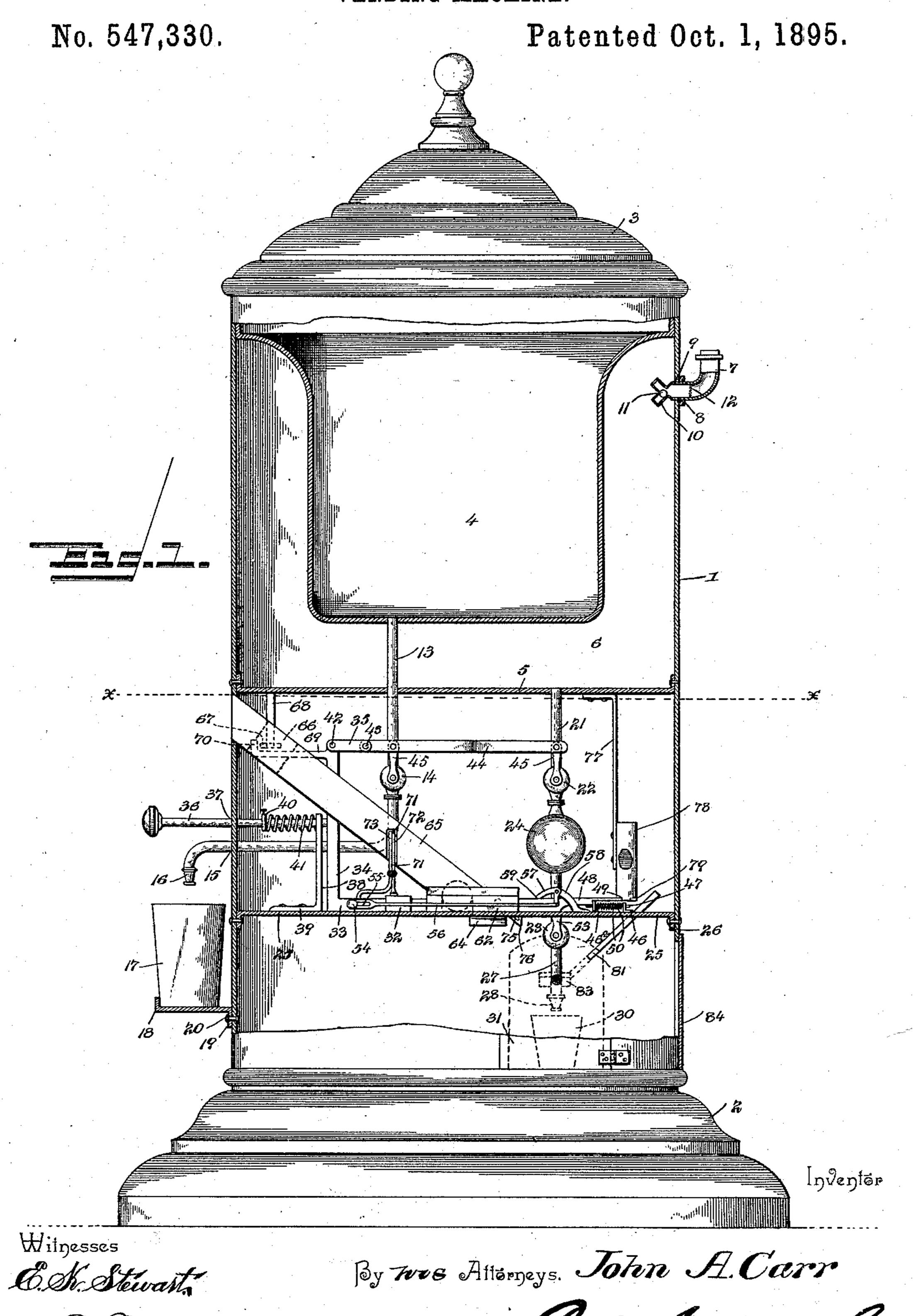
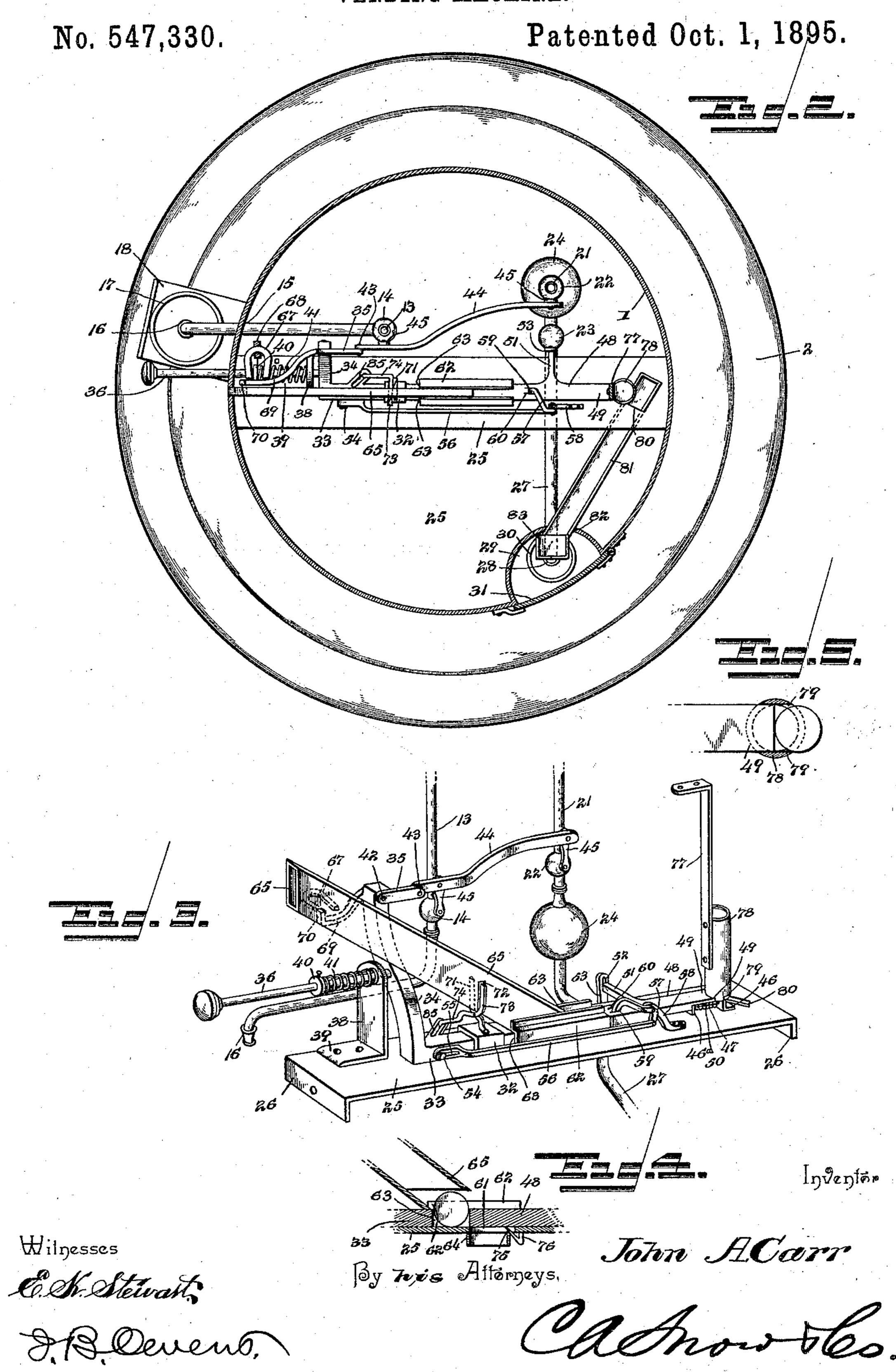
J. A. CARR. VENDING MACHINE.



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## United States Patent Office.

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## VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 547,330, dated October 1, 1895.

Application filed November 15, 1894. Serial No. 528,843. (No model.)

To all whom it may concern:

Be it known that I, John A. Carr, a citizen of the United States, residing at Meridian, in the county of Lauderdale and State of Mississippi, have invented a new and useful Vending-Machine, of which the following is a specification.

The invention relates to improvements in coin-operated liquid-vending apparatus.

The object of the present invention is to provide a simple and inexpensive apparatus which will possess durability and be positive and reliable in operation, and which will be adapted to dispense liquors on the insertion of the proper coin and to deliver the same, accompanied by a certain amount of water to be drank in connection therewith.

A further object of the invention is to provide such a coin-operated apparatus which will be capable of receiving a proper coin and of deducting the amount charged for the liquor and of delivering the proper change

To these ends the invention consists, essentially, in two tanks or receptacles respectively containing the liquor and water, and each having in connection therewith an outlet-pipe commanded by suitable valves, and in certain peculiar mechanism for operating these valves, whereby a predetermined amount of liquor and water are measured out and deposited in suitable glasses for the use of the

The invention also consists in certain pe-35 culiar means whereby it is made possible for the valve-operating mechanism to operate upon the insertion of the coin, and whereby it is made impossible for such mechanism to operate until the said coin is inserted.

Still further, the invention consists in various hereinafter-specified devices by which the use of fraudulent operating-coins may be detected and prevented. All of these parts will be fully described hereinafter and finally embodied in the claims.

In the drawings, Figure 1 represents a vertical section of my complete machine, showing portions of the operative parts in elevation; tai Fig. 2, a horizontal section taken on the line of said line of section; Fig. 3, a perspective view 7.

showing the valve-operating mechanism and other parts disassociated from the casing or body of the machine; Fig. 4, a detail section showing the operation of the coin and how it 55 is related to the other parts of the machine; Fig. 5, a detail section of the tube for containing and delivering change.

Like numerals of reference designate corresponding parts in all the figures of the draw- 60 ings.

1 designates a casing, which may be con-

structed of any suitable material, such as sheet metal or the like, and which may be of any desired configuration, preferably cylindri- 65 cal, and it is provided at its bottom with a base 2 and has a removable top or cover 3. Located within the upper portion of the casing 1 is the auxiliary or interior receptacle 4, which is located above a horizontal partition 70 5. The horizontal partition 5 is located approximately at the center of the cylindrical casing and divides the upper portion thereof off from the lower portion, forming a compartment or receptacle 6. The auxiliary re- 75 ceptacle 4 has the main portion of its body concentric with the upper portion of the casing and is suspended within the same and has a flaring upper end, which gradually increases until at its mouth it is of the same 80 diameter as the casing. This flared upper end of the auxiliary receptacle 4 closes the top of the compartment or receptacle 6, and the top or lid 3 forms a closure or cover for the auxiliary receptacle 4. The receptacle 85 4 is designed for the reception of water and the receptacle 6 for containing whisky or any other beverage that may be desired. Access may be had to the receptacle 6 by means of the pipe 7, which is curved as an elbow and 90 is substantially L-shaped and opens upwardly, it being provided at its lower end with a flange 8, while the extreme inner end of the pipe projects through an opening 9 in the side of the casing.

10 indicates a two-way valve-chamber, which is formed integral with or rigidly secured to the inner end of the pipe 7 and which contains the valve-ball 11, such ball being provided to prevent the fraudulent withdrawing 100 of the liquor or beverage by way of the pipe 7. The pipe 7 is also provided in its horizon-

547,330

tal portion with a transverse foraminous diaphragm or sieve 12, which prevents a siphontube or the like from being introduced into the receptacle 6, and to avoid having the bev-5 erage fraudulently obtained in such a manner. It will be observed that if the device be tilted the ball 11 will cover the opening at the lower end of the pipe 7 and effectually close the same, thus preventing the surreptitious ro withdrawal of the liquor contained in the re-

ceptacle 6.

13 indicates a pipe, which is in communication with the bottom of the receptacle 4 and which extends downwardly through the par-15 tition or bottom 5 of the receptacle 6 and into the space below the same, where it is provided with a valve 14, and below this valve the pipe depends vertically for a short distance, whereupon it turns horizontally and extends out 20 through an opening 15 in the casing, terminating in a nozzle 16, disposed downwardly, as may be seen by reference to the drawings. A glass 17, located on the exterior of the casing, is arranged below the depending nozzle 25 16 to receive the liquid discharged therefrom, and the glass is supported by a bracket or rack 18, rigidly secured to the outer face of the casing and provided with a depending lug 19, perforated for the reception of a bolt 30 20 or other fastening device for securing the bracket or rack to the casing. 21 indicates a second discharge pipe or tube, which communicates with the receptacle 6 and which extends downwardly through the major por-35 tion of the space below said bottom, it being provided with valves 22 and 23, located in its vertical portion. Arranged in the pipe 21 and midway between the valves 22 and 23 is the bulb or globe 24, which may be constructed 40 of any suitable material, such as glass or metal, and which is adapted to serve as a measure for the liquor withdrawn from the receptacle 6 at each operation of the machine,

as will be more fully described hereinafter. Extending horizontally across the interior of the casing 1 and located about midway between the bottom thereof and the partition or bottom 5 is a supporting plate or bridge 25, which is formed of plate metal and which has 50 at its ends lugs 26, secured to the interior of the casing by means of bolts or rivets passing therethrough. By these means the bridge is held in position, and the purpose of the bridge is to support the major portions of the oper-

55 ating mechanism.

The discharge-pipe 21 is provided with a horizontal portion 27 and terminates at the outer end thereof in a depending nozzle 28, which is located within an arch-shaped alcove 60 or recess 29, the horizontal portion of the discharge-pipe being extended through the wall thereof. The arch-shaped alcove or recess 29 is located at one side of the casing and is adapted for the reception of a glass 30, which 65 is preferably smaller than the glass 17. The glass 30 is adapted to be removed from the recess or alcove, and when arranged therein

is located beneath the depending nozzle 28 to receive the liquor discharged by the pipe 21, and a door 31 is hinged to the side of the cas- 70 ing and is arranged to close the recess or alcove and is provided with a suitable fastening device or catch to enable it to be locked in its closed position when the glass 30 is not in use. A box 32 is mounted on the horizon- 75 tal support 25 and has passing through it a horizontal portion 33 of an operating-bar, which is rectangular in cross-section and which has at its outer end an upwardly-extending arm 34. The operating-bar is adapt-80 ed to reciprocate in the box 32 and is connected at the upper end of its arm 34 with a link 35, and has rigidly secured to the upwardly-extending arm at a point intermediate the ends thereof a horizontally-disposed 85 spring-actuated push-rod 36. The push-rod 36 projects through an opening 37 of the casing and is provided on the exterior thereof with a knob or head, and its inner portion is supported and guided by a standard 38, hav- 90 ing a foot 39, secured to the horizontal support 25. The standard 38 is arranged vertically and co-operates with the box 32 in mounting or securing the operating-bar on the horizontal support and in guiding the same in its 95 reciprocation. A spiral spring 41 is disposed on the inner portion of the push-rod and is interposed between the vertical standard 38 and a collar 40, which is mounted on the pushrod, and which is provided with a set-screw, roo whereby it may be secured at the desired adjustment. When the push-rod is moved inward, the spiral spring 41 is compressed, and as soon as the push-rod is released the spring returns the same to its normal position. The 105 link 35 is disposed horizontally and extends inward from the upper terminal of the arm 34, and its ends are respectively connected by pivots 42 and 43 to the upper end of the arm 34 and to the adjacent end of a horizontally- 110 disposed connecting-bar extending inward from the link and connected with upwardlyextending arms 45 of valves 14 and 22. The arms 45 are fixed to the plugs or spindles of the valves 14 and 22, and when the operating- 115 bar is moved inward by the push-rod the connecting-bar 44 will be reciprocated and the arms 45 are swung inward, thereby opening the valve 14 and closing the valve 22. The vertical standard limits the inward movement 120 of the push-rod and prevents excessive outward movement of the operating-bar, and the spring in returning the push-rod to its normal position reverses the operation of the valve, closing the valve 14 and opening the 125 valve 22.

46 indicates a bearing-plate, which is rigidly secured to the bridge 25 and which projects upward therefrom. This plate is perforated to permit the passage of the rod 47, and said 130 perforation and the rod are longitudinally aligned with the portion 33 of the operatingbar. The inner end of the rod 47 is rigidly secured to the bar 48, which has an upwardly-

offset portion 49, projecting rearwardly therefrom and shaped substantially as a plate, all of which will be fully described hereinafter.

50 indicates a spring, which is disposed on 5 the rod 47 and interposed between the bearing-plate 46 and the bar 48, and which bears against the plate 46° at the inner end of the rod 47, the outer end thereof being arranged to bear against the outer bearing-plate 46, 10 whereby the bar 48 is given a normal tendency inward. This bar 48 is longitudinally aligned with the portion 33 of the operatingbar and has formed therewith about midway its length a transversely-extending stud 51. 15 This stud is adapted to fit in the verticallyelongated slot 52 of the arm or handle 53 of the valve 23. Thus it will be seen that as the bar 48 is reciprocated the arm or handle 53 will be thrown so as to open or close the valve 20 23, and the valve 23 is arranged so as to be normally closed, and so that it will be opened as the bar 48 is reciprocated in the same operation which opens the valve 14 and closes the valve 22. In other words, the valves 22 25 and 23 operate alternately, one closing and the other opening, and vice versa.

54 indicates a stud, which projects transversely from the portion 33 of the operatingbar, and which is fitted within a slot 55, formed 30 in the outer end of the rod 56. This rod 56 extends longitudinally with the parts 33 and 48 and has its other end pivotally connected to the short arm of a bell-crank 57. The bellcrank 57 is mounted upon or fulcrumed to 35 the standard 58 and has its long arm projecting horizontally and formed at its end with a downwardly-extended stud 59, which is adapted to enter or co-operate with a shouldered recess 60, formed in the upper side of the bar 40 48. The parts 33 and 48 are adapted to move in unison when connected by a coin, which connection will be described hereinafter; but when so connected the two bars will be capable of moving to the right in unison. Now, 45 when the bars are permitted to return, the spring 41 will return the portion 33 of the operating-bar independently of the bar 48, the return of which latter bar will be dependent upon the operation of spring 50. It is 50 the purpose of the bell-crank 57 to delay the return of the bar 48, to the end that the coin may be effectually disconnected from the two bars. This end is attained by so gaging the location of recess 60 and of slot 55 55 and stud 54 that the stud 59 of the bellcrank will be made to enter the recess 60 of the bar 48 as soon as said bar has attained the limit of its outstroke. In this position the parts will remain until the stud 54 en-60 gages the outer end of the slot 55, whereupon the rod 56 will be moved to the left and the stud 59 of the bell-crank 57 disengaged from the shoulder of the recess 60, thus permitting the spring 50 to return the bar 48 to 55 its normal position. It will be observed that

the recess 60 is formed with a shoulder at its

right-hand side, and that its remaining side

is inclined, so that the stud 59 may readily drop therein. The standard 58 is located alongside of the bar 48 and the horizontal arm 70 of the bell-crank is bent slightly laterally, so that the stud 59 will be located directly over the bar 48 and in position to engage with the recess 60 thereof.

Formed in the bridge 25 is an opening 61, 75 which is elongated longitudinally with the bridge, and which has located over it and on the upper side of the bridge two guide-plates 62, which are vertically-disposed and parallel with each other and which are provided with 80 longitudinal and internal grooves 63, forming, when the two plates are assembled, a horizontal passage longitudinally aligned with the bars 33 and 48, and in which the contiguous terminals of said bars are arranged, so as to 85 be capable of sliding therein. The plates 62 are not arranged directly over the opening 61; but the opening 61 is located at the right-hand extremity of said plates, the bridge 25 being intact or unbroken at a point to the left of the 90 middle of the plates 62.

64 indicates a downwardly-extending tube, which is a continuation of the plates 62, and which projects through the opening 61 and below the bridge 25, the purpose of such tube 95 being to conduct the coin placed between the plates 62 through the opening 61 of the bridge 25. Communicating with the left-hand ends of the plates 62 is the lower end of the inclined coinway 65. This coinway is con- 100 structed of sheet metal, and preferably of such a size and shape that a silver quarter of a dollar of United States money will be capable of passing freely through it, and the coinway is inclined, to the end that the coin will gravi- 105 tate down it easily. Thus it will be seen that as a coin is inserted in the coinway 65 it will roll down to the lower end thereof and be deposited between the guide-plates 62. Now the bars 33 and 48 are so disposed that their 110 contiguous ends will be such a distance apart as to permit the coin, say a quarter, to fit snugly between them, whereupon the two bars will be connected as a continuous device, to the end that they may be reciprocated in uni- 115 son, as is necessary in the operation of the machine. The upper end of the coinway has communication with the outside of the casing 1 through an opening in said casing, and the upper end of the coinway terminates directly 120 below the bottom 5 of the receptacle 6.

Formed in one side of the coinway 65, and near the upper end thereof, is the opening 66, which is of a width equal to about the longest cross-sectional width of the coinway, and 125 which has arranged with its poles directly adjacent thereto, but not within it, the magnet 67. The magnet 67 is of the horseshoe class, by preference, though not essentially, and is supported in position by means of the 130 non-conducting arm 68, depending from the upper side of the bottom 5. The arm 68 is not necessarily non-conducting, or, more properly stated, non-magnetic; but it is preferred

to employ such a device, to the end that the life of the magnet may be prolonged, all of which will be understood. Projecting outwardly from the upper extremity of the ver-5 tical portion 34 of the operating-bar is the arm 69, which terminates at its outer end in an upwardly-projecting lug 70. The arm 69 and lug 70 are so adjusted that the latter will, as the operating-bar reciprocates in the perto formance of its function, move directly by the poles of the magnet 67, thereby knocking off of the same anything which may be held

by such magnet.

The purpose of the magnet 67 is to with-15 draw from the coinway and through the opening 66 any metallic device which is capable of being magnetized. By these means a vast number of frauds may be detected and prevented, for it is a common custom among 20 thieves and pilferers to operate coin-controlled vending-machines by iron disks, such as washers and the like. It will be seen that such attempts at fraud will be effectively frustrated, and it will also be seen that the mag-25 net 67 is kept clear and in operative condition by means of the arm 69, which reciprocates before it. Thus as a washer, for example, is drawn out of the coinway by means of the magnet, it will be effectually disconnected 30 from the latter at the next operation of the

operating-bar. A second device for preventing fraudulent operations of the machine consists in a blade 71, rigidly secured to the box 32 and project-35 ingupwardly therefrom. This blade proceeds to a position which will place it directly adjacent to the slot 72, formed in the coinway. 73 indicates a second blade, which is pivoted to the blade 71, and which is normally located 40 at the opposite side of the coinway and directly adjacent to the slot 72, so as to be capable of passing through said slot and into engagement with the blade 71, thus operating as a pair of scissors. The lower end of the 45 blade 73 is provided with a laterally-extending arm 74, which is formed integral with the arm 73, and which extends downwardly to the portion 33 of the operating-bar, to which it is connected through the medium of the diago-50 nally-slotted plate 85. Thus it will be seen that as the portion 33 of the operating-bar is reciprocated the plate 85 will communicate to the blade 73 a swinging movement, causing said blade to stroke through the slot 72 and 55 to engage with the rigid blade 71, thus operating as a pair of scissors, so that anything which is passed down the coinway and which is severable by such a device will be cut in

two. The purpose of this arrangement is to 60 prevent the operation of the device by a coin having a string attached, so that the coin may be withdrawn after it has been used to connect the bars 33 and 48. In this connection it will be observed that at each operation of

65 the machine these blades will be made to operate, and the recovery of such a coin prevented by the severance of the string which I

was employed to retain the coin under the control of the surreptitious operator.

Still another device is provided to prevent 70 the fraudulent operation of the machine, and this consists in a pointed stud 75, which is rigidly secured to the under side of the bridge 25 by means of the rod or arm 76, depending therefrom. This pointed stud has its end pro- 75 jected slightly in the path of the coin as it is moved forward with the rods 33 and 48, so that if the supposed coin be merely a disk of soft metal, such as lead, the point will become affixed in the metal of said leaden disk, which 80 will make the further movement of the bar or portion 33 of the operating-bar impossible, and thereby defeat the attempted fraud. In the case of a silver quarter, however, the hardness of the metal composing said quarter will 85 make it possible, or rather will insure that the quarter will be glanced slightly aside by its engagement with the point, or will ride over the same. Thus it will be seen that a quarter, or a good coin, will not be affected by 90 the pointed stud 75. The plates 62 are formed so that the quarter will have a little lateral play between them, and this to the end above described. The return of the rod or bar 48 from its partial movement will dislodge a lead 95 disk from the pointed stud 75 and will cause the same to drop through the opening of the horizontal support 25.

Depending from the under side of the bottom 5 and projecting to a point just above 100 the bridge 25 is an arm 77, which has riveted or otherwise secured to its lower end the cylinder 78. This cylinder is open at its upper end and is constructed so as to be capable of receiving a pile of United States dimes. The 105 lower end of the cylinder is formed with a transverse slot 79, which does not affect the bottom of the cylinder, but which makes it possible for a single dime to be passed out of the lower end of the cylinder, the thickness 110 of the slot 79 being just equal to the thickness of a dime. The upwardly-offset projection 49 of the bar 48 is adapted, by its shape and location, to pass through this slot 79 as the said bar is reciprocated in the operation of 115 the machine. Thus it will be seen that as the offset 49 passes through the slot 79 a single dime will be pushed out of said slot, and as the bar 48 resumes its normal position the pile of dimes will drop within the cylinder 78 for a 120 distance equal to the thickness of one dime. This places the dimes in position for a second operation, and so the machine operates until the pile of dimes has been exhausted.

Formed in the bridge 25 and directly be- 125 neath the cylinder 78 is an opening 80, through which the inclined plate 81 passes, the upper extremity of said plate being located above the bridge, while the lower and major portion of the plate passes below the same. The 130 lower extremity of the plate 81 projects through an opening 82 in the walls of the alcove 29 and directly above a table-like device 83, supported above and upon the horizontal

portion 27 of the tube or pipe 21. This tablelike device 83 is provided to receive the coin from the cylinder 78, which coin is dropped upon the inclined plate 81, down which plate 5 the coin aforesaid gravitates until it passes through the opening 82 and is finally delivered upon the table 83.

In the use of my invention the receptacle 4 is filled with water, by preference, or it may be 10 filled with any other liquid such as is usually served in company with alcoholic beverages. It will be understood, however, that when the device is not used for the service of alcoholic liquors this receptacle need not be filled, or it 15 may be filled with some other liquid. All of this will be understood. We will suppose, however, for the purpose of this specification, that the machine is being used for dispensing whisky. In this event the recepta-20 cle 4 will be filled with ice-water and the receptacle 6 with the whisky to be vended. The normal positions of the parts are shown in Fig. 1, and there it will be seen that the operating-bar is moved to the left as far as 25 possible, the offset 49 out of engagement with the cylinder 78, and with the valve 14 closed, valve 22 open, and valve 23 closed. Supposing, now, that it is desired to receive a quantity of whisky and water, the operator should 30 insert a silver quarter into the coinway 65, whereupon the said quarter will gravitate down the coinway and fall between the plates 62, thereby connecting the bars 33 and 48 and making it possible to reciprocate the two in 35 unison with each other. This should be done by pushing the rod 36 in, whereupon valve 14 will be opened and the water of the receptacle 4 permitted to flow through the tube or pipe 13 and into the glass 17 by way of the 40 nozzle 16, of prior description. Simultaneously with this operation valve 22 is closed and valve 23 opened. This will permit the whisky which has previously gravitated into the bulb or globe 24 to pass through the hori-45 zontal portion 27 of pipe 21 and into the glass 30, situated directly below the nozzle 28 thereof. The door 31 should now be opened, whereupon the glass 30 may be removed and the whisky contained therein consumed, after 50 which the glass should be replaced in the alcove and the door 31 closed until it is desired to use the machine again.

Since the principle of my machine and the operation of each of its component elements 55 have been previously described in connection with the description of the structure of the several elements, it will not be necessary for me to describe them further. It will of course be understood that the use of the invention 60 is not limited to the sale of whisky, or even to alcoholic liquors, since the device is capable of vending any kind of liquid, whatever be its nature.

84 indicates a door, which commands an 65 opening in the lower portion of the casing below the bottom 5, and which is provided to permit access to be had to the interior of

the casing for the purpose of removing the quarters accumulated therein and for refilling the cylinder 78 with dimes.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having described the invention, I claim— 1. In a coin-controlled vending machine, the combination of a coinway having an opening in one side thereof, a magnet adjacent to said opening, and an arm fixed to a moving 80 part of the machine and capable of stroking past the poles of the magnet at each operation of the machine, whereby the poles are cleared of objects attracted thereto, substantially as described.

2. In a vending machine, the combination of a casing, a coin-way, a reciprocating operating bar, disposed horizontally and arranged adjacent to the coin-way, the reciprocating bar 48, located adjacent to the coin-way and 90 adapted to have a coin interposed between it and the operating bar, a pivoted catch arranged to engage the bar 48 to lock the same against inward movement to hold the bar from returning to its initial position, a hori- 95 zontally disposed bar connected with the catch and adapted to release the same and provided with a longitudinal slot located adjacent to the operating bar, and a projection mounted on the latter and fitting in the slot, 100 substantially as and for the purpose described.

3. In a vending machine, the combination of a casing, a coin chute provided with a transverse opening, a rigid blade mounted adja- 105 cent to the transverse opening, a movable blade pivotally mounted and co-operating with the fixed blade and arranged to swing through the transverse opening and having a depending extension, and a reciprocating 110 bar provided with an angularly disposed slot receiving the depending extension of the movable blade, whereby the latter will be operated when the bar is reciprocated, substantially as described.

4. In a vending machine, the combination of a casing provided with two receptacles, depending discharge tubes, the valves 14 and 22 arranged in the discharge tubes and having arms, the bar 44 connecting the arms, a 120 reciprocating operating bar having an upwardly extending arm connected with the bar 44, the valve 23 located beneath the valve 22 and arranged in the adjacent discharge tube and having an arm, the bar 48 disposed in 125 alignment with the operating bar and connected with the arm of the valve 23 and adapted to operate the latter, a coin chute arranged to deposit a coin between the adjacent ends of the operating bar and the bar 48, and 130 change making mechanism connected with and operated by the bar 48, substantially as described.

5. In a vending machine, the combination

of a casing, a horizontal support mounted therein and provided with a coin opening, a coin chute, an operating bar mounted on the horizontal support and arranged adjacent to the coin chute and arranged in alignment with the coin opening, the reciprocating bar 48 located above the coin opening and arranged adjacent to the coin chute, and a pointed stud located at the coin opening and arranged to engage a soft metal disk to prevent the machine from being operated by the same, substantially as described.

6. In a vending machine, the combination of a casing having a horizontal support and 15 provided with longitudinal ways, a horizontally disposed operating bar arranged on the support and mounted in the ways, the reciprocating bar 48 arranged in said ways, a coin chute terminating above the adjacent ends of 20 the said bar and provided with a transverse slot and having an opening, a magnet arranged adjacent to the opening and separated therefrom by a space, a reciprocating arm carried by the operating bar and arranged to 25 move in the space between the magnet and the chute, a fixed blade arranged at the transverse slot, and a movable blade pivoted to the fixed blade and arranged to swing through the transverse slot and connected with and 30 operated by the operating bar, substantially

as described.

7. In a vending machine, the combination of a casing, a horizontal support mounted therein and provided with ways, a reciprocating operating bar mounted on the support and 35 arranged in the ways and having an angularly disposed slot, the reciprocating bar 48 arranged on the support and sliding in the ways, an inclined coin chute provided with an opening and having a transverse slot and 40 terminating at the adjacent ends of said bars, a movable blade pivoted intermediate of its ends and arranged to swing through the transverse slot and having its lower end arranged in the angular slot of the operating 45 bar, a magnet arranged adjacent to said opening and separated from the same by a space, an arm carried by the operating bar and arranged to reciprocate in the space between the magnet and the chute, a catch arranged 50 to engage the bar 48, and a rod having one end connected with the catch and its other end loosely connected with the operating bar, substantially as described.

In testimony that I claim the foregoing as 55 my own I have hereto affixed my signature

in the presence of two witnesses.

JOHN A. CARR.

Witnesses:
VINCENT SCHWAB,
EDWARD T. BYRNE.