G. W. GOMBER.

VENDING MACHINE.

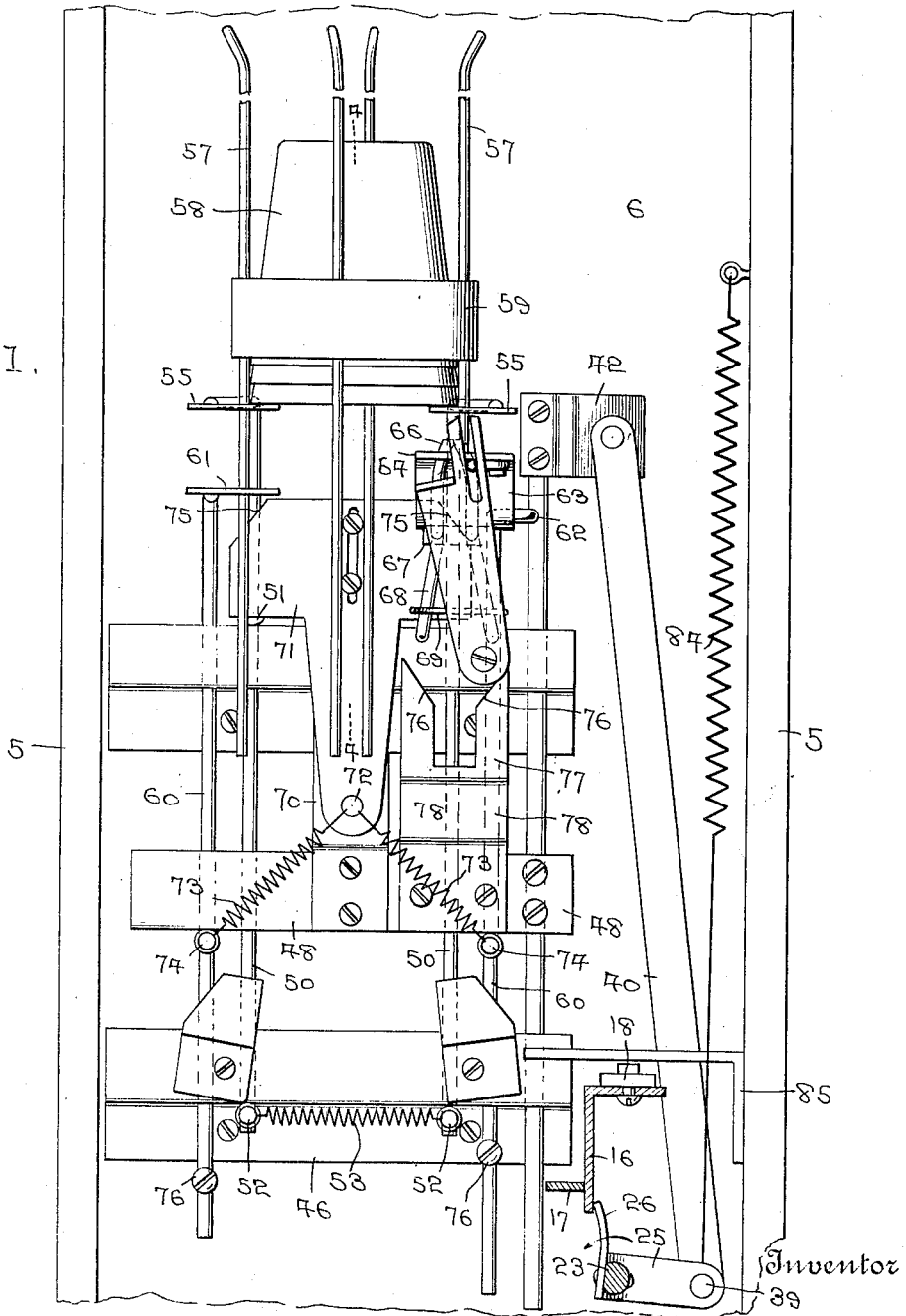
APPLICATION FILED NOV. 1, 1913.

1,111,573.

Patented Sept. 22, 1914.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses

Thos. Riley

Alan F. Garner.

Inventor

G. W. Gomber

By W. J. FitzGerald & Co

Attorney

G. W. GOMBER.

VENDING MACHINE.

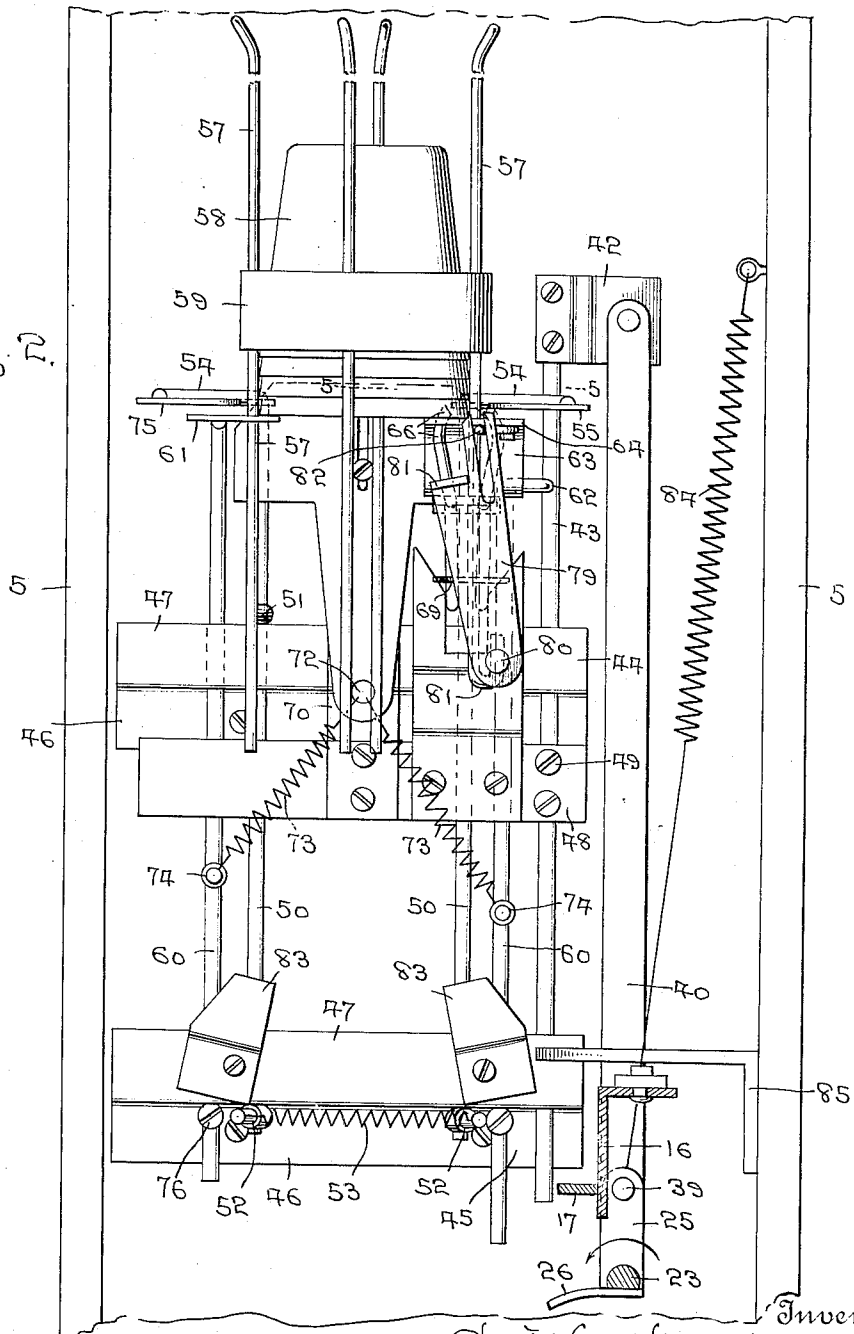
APPLICATION FILED NOV. 1, 1913.

1,111,573.

Patented Sept. 22, 1914.

3 SHEETS—SHEET 2.

Fig. 2.



Witnesses

Thos. W. Riley

Allan Farmer

Inventor

G. W. Gomber

By W. J. FitzGerald & Co

Attorney

G. W. GOMBER.

VENDING MACHINE.

APPLICATION FILED NOV. 1, 1913.

1,111,573.

Patented Sept. 22, 1914.

3 SHEETS—SHEET 3.

Fig. 4.

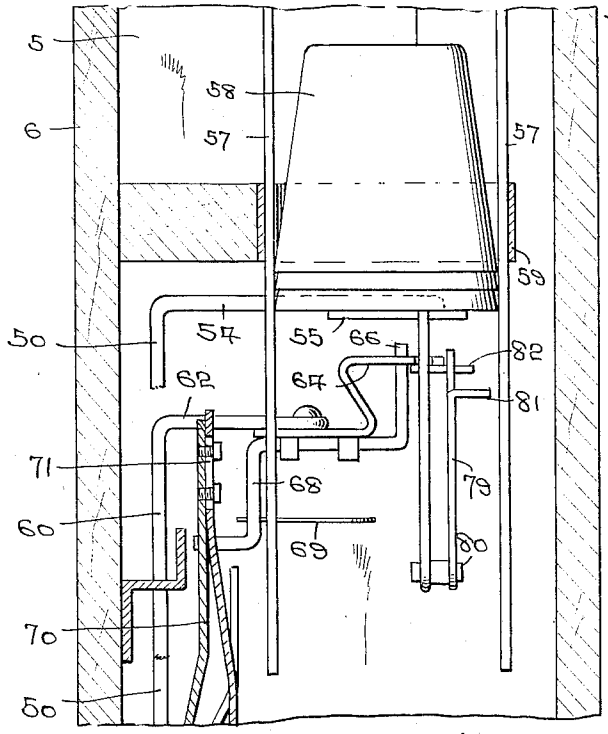


Fig. 5

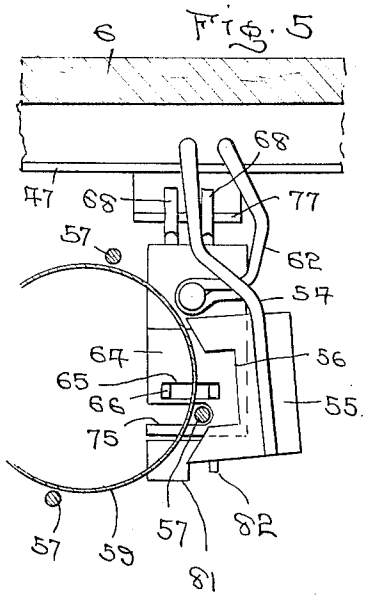
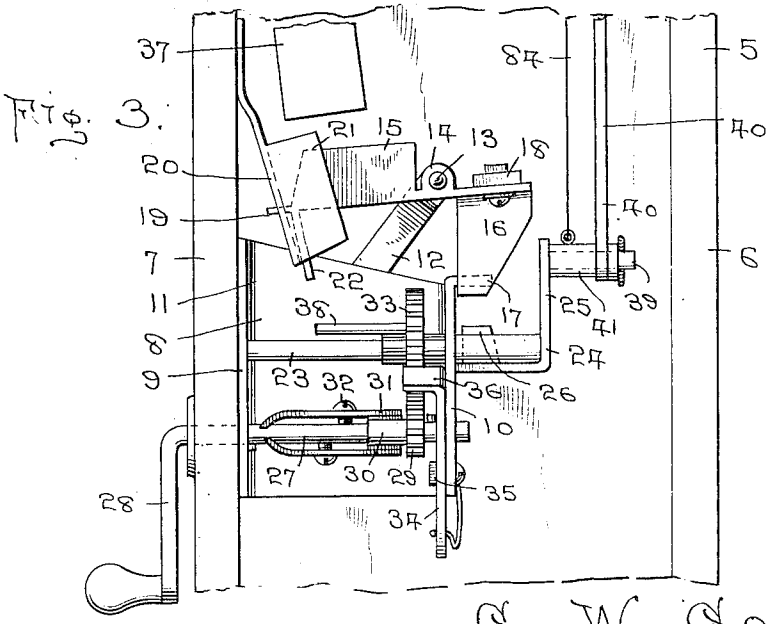


Fig. 3.



Witnesses

Inventor

G. W. Gomber

By W. J. Fitzgerald & Co

Attorney

UNITED STATES PATENT OFFICE.

GEORGE W. GOMBER, OF CONYNGHAM, PENNSYLVANIA.

VENDING-MACHINE.

1,111,573. Specification of Letters Patent. Patented Sept. 22, 1914.

Application filed November 1, 1913. Serial No. 798,748.

To all whom it may concern:

Be it known that I, GEORGE W. GOMBER, a citizen of the United States, residing at Conyngham, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Vending-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a vending machine, and more particularly to a coin controlled machine for vending sanitary drinking cups.

One of the principal objects of the invention is the provision of a machine of the class described for vending either flanged or rimmed cups or those which have plain edges. It is well known that a great majority of the drinking cup vending machines in use at the present time are adapted for use only with cups having a beaded or rimmed edge, and the main object of the invention is to provide a machine which will vend rimless cups, so that the cost of the manufacture of the cups may be materially lessened. The machine is also capable of vending the ordinary rimmed cups.

A further object of the invention is the provision of a device of the class described, which will be comparatively simple, durable, efficient and positive in operation, and comparatively inexpensive to manufacture.

With these and other objects in view, which will become apparent as the description proceeds, the invention resides in the construction, combination and arrangement of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which like characters of reference indicate like parts throughout the several figures, of which,

Figures 1 and 2 represent front elevational views of the vending apparatus, showing the same in different stages in the delivery of a cup. Fig. 3 represents a side elevational view of the coin device for controlling the operation of the vending apparatus. Fig. 4 represents a vertical sectional view on the line 4—4 of Fig. 1, and, Fig. 5 represents a horizontal sectional view on the line 5—5 of Fig. 2.

Referring more particularly to the drawing, the machine casing comprises side walls 5, a rear wall 6, to which the vending apparatus is attached, a coin device being attached to the front wall 7 of the casing.

The coin device as illustrated in Fig. 3 which represents a view looking from the right hand side of Figs. 1 and 2 toward the left hand side thereof, comprises a casing 8 having the front wall 9 secured to the front wall 7 of the machine casing, a rear wall 10 connected to wall 9 by a side wall 11, an arm 12 secured to wall 11 and inclined rearwardly from front wall 7, and supporting at its upper end a pin 13 on which is swiveled by means of ears 14, a coin actuated detent, comprising a three sided coin box 15, forwardly of pin 13 and a detent 16 rearwardly of pin 13, and which is adapted to normally rest against a rearwardly projecting lug 17 on wall 10, a counter weight 18 being provided to keep said detent in normal engagement with said lug. The front portion of the coin box 15, is provided with a forwardly extending tongue 19 which extends through a slot in a guide 20 secured at its upper end to front wall 7 of the machine casing, which slot extends about midway of said guide to the lower edge thereof, said guide being provided with sides 21 embracing the sides of the coin box. The latter is also provided at its forward edge with a downwardly extending finger 22 adapted to limit the downward movement of the coin box, upon a coin being deposited therein, in a manner to be hereinafter set forth. A shaft 23 is journaled at one end in front wall 9 of the device, and extends through the rear wall 10 thereof, and has secured to its rear end an angle iron 24 forming a crank arm 25, and which has a portion thereof formed into an arm 26, adapted as shaft 23 is rotated, to contact with the lower end of the detent 16, when the latter is in normal position, for limiting the further rotation of said shaft.

A crank shaft 27 is journaled in walls 9 and 10 of the coin device, and extends through the front wall of the machine casing and is provided with a handle 28 whereby it may be turned, said shaft having loosely mounted thereon a pinion wheel 29, on a sleeve 30, which sleeve is engaged by the leather faced inner ends of spring clips 31, which are secured on opposite sides of the crank shaft 27 by means of screws or other fastening means 32, the forward ends of said spring clips being bent inwardly and resting in notches in the crank shaft, it being evi-

dent by this construction that should it be attempted to turn crank shaft 27 when pinion 29 which meshes with a larger pinion 33 secured on shaft 23, ceases to rotate by reason of the arm 26 contacting with detent 16, shaft 27 may turn against the friction caused by the clutch of spring clips 31 on sleeve 30, so that no strain will be imposed upon the parts of the device should it be attempted to turn the crank when shaft 23 is in locked position. A spring actuated pawl 34 pivoted intermediate its length as at 35 to rear wall 10 of the coin device has its upper end offset as at 36 to engage the teeth of the pinion 33 to prevent rearward rotation of the same, it being understood that the normal direction of rotation of crank 28 is from left to right or clockwise.

Assuming the parts of the coin device to be in initial position, that is with arm 26 in engagement with the lower end of the detent 16, it is evident that the parts are in locked position, but upon the drop of a coin into box 15 through the coin chute 37, the counter weight will be overbalanced and detent 16 will rise clear of the arm 26, which is of a length to allow the same to pass beneath the lug 17, whereupon the crank 28 may be rotated for operating the vending mechanism later on to be described. When the parts are in initial position, a pin 38 projecting from pinion 33 near the periphery thereof, is below finger 22, and when the coin is dropped in the box, said finger comes in contact with said pin, thereby stopping the downward movement of the coin box, and before the floor thereof gets lower than the lower edge of guide 20, so that the coin is still retained in the box although the detent 16 is out of operative position, it being understood that as the crank 28 is further rotated pin 38 will pass beyond finger 22 so that the box may be dropped below the guide whereby the coin may slide off of the box into a suitable receptacle (not shown). By this construction it is evident that when a coin is dropped into the coin box, it will not be delivered from said box until arm 26 has passed beyond lug 17, so that there is no danger of a depositor losing his coin without the mechanism being put in operative position, since pin 38 remains in contact with finger 22 until arm 26 has passed beyond lug 17. On the outer end of crank arm 25, is secured pin 39 on which is pivoted the lower end of a link 40, said link being spaced from arm 25 by a collar 41 loosely positioned on the pin. A link 40 forms the connecting means between the coin device and the vending mechanism which will now be described.

The vending mechanism is secured to the rear wall 6 of the casing, and at the initial position of the coin device the parts are in the position as illustrated in Fig. 1, Fig. 2 illustrating the position of the various parts at the completion of about one-fourth of the revolving of the shaft 23. The upper end of link 40 is pivoted to the forwarded offset end of a lug 42, which is secured to the upper end of a vertical rod 43 guided through the horizontal portion of an upper guide 44 and a lower guide 45, said guides comprising a body portion 46 secured to the rear wall of the casing, a horizontal portion through which the various rods are guided, and a vertical portion 47 offset from the body portion 46 in spaced relation to the rear wall of the casing. A cross piece 48 is secured by suitable means 49 to rod 43 between the guides, and said cross piece travels up and down as the rod travels up and down, actuated by the connecting link 40 between shaft 23 and rod 43. A pair of rods 50 are rotatably mounted in spaced relation in the guides and are adapted for rotation but not longitudinal movement, and are held in place against longitudinal movement by means of upper pins 51 and lower pins 52, which lower pins are connected by a retractile spring 53 which tends to normally hold the upper ends 54 of the rods 50, which are bent at right angles to said rods, toward each other, said bent ends 54 having secured thereto a pair of plates 55 which extend toward each other, and have their inner edges recessed as at 56, the inner edges of which recesses normally bear against opposite guide rods 57, which are preferably four in number and which guide the stack of inverted rimless cups 58, said guide rods being connected by a ring 59 which supports the same, and as illustrated in Fig. 1 the inner edges of plates 55, normally underlie the edge of the lower cup, for supporting the stock in position.

On the outside of each rod 50, is journaled in the guides a second pair of rods 60, one of which has its upper end bent to substantially underlie the bent end 54 of one of the rods 50, and the bent end of said rod 60 supports plate 61 substantially underlying one plate 55, while the other rod 60 has its end bent outwardly as at 62 and fastened to a substantially reversed Z-shaped plate 63, comprising a lower horizontal step to which the outer end of bent end 62 is secured, and an upper horizontal step 64 which is provided with a slot 65, through which the upper ends of the grasping jaws 66 extend, said jaws being formed of a heavy wire each bent to form a horizontal portion supported rotatably against the under face of the lower step of the plate 63, by means of clips 67, the portion of the jaws below said horizontal portion extending downwardly as at 68 in diverging relation, and having their extreme lower ends bent rearwardly at right angles. A wire spring 69 in the form of a loop has its ends secured in notches in the opposing edges of

the upright portions whereby the jaws proper are normally held in closed position as illustrated in Fig. 1.

To the center of the cross piece 48 and extending upwardly therefrom, is secured tongue 70, which supports a substantial T-shaped actuating member 71, the lower end of which is provided with an opening 72 in which are secured the inner ends of the retractile springs 73, the outer ends of which are each secured to the lug or pin 74 on one of rods 60, for normally holding the ends of said rods, and consequently plates 61 and 63 toward each other. The upper step 64 of plate 63 is provided with a notch 75, which embraces one of the guide rods 57 below the adjacent plate 55, so that upper and lower sides of plates are provided which embrace opposite guide rods, the upper set normally holding the stack of cups in position, and the lower set adapted to support the cups when the upper set of plates are disengaged from the stack in a manner to be described. The T-member 71 is positioned between the guide rods 57 and the back 6 of the casing, said rods being spaced from said back by a block, to which ring 59 is secured, and the ends of the horizontal portion of the T-member are bent forwardly slightly and beveled to form cam surfaces 75, adapted when cross piece 48 is raised incident to the turning of the shaft 23 into the position shown in Fig. 2, to contact with the upper outward bent portions 54 of rods 50 whereby plates 55 on which the stack of cups rest, are forced away from each other, whereupon the stack drops on to plate 61 and the upper step 64 of plate 63, it being noted that as T-member rises rods 60 rise with the member, because of the tension of springs 73, and continue rising until the lower set of plates are in close relation to the upper set, the distance apart of the upper and lower set of plates being less than the distance of the rim of the lowermost cup from that of the next higher cup, at which time the upper movement of rods 60 is stopped by means of pins 76, which are secured near the lower ends of said rods and which contact with the lower guide 45, the T-member however, continuing to move with the cross piece 48 and against the tension of spring 73 into the position shown in Fig. 2, for separating the upper set of plates, and allowing the cup to drop on the lower set of plates. In the meantime, the lower bent ends of the wire which form the jaws, are forced together by the action of cam surfaces 76 formed by beveling a pair of spaced fingers 77 on a clip or arm 78 which is secured on cross piece 48, said cam surfaces 76, contacting with the jaw members just before surfaces 75 contact with the bent ends of rods 50 so that when the upper set of plates is separated, the jaws will be separated as shown in Fig. 2, whereby when the stack drops on to the lower set of plates, the jaws are in position to grasp the edge of the lowermost cup. At this point the crank arm 25 is in vertical position at the top of its path, and as it continues to turn in the direction of the arrow in Fig. 2, the cross piece 48 is lowered and with it the T-member, whereby the upper set of plates is allowed to come together in contact with the stack by reason of the spring 53 which connects the rods 50, said plates barely contacting against the lowermost cup, and resting beneath the edge of the next highest cup, and as the cross piece 48 continues to be lowered the jaws come together by action of the loop spring 69, as the cam surfaces 76 leave the jaws, and in this position, the jaws engage the edge of the lowermost cup, and draw it from the stack as the cross piece 48 strikes the pins 74 on rods 60, lowering said rods.

In order to disengage the jaws from the cup which they grasp, a stop member 79 is pivoted at its lower end as at 80 to the upbent lower end of one of the guide rods 57 said stop member provided with a lug 81 which is in the path of the cup as the same is lowered, and against which the edge of the cup strikes, the jaws in the meantime continuing their movement downwardly, as the rods 60 are lowered, until they slip off of the edge of the cup whereupon a pin 82 which is secured on plate 63, and which works up and down in a slot in stop member 79, is swung outwardly or away from the guide rods 57, as the rods 60 are turned or swung in opposite direction away from said guide rods by reason of the pins 74 coming in contact with beveled edges on a pair of clips 83 secured in adjusted position by means of screws to the lowermost guide 45, said pin 82 as it swings outwardly swings stop member 79 on its pivot and hence disengages lug 81 from the rim of the cup so that the same is free to drop into a receptacle or container (not shown) from which the cup may be grasped by the operator of the machine. After the cup has been disengaged a continual turn of shaft 23 for a short distance will bring the mechanism back to the initial position shown in Fig. 1, the detent 16 in the meantime having dropped into normal position into the path of the arm 26 as shown.

In order to steady the movement of the mechanism, a retractile spring 84 is secured at one end to one of the side walls 5 of the machine casing and at the other end to the sleeve 41 or arm pin 39 (see Fig. 3), and the link 40 is guided in a slot formed in an angle iron 85 secured to the side wall.

Although I have described the preferred embodiment of my invention I may desire to make such changes in the construction,

combination and arrangement of parts thereof, as do not depart from the spirit of the invention, and the scope of the appended claims.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a vending machine for receptacles, a pair of plates for supporting a stack of receptacles, means for moving said plates out of supporting position, means for supporting said stack subsequently to the moving of said plates out of supporting position, and jaws adapted to grasp said receptacles and separate the same individually from the stack, said plates adapted to be moved into supporting position previously to separation of said receptacles from the stack.

2. In a machine for vending receptacles, a plurality of rods for guiding a stack of the receptacles, a pair of upper plates normally supporting said stack, means for moving said upper plates out of supporting position, a pair of lower plates adapted to support the stack when said upper plates are moved out of supporting position, a pair of jaws adapted to grasp the lowermost of said stack when said upper plates are moved out of supporting position, means for moving said jaws whereby said lowermost receptacle is disengaged from the stack, said upper plates adapted to move into supporting position previous to the disengagement of the lowermost receptacle from said stack, and means for disengaging said jaws from said lowermost receptacle.

3. In a machine of the class described, means for guiding a stack of receptacles, means for normally supporting said stack, means for allowing the receptacles to become individually unsupported, movable jaws for disengaging said receptacles from the stack as they become separately unsupported, and means for engaging said receptacles as they are removed from the stack by said jaws, said engaging means adapted to hold said receptacle while said jaws are moved out of engagement therewith, and means for subsequently moving said engaging means away from said receptacles for freeing the latter.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE W. GOMBER.

Witnesses:

HULDA GOMBER,

GETHA GOMBER.