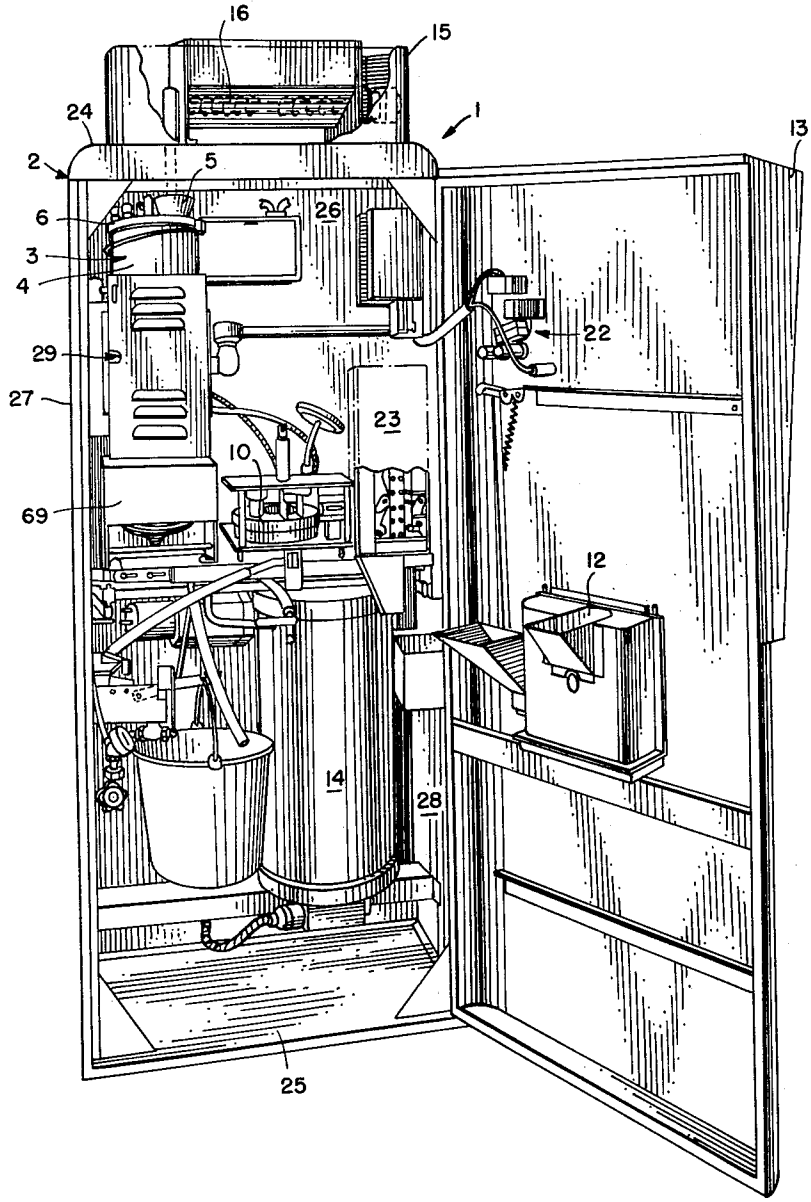
Feb. 6, 1962 R. J. MUELLER 3,019,946

VENDING MACHINES

Filed May 28, 1958 3 Sheets-Sheet 1

FIG. 1



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Feb. 6, 1962 R. J. MUELLER 3,019,946

VENDING MACHINES

Filed May 28, 1958 3 Sheets-Sheet 2

FIG. 2

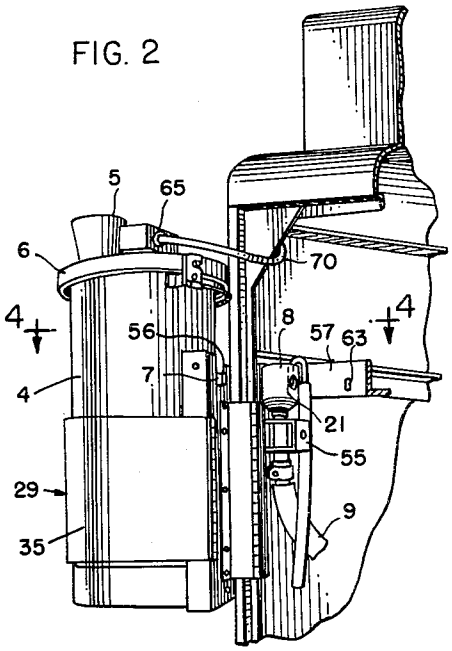


FIG. 3

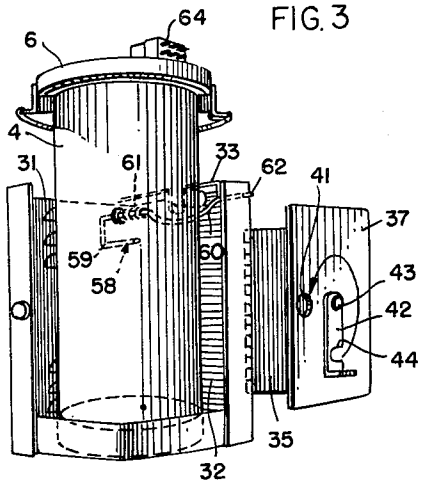
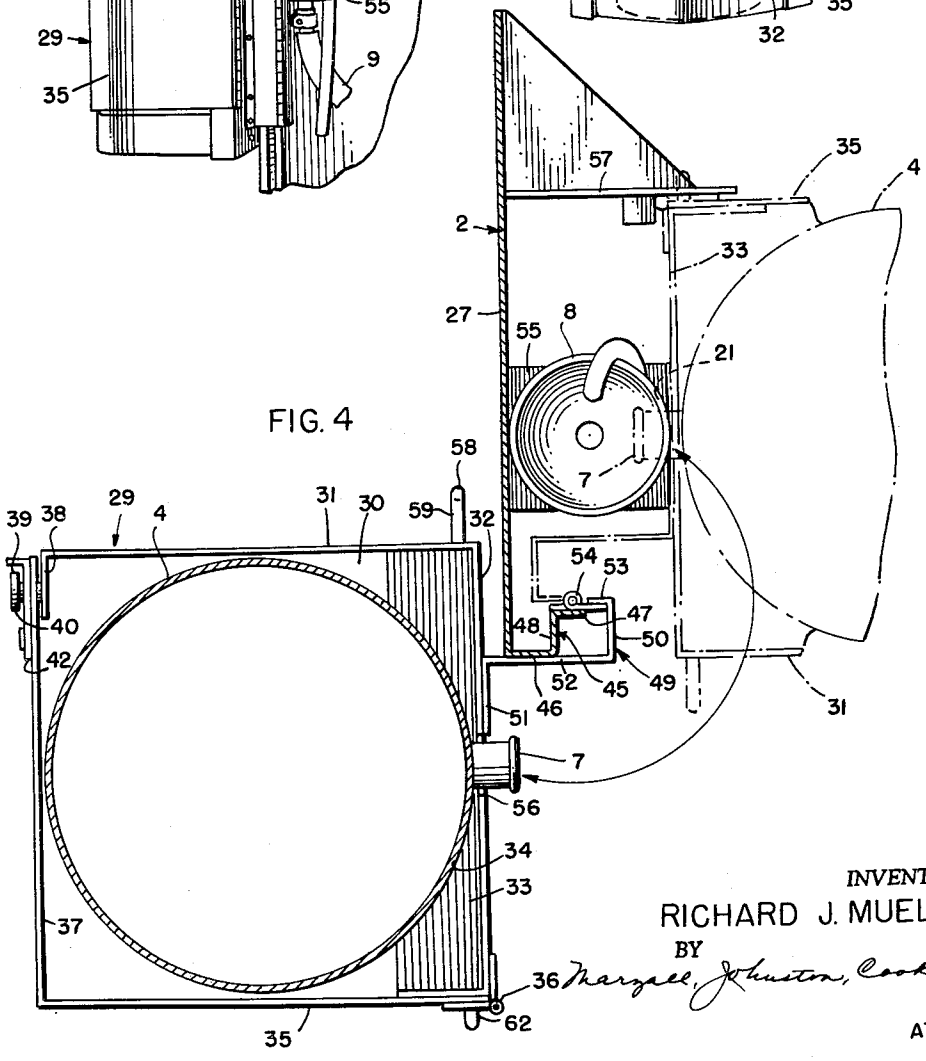


FIG. 4

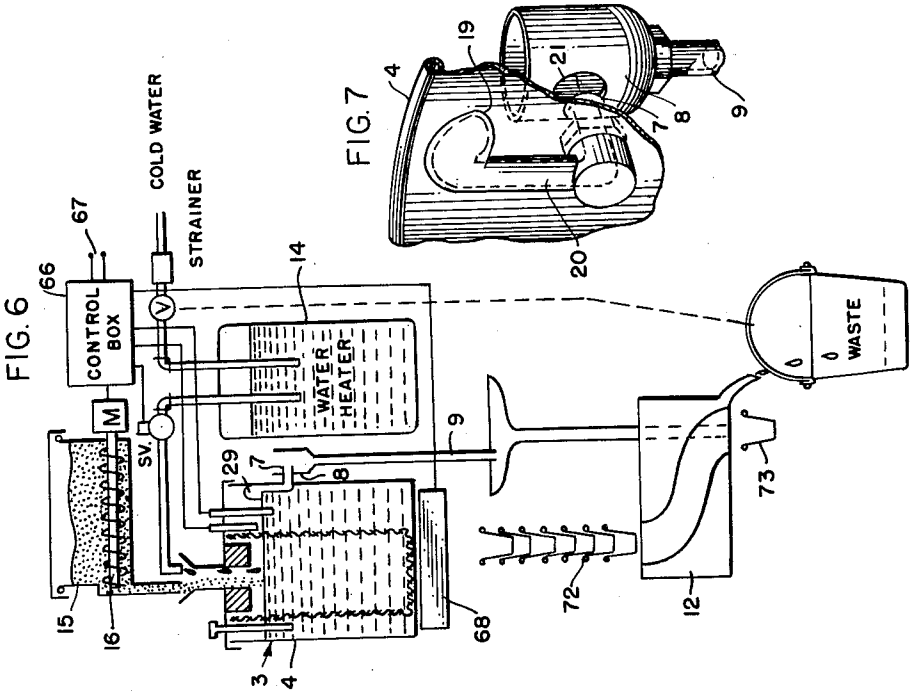


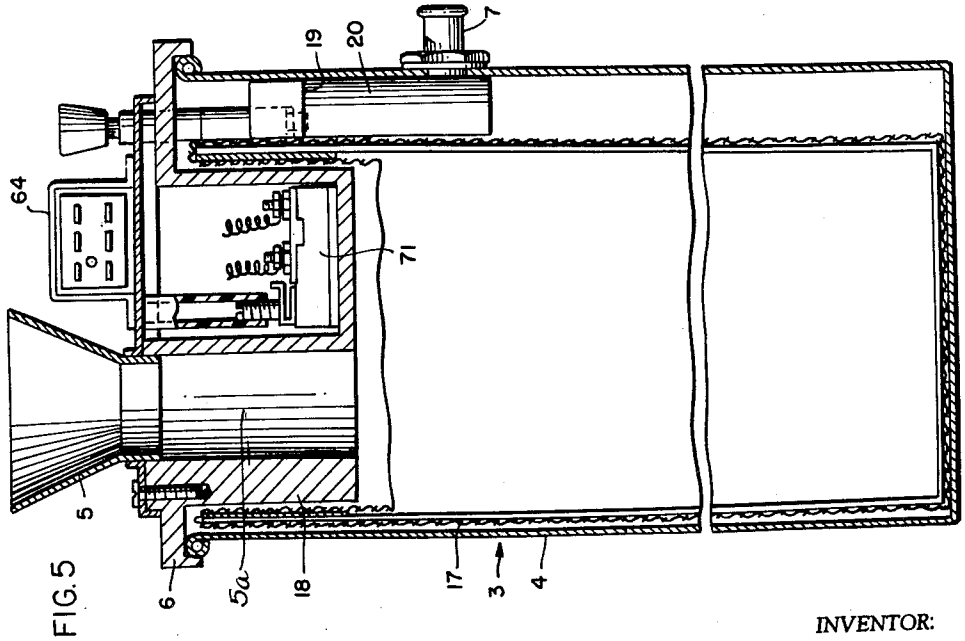
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United States Patent Office 3,019,946 Patented Feb. 6, 1962

3,019,946

VENDING MACHINES

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Filed May 28, 1958, Ser. No. 738,355
9 Claims. (Cl. 222—180)

This invention relates to vending machines and, more particularly, to vending machines which are particularly well adapted for dispensing liquid coffee and the like.

It is a primary object of the present invention to enable liquid dispensing apparatus to be embodied in vending machines in a novel and expeditious manner.

Liquid dispensing apparatus has been heretofore embodied in vending machines, and the like. However, such embodiments of liquid dispensing apparatus in vending machines, and the like, as have been heretofore known in the art, have commonly had inherent disadvantages such as, for example, disposing the apparatus in inaccessible positions; disposing the apparatus in positions which rendered it difficult to remove and replace; disposing the apparatus in positions which rendered it difficult to service; rendering it difficult to make any necessary connections of the discharge devices of the apparatus to the discharge conduits or devices of the machine; not affording positive positioning of the apparatus in the machine; requiring complicated or otherwise undesirable supporting structure for the apparatus, or the like. It is an important object of this invention to overcome such disadvantages.

Another object of the present invention is to afford novel supporting devices for liquid dispensing apparatus and the like.

Another object is to afford novel supporting devices of the aforementioned type wherein the parts thereof are so constituted and arranged that the liquid dispensing apparatus may be supported in a vending machine cabinet, and the like, in a novel and expeditious manner.

A further object is to afford novel supporting devices for liquid dispensing apparatus, and the like, by which the apparatus may be supported in a vending machine cabinet, and the like, in such a manner that it may be quickly and easily swung outwardly into fully exposed position relative to the cabinet.

Another object of the present invention is to afford novel supporting devices for liquid dispensing apparatus, and the like, by which the apparatus may be supported in a vending machine cabinet, and the like, in such a manner that it may be quickly and easily moved outwardly of the cabinet into position where it may be readily removed and replaced, or readily serviced.

Yet another object of the present invention is to afford novel apparatus for connecting liquid dispensing apparatus to liquid discharge conduits, and the like, in a novel and expeditious manner.

An object ancillary to the foregoing is to enable liquid dispensing apparatus to be quickly and easily connected to, and disconnected from, discharge conduits of liquid vending machines, and the like.

Another object of the present invention is to afford a novel shelf for supporting liquid dispensing apparatus, and the like.

An object ancillary to the foregoing is to afford such a shelf, embodying parts so constituted and arranged that the apparatus may be enclosed therein in a novel and expeditious manner.

A further object of the present invention is to afford novel latching devices for retaining such supporting apparatus in proper supporting relation to such liquid dispensing apparatus.

An object ancillary to the foregoing is to enable such latching devices to be afforded in such a manner that they may be quickly and easily moved into and out of latching position.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawings which, by way of illustration, show the preferred embodiment of the present invention and the principles thereof, and what I now consider to be the best mode in which I have contemplated applying these principles. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawings:

FIG. 1 is a front elevational view of a coin controlled vending machine constructed in accordance with the principles of my invention, showing the vending machine with the front door open and with certain parts of the machine removed and broken away to show underlying parts;

FIG. 2 is a detail perspective view of a portion of the machine shown in FIG. 1, with certain parts thereof disposed in different positions from that shown in FIG. 1;

FIG. 3 is a detail elevational view of a portion of that part of the machine shown in FIG. 2, with certain parts thereof disposed in different positions;

FIG. 4 is a detail sectional view taken substantially along the line 4—4 in FIG. 2;

FIG. 5 is a longitudinal sectional view of the liquid dispensing apparatus shown in FIGS. 2 and 3;

FIG. 6 is a diagrammatic illustration of the liquid dispensing apparatus shown in FIG. 5, and suitable controls therefor; and

FIG. 7 is a detail perspective view of a portion of the liquid dispensing apparatus embodied in the machine shown in FIG. 1, together with the upper end portion of the discharge conduit to which it is normally connected.

A vending machine 1, constructed in accordance with the principles of my invention, is shown in the drawings to illustrate the preferred embodiment of my invention.

The vending machine 1 comprises a coin-controlled vending machine embodying, in general, a cabinet 2 within which is mounted a coffee brewing and dispensing apparatus 3 of the type shown in the copending application for United States Letters Patent of Raymond C. Joschko, Serial No. 771,912, filed November 4, 1958.

The coffee brewing and dispensing apparatus 3 embodies a substantially cylindrical-shaped tank 4 having a funnel 5 mounted in the top thereof, and having a discharge nipple 7 projecting outwardly from the side of the upper end portion of the tank 4, for discharging liquid coffee from the tank 4 into a bowl or receptacle 8 mounted on the upper end portion of a discharge hose or conduit 9 mounted in the machine 1. The coffee which, in the operation of the machine 1, is discharged from the tank 4 through the nipple 7 and the bowl 8 into the conduit 9 may be discharged into a cup to be dispensed by the machine. As will be discussed in greater detail presently, the cup to be thus filled and dispensed has, previously in the operation of the machine, been dropped by a cup drop mechanism 10 into a chute 12, at the end of which is mounted a conventional device having an opening slightly smaller than the diameter of the cup so that the cup is frictionally held in the chute 12 to receive the dispensed liquid from the conduit 9, and from which chute the purchaser may remove the filled cup from an opening provided at the front side of the door 13 of the cabinet 2.

The details of the construction of the machine 1 are not pertinent to the present invention except insofar as they form a part of the novel combination embodied in my invention. However, in general, the machine 1 em-

bodies a water heater 14 from which water is pumped into the funnel 5 and thence into the tank 4. It also embodies a hopper 15 on the top of the cabinet 2 for holding a supply of ground coffee. A conveyor 16 is associated with the hopper 15 and is disposed in position to discharge coffee from the hopper 15 into the funnel 5 and thus into the tank 4.

The coffee brewing and dispensing apparatus 3 embodies a bag 17, made of suitable porous material such as, for example, muslin, mounted in the tank 4 with the upper end portion of the bag 17 disposed around a downwardly projecting portion 18 of the cover 6. An opening 5a through the cover 6 extends from the funnel 5 and opens downwardly into the bag 17 so that it will be seen that as water and ground coffee are added to the tank 4 through the funnel 5 they flow into the bag 17.

When the coffee brewing and dispensing apparatus 3 is initially serviced, the tank 4 is filled to the level of the inlet opening 19 of a syphon 20 disposed in the tank 4 outwardly of the bag 17. At this same time, sufficient ground coffee is placed in the bag 17 so that, upon brewing, the liquid in the tank 4 is of the desired strength. Thereafter, in the operation of the machine, during each cycle thereof, a cup of hot water is fed from the water heater 14 through the funnel 5 into the tank 4, and, at the same time, a charge of coffee, sufficient to brew an additional cup of coffee, is fed by the conveyor 16 from the hopper 15 into the funnel 5 and thus into the tank 4. The addition of the cup of water from the heater 14 into the tank 4 is effective to raise the liquid level in the tank 4 to a height wherein the syphon 20 is effective to drain off a cup of brewed coffee from the upper portion of the tank 4, between the downwardly projecting portion 18 and the adjacent upper sidewall of the tank 4, and discharge the coffee outwardly through the nipple 7.

When the coffee brewing and dispensing apparatus 3 is disposed in normal operable position in the cabinet 2 of the machine 1, the nipple 7 projects inwardly through an opening 21 in the bowl 8. Hence, it will be seen that when coffee is discharged from the nipple 7 in the normal operation of the machine 1, the coffee flows into the bowl 8 and thus downwardly through the conduit 9 from whence it is discharged into the cup disposed at the lower end of the cup chute 12, as previously discussed.

The machine 1 shown in the drawings is a coin-controlled machine and embodies a suitable coin chute such as, for example, at 22 in the door 14, through which a customer may drop a proper coin into a conventional coin mechanism 23 to thereby actuate the machine 1 for a single dispensing cycle.

The present invention involves, primarily, the mounting of a coffee brewing and dispensing apparatus, such as the apparatus 3, in a cabinet, and the ready coupling of the discharge outlet of such an apparatus to a discharge conduit such as that afforded by the bowl 8 and the tubing 9. As will be appreciated by those skilled in the art, my present invention is not limited to use in a machine embodying the exact construction of the machine 1 shown in the drawings, the machine 1 merely being shown to illustrate the preferred embodiment of my invention.

The cabinet 2 of the machine 1 embodies a top wall 24, a bottom wall 25, a rear wall 26, and two upright parallel sidewalls 27 and 28. The door 13 is hinged to the front edge portion of the sidewall 28, and, as will be appreciated by those skilled in the art, is normally disposed in closed position to the cabinet 2 during normal dispensing operations of the machine 1. The coffee brewing and dispensing apparatus 3 of the machine 1 is normally disposed inside the cabinet 2 in the upper left hand corner of the front thereof, as shown in FIG. 1 and in broken lines in FIG. 4. The apparatus 3 is so mounted in the cabinet 2 that it may be swung outwardly thereof into fully exposed position such as shown in full lines in FIGS. 2 and 4.

The support for the apparatus 3 in the cabinet 2 comprises a shelf 29 embodying a substantially square bottom wall 30, from two adjacent outer edges of which two sidewalls 31 and 32, respectively, project upwardly, FIGS. 3 and 4. The bottom wall 30 and the sidewalls 31 and 32 may be made of any suitable material such as, for example, steel, and may be made of a single piece of material or, if desired, may be made from separate pieces of material and suitably secured together such as, for example, by welding. An elongated cross brace 33 is secured to the upper end portion of the inner face of the sidewall 32 and extends horizontally thereacross, FIG. 4. The cross brace 33 has an inwardly opening recess 34 which is complementary in size and shape to the curved sidewall of the tank 4 of the coffee brewing and dispensing apparatus 3.

The shelf 29 also includes a third sidewall 35 which is hingedly connected to one vertical edge of the sidewall 32 by a hinge 36 for swinging movement between a normally closed position wherein it is disposed in parallel relation to the sidewall 31 and in perpendicular relation to the sidewall 32, as shown in FIG. 4, and a fully opened position, such as shown in FIG. 3, wherein it is disposed in outwardly extending, substantially aligned relation to the sidewall 32. The sidewall 35 is preferably shorter in height than the sidewalls 31 and 32, and is disposed on the sidewall 32 in vertically centered position relative thereto, FIG. 2.

The shelf 29 includes a fourth sidewall 37 rigidly attached to the sidewall 35. The sidewall 37 is the same height as the sidewall 35 and extends perpendicularly thereto from the edge of the sidewall 35 opposite to the edge connected by the hinge 36 to the side wall 32.

The wall 31 of the shelf 29 has a perpendicularly inwardly projecting flange 38 extending along its vertical free edge portion, and a pin 39, having an enlarged head 40 on the free end thereof, projects outwardly from the flange 38 perpendicularly thereto. The wall 37 has an opening 41 therethrough, which is of such size, and is so disposed therein, that when the walls 35 and 37 are swung from open position around the hinge 36 into fully closed position as shown in solid lines in FIG. 4, the pin 39 projects outwardly through the hole 41. An elongated latching lever 42 is pivotally mounted to the outer face of the wall 37 by a pin or bolt 43, and has a recess 44 formed in one longitudinal edge portion thereof, FIG. 3. The latching lever 42 is so disposed on the wall 37 that it may be swung from a latching position such as shown in FIG. 4, wherein the recess 44 is disposed over the pin 39, inwardly of the enlarged head 40, to an unlatched position such as shown in FIG. 3 wherein the lever 42 depends vertically from the pin 43.

The sidewall 27 of the cabinet 2 has a substantially S-shaped flange 45 formed on its front vertical edge portion, FIG. 4. The flange 45 has a front leg 46 which projects into the doorway of the cabinet 2 from the front edge portion of the wall 27, a rear leg 47 which is disposed parallel to the front leg 46, and an intermediate leg 48 which connects the two legs 46 and 47.

A substantially Z-shaped mounting bracket 49 having two substantially parallel outer legs 50 and 51 interconnected by an intermediate leg 52, is disposed between the flange 45 and the shelf 29, FIG. 4. The leg 50 of the bracket 49 has a flange 53 projecting perpendicularly thereto along the free edge thereof, and the flange 53 is attached to one side of a hinge 54, and the other side of the hinge 54 is attached to the leg 50 of the flange 45 on the sidewall 27 of the cabinet 2. The other outer leg 51 of the bracket 49 is disposed in juxtaposition to the outer face of the wall 32 of the shelf 29 and is secured thereto by any suitable means such as, for example, welding. Hence, it will be seen that the shelf 29 is hingedly supported by the bracket 45 and the hinge 54 from the sidewall 27 of the cabinet 2.

The bowl 8 is mounted in and supported by a mounting bracket 55 from the inner face of the sidewall 27 of the

cabinet 2, with the opening 21 in the bowl 8 facing generally horizontally across the front of the cabinet 2, or in other words, generally to the right as viewed in FIG. 1.

An upwardly opening recess 56 is formed in the upper edge portion of the wall 32 of the shelf 29 in horizontally centered relation thereto, FIG. 4. The walls 31 and 32, and 35 and 37 on the shelf 29 are so disposed relative to each other, and the recess 56 is so disposed in the wall 32, that when the tank 4 is disposed on the bottom wall 30 of the shelf 29, it may fit snugly into the recess 34 in the cross brace 33, with the nipple 7 projecting outwardly through the recess 56 in the wall 32. With this arrangement of parts, when the walls 35 and 37 are disposed in closed position as shown in solid lines in FIG. 4, the walls 31, 32, 35 and 37 are disposed in relatively closely fitting relation to the sides of the tank 4.

The opening 21 is of such a size and is so disposed in the bowl 8, and the bowl 8 and the hinge 54 are so disposed in the cabinet 2, that the shelf 29 with the tank 4 disposed in operative position such as shown in FIGS. 2 and 4, may be swung between fully outwardly projecting relation to the cabinet 2 as shown in solid lines in FIG. 4, and normal operating position such as shown in broken lines in FIG. 4 and solid lines in FIG. 1, in which latter operating position, the nipple 7 projects inwardly through the opening 21 in the cup 8. It will be noted that when the shelf 29 and the tank 4 are disposed in normal operating position in the cabinet 2, the front wall 31 and the rear wall 35 of the shelf 29 are disposed in parallel relation to the rear wall 26 of the cabinet 2, and the sidewalls 32 and 37 are disposed perpendicularly to the rear wall 26.

Another bracket 57 is secured to, and projects inwardly from the sidewall 27 of the cabinet 2, FIGS. 2 and 4. When the shelf 29 is disposed in normal operating position as shown in broken lines in FIG. 4, the bracket 57 is disposed rearwardly thereof in abutting engagement with the outer face of the rear wall 35 of the shelf 29, FIGS. 2 and 4. An elongated latching plunger 58, having a substantially U-shaped handle 59 on the front end portion thereof, is slidably mounted in and extends through the front wall 31 and the rear wall 35 of the shelf 29, in closely adjacent relation to the inner face of the sidewall 32, FIGS. 2 and 4. The plunger 58 has a downwardly curved bend 60 formed in the intermediate portion thereof, the bend 60 being disposed below the nipple 7 of the tank 4 when the tank 4 is disposed in normal position on the shelf 29, FIG. 3. A compression coil spring 61 is disposed between the bend 60 and the front wall 31 of the shelf 29 in position to normally urge the plunger 58 rearwardly on the shelf 29 to a position wherein the rear end portion 62 thereof projects outwardly, as shown in solid lines in FIG. 4. The bracket 57 has an opening 63 formed therein, the opening 63 being disposed in such position that when the shelf 29 with the tank 4 disposed thereon is disposed in normal operating position as shown in broken lines in FIG. 4, the rear end portion 62 of the plunger 58 extends through the opening 63 and is effective to prevent the shelf 29 from being swung outwardly from such normal position. When it is desired to swing the shelf 29 from normal operating position outwardly of the cabinet 2, the handle 59 on the plunger 58 may be pulled outwardly to thereby retract the end portion 62 of the plunger 58 into flush position relative to the rear face of the rear wall 35, and thus free the plunger 58 from its latching engagement with the bracket 57.

In the operation of the machine 1, when it is desired to originally place the machine in operation, the door 13 on the cabinet 2 may be opened by the serviceman, the handle 59 on the plunger 58 may be pulled forwardly to thereby release the end portion 62 from latching engagement in the opening 63, and the shelf 29 may then be swung outwardly from normal operating position shown in FIG. 1 to full outwardly swung position as shown in FIG. 2. Thereafter, the latching lever 42 may be swung out of latching engagement with the pin 39, and the sidewall 37 and the rear wall 35 of the shelf 29 may be swung, as a unit, from closed position shown in FIG. 4 to fully open position shown in FIG. 3. The coffee brewing and dispensing apparatus 3 may then be mounted on the shelf 29 as previously described, and the sidewall 37 and the rear wall 35 may then be swung back into the closed position shown in FIG. 4, and the lever 42 may be swung in a counterclockwise direction, as viewed in FIG. 3, into latching engagement with the pin 39.

The shelf 29, together with the apparatus 3, may then be swung from outer position shown in FIG. 2 to the normal operating position shown in FIG. 1 and in broken lines in FIG. 4. During this inward swinging movement of the shelf 29, the rear end portion 62 of the plunger 58 engages the bracket 57 and rides therealong into the opening 63 in the bracket 57. When engaged in the opening 63, the rear end portion 62 of the plunger 58 is effective to latch the shelf 29 in the aforementioned normal operating position.

This movement of the shelf 29 is effective, automatically, to position the coffee brewing and dispensing apparatus 3 in position wherein the funnel 55 is properly positioned for receiving ground coffee from the conveyor 16 and, also, for receiving hot water from the heater 14. Also, this movement of the shelf 29 is effective to automatically couple the nipple 7 into the bowl 8 so that liquid coffee dispensed from the apparatus 3 flows into the bowl 8 and may be discharged therefrom through the hose 9.

Prior to swinging the shelf 29 from outwardly projecting position shown in FIG. 2 to inwardly projecting position shown in FIG. 1, the electrical connector plug 64 on top of the tank 4 may be connected to another suitable plug such as, for example, the plug 65, FIG. 2, which may be connected to suitable controls in the machine. A heater unit, not shown, may be disposed in the housing 66 shown in FIG. 1 as disposed immediately below the shelf 29, and this heating unit may be used to maintain the temperature of the liquid contents of the tank 4 at the desired temperature. For this purpose, I prefer to maintain the temperature of the coffee in the tank 4 at approximately 160° F., and no less than 155° F. and no more than 165° F.

Although it is to be remembered that my invention is not limited thereto, it is particularly well adapted for use in coin-operated vending machines, and the like. Such machines may have suitable controls such as, for example, those of the type disclosed in substantially greater detail in my copending application for United States Letters Patent, Serial No. 654,730, filed April 24, 1957, and may include, in general, suitable controls 66, connected to a suitable source of electric power 67, FIG. 6. A heater 68 may be mounted in a housing 69, FIGS. 1 and 7, and may be connected to the controls 66. The plug 65 may be connected through a line 70 to the controls 66 and thus to the heater 68 to thereby control operation of the heater 68 through a thermostat 71 mounted in the cover 6.

When the shelf 29, with the tank 4 mounted thereon, is disposed in normal position in the cabinet 2, it is disposed on the heater 68 in position to receive the ground coffee and water fed from the conveyor 16 and water heater 14, respectively.

In the servicing of the machine 1, the tank 4 may, if desired, be initially charged with a sufficient quantity of water and a sufficient quantity of ground coffee to afford a coffee brew of the proper strength in the tank 4 prior to mounting the latter on the shelf 29. However, if it is desired to do so, the tank 4 need not be initially charged, but the machine may be manually operated by the serviceman after the tank 4 is disposed in normal operating position in the cabinet 2, to thereby fill the tank 4 with water to the proper level and to feed the proper amount of ground coffee to the bag 17 in the tank 4.

It will be remembered that thereafter, as a proper coin

is dropped into the machine 1, another cup of hot water is fed from the heater 14 into the tank 4, and a proper increment of ground coffee is fed by the conveyor 16 into the tank 4, the addition of the water into the tank 4 causing the syphon 20 to automatically feed a cup of coffee into the bowl 8 and thus through the tubing 9 into the cup to be dispensed from the machine. The cup to be dispensed from the machine may be fed from a stack of cups 72 through the chute 12 into a position, such as that diagrammatically illustrated by the cup 73 in FIG. 6, wherein it is disposed in position to receive the coffee beverage discharged from the hose 9.

When it is desired to service the machine, the serviceman may readily accomplish this by releasing the plunger 58 from latching engagement in the opening 63 in the bracket 57, and then swinging the shelf 29 together with the tank 4 outwardly into fully exposed position such as shown in FIG. 2. The plug 65 may be disconnected from the plug 64, and the walls 37 and 35 may be swung into open position. Thereafter, the tank 4 together with the cover 6 may be removed from the shelf 29 and, if desired, may be replaced by a new coffee brewing and dispensing apparatus 3. However, if desired, the bag 17, together with its accumulation of coffee grounds therein, may be removed from the tank 4, the tank 4 may be washed and cleaned, and a new bag 17 inserted therein. The thus serviced coffee brewing and dispensing apparatus 3 may then be placed on the shelf 29 and the shelf 29 again swung back into normal operating position in the cabinet 2.

From the foregoing, it will be seen that I have afforded a novel manner of supporting coffee brewing and dispensing apparatus, and the like, in cabinets.

Also, it will be seen that my novel structure by which this can be accomplished may be quickly and easily disconnected from and connected into the dispensing mechanism of a vending machine such as that shown in the accompanying drawings.

Also, it will be seen that I have afforded a novel device for the above mentioned purposes which is effective and efficient in operation and may be readily and economically produced commercially.

Thus, while I have illustrated and described the preferred embodiment of my invention, it is to be understood that this is capable of variation and modification, and I therefore do not wish to be limited to the precise details set forth, but desire to avail myself of such changes and alterations as fall within the purview of the following claims.

I claim:

1. In a beverage vending machine, a cabinet, beverage discharging means disposed in said cabinet, and beverage vending apparatus normally disposed in said machine in operative position wherein said apparatus is operatively coupled to said discharging means for feeding a beverage thereinto, a shelf for supporting said apparatus, said shelf including sidewall members normally disposed in position to retainingly surround said apparatus when the latter is supported by said shelf, certain of said sidewall members being hingedly mounted relative to the other of said sidewall members for swinging movement into and out of said last mentioned normal position, and means hingedly connecting said shelf to said cabinet for swinging movement between said operative position and a position outside of said cabinet.

2. In a beverage vending machine, a cabinet, beverage discharging means disposed in said cabinet, and beverage vending apparatus normally disposed in said machine in operative position wherein said apparatus is operatively coupled to said discharging means for feeding a beverage thereinto, a shelf for supporting said apparatus, said shelf comprising a horizontally extending bottom wall disposed in position to underlie said apparatus in supporting relation thereto, and sdewalls mounted on and carried by said bottom wall in position to enclose said apparatus when the latter is disposed on said bottom wall, and means pivotally mounting said shelf on said cabinet for swinging movement relative thereto between said operative position and a position outside of said cabinet.

3. In a beverage vending machine, a cabinet, beverage discharge means disposed in said cabinet, and beverage vending apparatus normally disposed in said machine in operative position wherein said apparatus is operatively coupled to said discharging means for feeding a beverage thereinto, a shelf for supporting said apparatus, said shelf comprising a horizontally extending bottom wall disposed in position to underlie said apparatus in supporting relation thereto, and sidewalls mounted on and carried by said bottom wall in position to enclose said apparatus when the latter is disposed on said bottom wall, means pivotally mounting said shelf on said cabinet for movement into and out of said operative position, a latch member in said cabinet, and another latch member mounted in and extending through two of said sidewalls, said other latch member being movable into and out of latching engagement with said first mentioned latch member when said shelf is disposed in said operative position.

4. In a beverage vending machine, a cabinet, and beverage vending apparatus normally disposed in operative position in said cabinet, means for supporting such apparatus in said cabinet, said means comprising a shelf hingedly mounted on one edge portion of said cambinet for swinging movement between said operative position and fully exposed position outwardly of said cabinet, abutment means disposed in position to abuttingly engage said shelf to thereby limit said movement of said shelf into said cabinet, and means on said shelf and normally releasably engaged with said abutment means for holding said shelf in said operative position.

5. Apparatus for use in a beverage vending machine, and the like, comprising supporting means, beverage discharging means having an opening therein, a shelf, a beverage-storing tank mounted on and supported by said shelf, said tank having a nipple projecting therefrom for discharging beverage from said tank, and means pivotally mounting said shelf on said suporting means for movement into and out of position to automatically insert said nipple into said opening.

6. Apparatus for use in a beverage vending device comprising beverage discharging means including a bowl having an opening in a sidewall thereof, a shelf, a tank mounted on and supported by said shelf, said tank having a conduit projecting horizontally outwardly therefrom for discharging liquid from said tank, and means hingedly suporting said shelf for swinging movement into and out of position to discharge liquid from said conduit into said bowl, said conduit and said opening being disposed in position whereby, upon said swinging movement of said shelf into and out of said position, said conduit is automatically inserted into and removed from said opening.

7. In a beverage vending device, a cabinet, liquid discharge means mounted in said cabinet and embodying a receptacle having an opening in a sidewall thereof, a tank having a discharge nipple projecting horizontally therefrom for discharging liquid from said tank, a shelf supporting said tank, said shelf normally being disposed in said cabinet in position wherein said nipple extends through said opening into said receptacle for discharging liquid from said tank into said receptacle, and means hingedly mounting said shelf to said cabinet for swinging said shelf between said normal position thereof and an outwardly projecting position relative to said cabinet, said tank being so disposed on said shelf that during said swinging of said shelf said nipple is automatically inserted into said opening as said shelf is swung into said normal position and said nipple is automatically withdrawn from said opening as said shelf is swung out of said normal position.

8. In a beverage vending device, a cabinet, liquid discharge means mounted in said cabinet and embodying a

bowl having an opening in a sidewall thereof, a tank having a discharge nipple projecting horizontally therefrom for discharging liquid from said tank, a shelf supporting said tank, said shelf normally being disposed in said cabinet in position wherein said nipple extends through said opening into said bowl for discharging liquid from said tank into said bowl, and means hingedly mounting said shelf on a front edge portion of said cabinet for swinging movement between said normal position thereof and a position wherein said shelf is rotated one hundred and eighty degrees from said normal position.

9. In a beverage vending device, a cabinet, liquid discharge means mounted in said cabinet and embodying a bowl having an opening in a sidewall thereof, a tank having a discharge nipple projecting horizontally therefrom for discharging liquid from said tank, a shelf supporting said tank, said shelf normally being disposed in said cabinet in position wherein said nipple extends through said opening into said bowl for discharging liquid from said tank into said bowl, said cabinet having a substantially S-shaped front edge portion having an inwardly disposed

edge portion disposed in substantially parallel relation to the front of said cabinet, a substantially Z-shaped bracket having one end portion attached to said shelf, and another end portion hingedly connected to said inwardly disposed edge portion to thereby hingedly support said shelf from said flange for horizontal swinging movement through an arc of one hundred and eighty degrees between a position wherein said shelf is disposed in said normal position in said cabinet, with said nipple projecting into said bowl through said opening, and a position wherein said shelf is disposed entirely outside of said cabinet.

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