arm carried by the beam, and a connecting rod operatively associated with said arm and driven by the cam member to move said arm at predetermined intervals.

39. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a pivotal beam and a hoistable grasping scoop suspended therefrom, a driving shaft, a cam member driven by the latter, and means operable by the cam member for pivotally moving the beam at predetermined time intervals to shift the scoop horizontally, whereby grasped articles may be transported horizontally from their display locations, said means comprising a crank pin carried by the cam member, a crank arm carried by the beam, and a slotted connecting rod operatively interposed between said arm and pin.

40. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a pivotal beam and a hoistable grasping scoop suspended therefrom, a driving shaft, a cam member driven by the latter, and means operable by the cam member for pivotally moving the beam at predetermined time intervals to shift the scoop horizontally, whereby grasped articles may be transported horizontally from their display locations, said means comprising a crank arm carried by the beam, a connecting rod associated therewith and driven by the cam member, and a lug carried by the crank arm and engageable with the pivot bearing to limit the movement of the beam in one direction.

41. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a rotatable support, a beam horizontally pivoted at one end with respect to said support, a hoistable grasping scoop suspended from said beam and over said articles, a driving shaft aligned with the axis of said support, and means driven by said shaft for pivotally moving the beam at predetermined time intervals to shift the scoop with respect to said pivot, whereby rotation of the support may be effected independently of the positional relation of said shaft to position the scoop over desired articles, and whereby movement of the beam will transport grasped articles from their display locations.

42. In a vending machine having a supporting platform for articles of merchandise, delivering mechanism comprising a support, a delivery beam pivoted at one end with respect to said support, a projection movable with said beam and adapted to engage a portion of said support to limit the

pivotal movement of the beam due to its own weight, a driving shaft, and means driven by said shaft for pivotally moving said beam at predetermined time intervals in a direction against the force of gravity.

43. In a vending machine, a supporting platform for a display of articles of merchandise, a delivering mechanism comprising a hoistable grasping scoop, means for initially shifting said scoop horizontally to position it above desired articles, said means comprising a rotatable platform and a supporting beam horizontally pivoted thereto and carrying said scoop, means for pivotally moving said beam, said last named means comprising a driving shaft projecting through said platform, and manually controlled means for rotating said platform about said driving shaft as an axis.

In witness whereof, I have signed and sealed this specification this 13th day of February, 1926.

MORDICHA MARGOLITH.