

(No Model.)

J. R. GRAVES.
LIQUID VENDING MACHINE.

No. 506,687.

Patented Oct. 17, 1893.

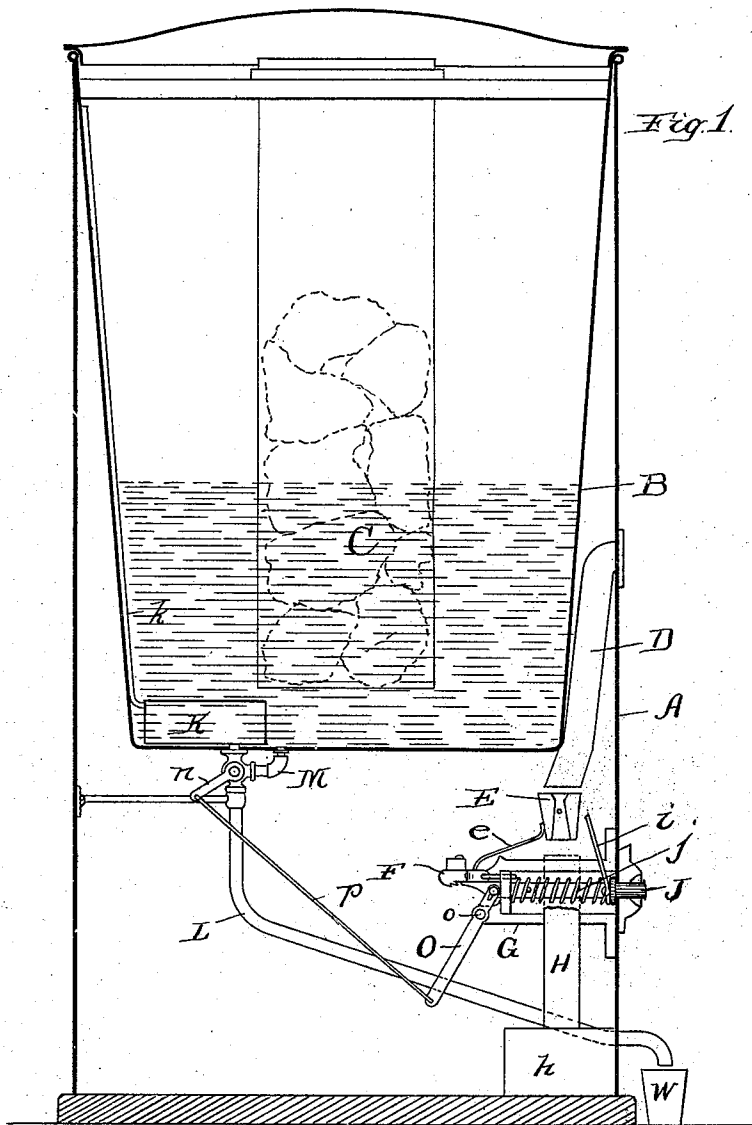
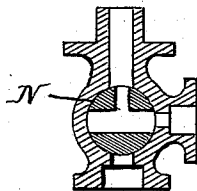


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES R. GRAVES, OF MOUNT PLEASANT, MICHIGAN.

LIQUID-VENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 506,687, dated October 17, 1893.

Application filed July 21, 1893. Serial No. 481,098. (No model.)

To all whom it may concern:

Be it known that I, JAMES R. GRAVES, a citizen of the United States, residing in Mount Pleasant, in the county of Isabella and State of Michigan, have invented a new and useful Improvement in Liquid-Vending Machines, of which the following is a specification.

This invention relates to coin controlled machines for vending beverages.

10 In the most approved machines of this class, as now constructed, the measuring cup or receptacle is located below and outside of the tank wherein is placed the body of the beverage vended by the machine, and the ice for
15 cooling the same. As the cup is necessarily kept charged with the beverage at all times, it results from this feature that the liquid may stand in the cup so long as to become warm and unpalatable. The cup is thus located because valves are required for controlling the admission of the liquid to it and the discharge from it, and such devices are best
20 located outside the tank in order to obviate the necessity of transmitting power for actuating them through the walls of the tank, and of the placing of moving parts of the mechanism within the tank. This liability to the warming of the charges in the cup is a serious evil, because if a person once draws a
30 warmed charge from the machine he is very apt to condemn all machines of the class and to refrain from patronizing them further. I remedy this objection to said machines in manner following: I place the measuring cup
35 within the tank of the machine and near or upon the bottom thereof. A discharge pipe passes from the bottom of the cup through the floor of the tank to the point where the liquid is delivered, and a short branch pipe
40 having one end inserted through the bottom of the tank outside of the cup, is joined at its other end to the delivery pipe in close proximity to the tank. At the junction of these
45 pipes a three way valve under the control of the coin mechanism is placed which serves when in one position to permit the fluid from the cup to discharge through the delivery pipe and at the same time to close the branch
50 pipe against the flow of any liquid from the tank, and in its other position said valve serves to close the delivery pipe and to open the branch pipe, thereby permitting commu-

nication between the tank and the cup, so that the latter is filled through the branch pipe. By this construction, the cup and its charges are maintained at the temperature prevailing within the tank, and this is done without locating any valve or moving part within the tank or transmitting any motion through the wall thereof.

In the accompanying drawings I show at Figure 1 a central vertical section of my improved vending machine, and at Fig. 2 a detail enlarged section of the liquid controlling valve.

In said drawings A represents the outside casing of the machine, B the liquid tank holding the beverage to be vended and C the ice box located within the tank and containing the cooling agent.

D is the tube through which the coin is inserted and from which it falls into a coin arresting and gaging receiver E, substantially like the similar device shown in the patent to Westlake and Waggoner, No. 497,107, granted May 9, 1893, and supported by an arm *e* from the weighted lever F pivoted to the frame G. From this receiver the coin falls into a tube H leading to the receptacle *h*.

J is the push bar operated by the person buying the drink, and it carries an arm *i* adapted when the bar is pushed inward to bear against one side of the coin receiver and to cause it to open and drop the coin. The bar is retracted by the spring *j*, and its inner end is adapted to engage the notches shown upon the under surface of lever F when said lever is not tipped so as to raise its notched end beyond such contact by the weight of the coin dropped into the arrester E.

The measuring cup is shown at K and is stationarily located in the tank B upon or very near the bottom thereof, and *k* is the tube for venting the cup.

L is the delivery pipe extending from the interior of the cup to the outside of the casing as plainly shown, and serving to carry the charges of liquid from the cup to the drinking vessel W. A short branch pipe M is inserted through the bottom of the tank in close proximity to the cup and extends from thence to a junction with pipe L close up under the tank. In these pipes at their meeting point

is placed a single three way valve N, whereby both the filling and the emptying of the cup are controlled as will be readily understood, said valve being adapted to shut off that portion of pipe L below it and open the branch pipe when in one position, and to open the lower portion of pipe L and close the branch when in its other position. It will thus be seen that in the former of these positions the liquid from the tank will flow through the branch and valve and thence up into the cup, thus charging the latter, while in its other position the charge in the cup will flow down into the vessel W.

The valve N is moved by power from the push bar by the following very simple mechanism: A lever O pivoted to frame G at *o* is jointed to the push bar at its upper end as shown, and to a connecting rod *p* at its lower end, and this rod extends to a junction with the crank arm *n* mounted upon the stem of valve N. It will thus be seen that when the push bar is pressed inward by the purchaser who has deposited his coin and thus caused the tipping of lever F, power will be carried to the valve from the bar so as to move the valve from the position which allows the cup to fill (and which is its normal position) to that which allows the cup to discharge. The retraction of the bar by its spring will of course move the valve back to its normal position.

I claim—

1. The combination in a liquid vending machine, of a tank for holding the liquid, a measuring cup or receptacle located in the tank, a pipe connection through which the cup may be filled from the tank, and a valve located in said pipe and outside the tank and adapted to control the admission of the liquid to the cup, substantially as specified.

2. The combination in a liquid vending machine, of a tank for holding the liquid, a measuring cup or receptacle located in the tank, a pipe connection through which the cup may be filled from the tank, a valve located in said pipe and outside the tank and adapted to control the admission of the liquid to the cup, and coin controlling mechanism, substantially as specified.

3. The combination in a liquid vending machine of a tank for holding the liquid, a measuring cup or receptacle located in the tank, a discharge pipe for emptying the cup, a branch pipe located outside the tank and connecting the same with said discharge pipe, and means for controlling said pipes, substantially as specified.

4. The combination in a liquid vending machine of a tank for holding the liquid, a measuring cup or receptacle located in the tank, a discharge pipe for emptying the cup, a branch pipe located outside the tank and connecting the same with said discharge pipe, and means also located outside the tank for controlling said pipes, substantially as specified.

5. The combination in a liquid vending machine of a tank for holding the liquid, a measuring cup or receptacle located in the tank, a discharge pipe for emptying the cup, a branch pipe located outside the tank and connecting the same with said discharge pipe, and means consisting of a valve located at the junction of said pipes and adapted to control both of the same, substantially as specified.

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