H. G. CORDLEY.

LIQUID VENDING DEVICE.

APPLICATION FILED MAY 18, 1907.

941,760.

Patented Nov. 30, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

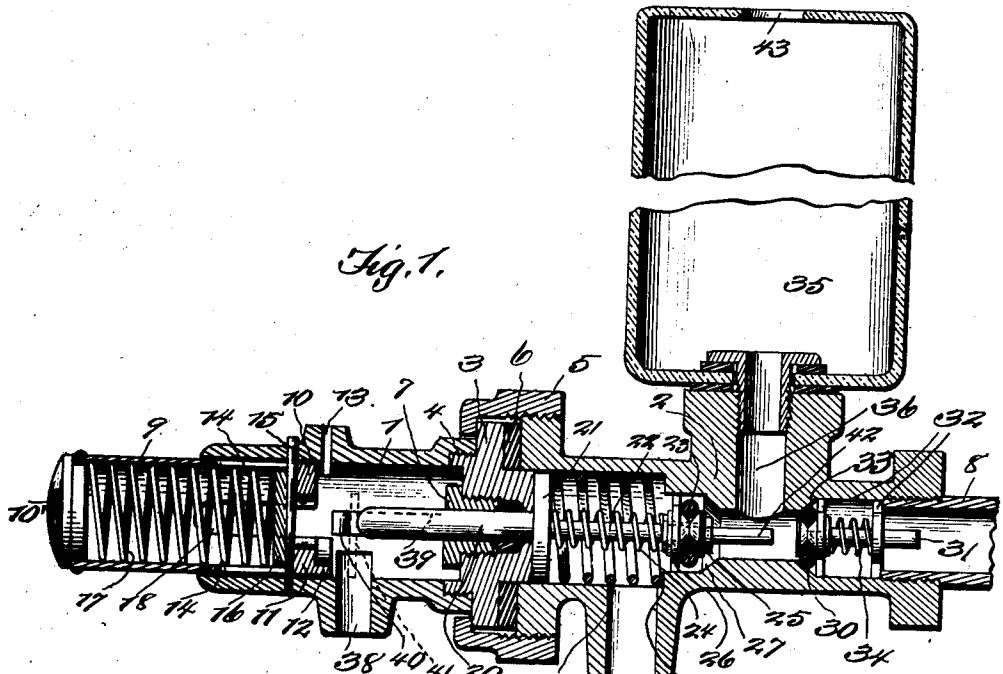



Fig. 3.

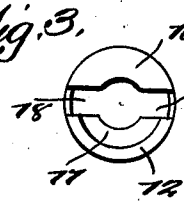



Fig. 6.

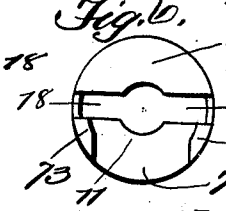
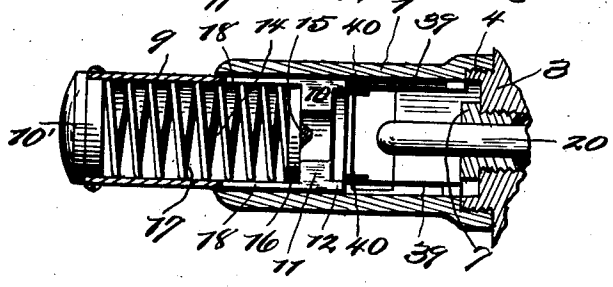



Fig. 2.




Witnesses

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2 SHEETS—SHEET 2.

Fig. 1.

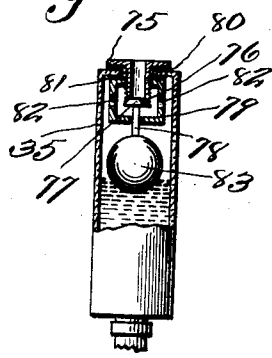



Fig. 4.

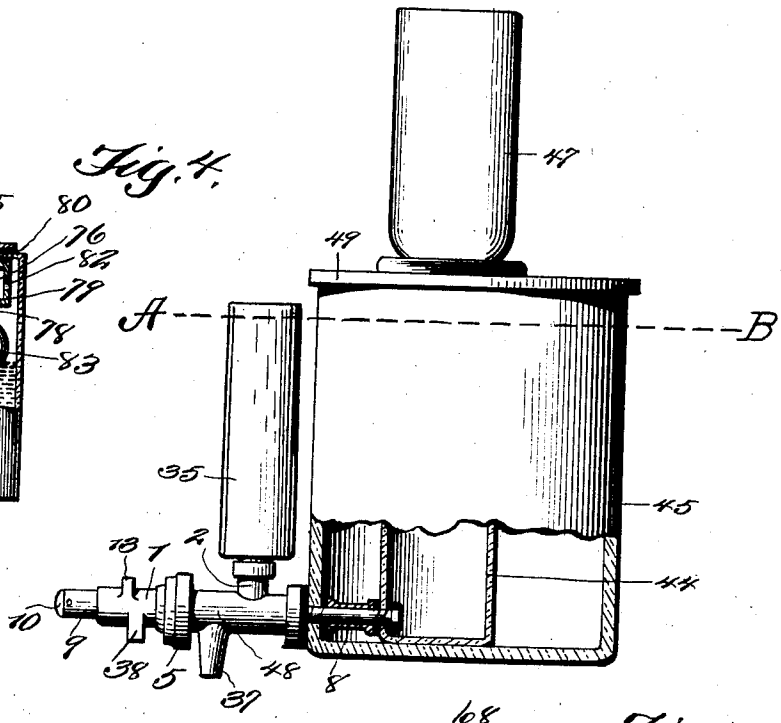
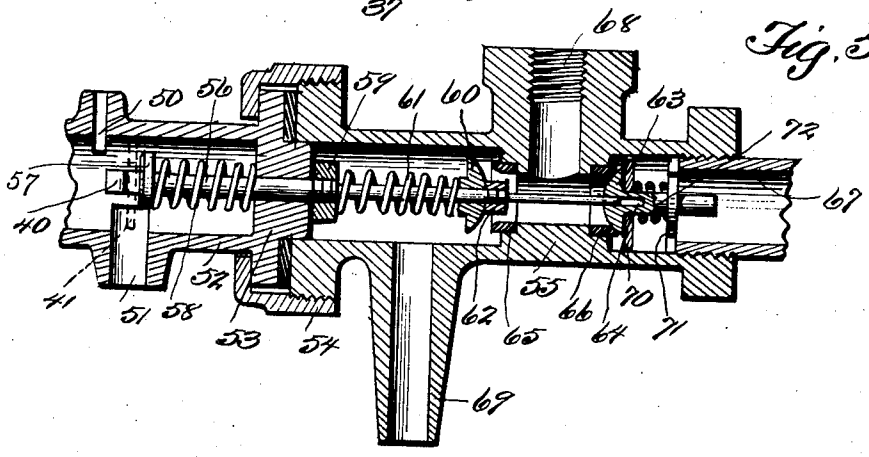



Fig. 5.

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# UNITED STATES PATENT OFFICE.

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## LIQUID-VENDING DEVICE.

941,760. Specification of Letters Patent. Patented Nov. 30, 1909.

Application filed May 18, 1907. Serial No. 374,397.

*To all whom it may concern:*

Be it known that I, HENRY G. CORDLEY, a citizen of the United States, residing at Glen Ridge, in the county of Essex, State of New Jersey, have invented certain new and useful Improvements in Liquid-Vending Devices, of which the following is a description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to liquid vending devices of the type wherein a coin forms a connecting member between two reciprocating members one of which is designed to be operated by the purchaser and the other of which serves as a means for operating a valve whereby the flow of the liquid is controlled; and the object of my invention is to produce a simplified and more efficient device of the type above defined.

With this object in view my invention consists in the improved liquid vending device illustrated in the accompanying drawings, described in the following specification, and distinctly claimed in the clauses of the concluding claim.

In the accompanying drawing Figure 1 is a longitudinal sectional view of my device, taken upon a vertical plane through the axis thereof; Fig. 2 is a similar sectional view taken upon a horizontal plane and showing the left hand portion of the device shown in Fig. 1; Fig. 3 is an elevation of the inner end of one of the reciprocating members of my device; Fig. 4 is a view of my device attached to a type of water cooler with which it is designed to be used. Fig. 5 is a longitudinal sectional view of a portion of my device and illustrating a slightly modified form of valve mechanism; Fig. 6 is a view similar to Fig. 3 and showing an additional feature used in certain instances; and Fig. 7 is a view showing means whereby I adapt my device for use with a supply of liquid under pressure.

The body portion or casing of my device in the embodiment thereof illustrated in the drawings comprises two main sections 1 and 2 and an intermediate connecting section 3. The section 1 is shown as secured to the section 3 by a threaded connection at 4, and the sections 3 and 2 are secured together as by a union 5 engaging threads upon the section 2. A suitable washer is interposed at 6 to secure a tight joint between the parts. The section 3 is provided with a stuffing box at 7 through which a portion of one of the reciprocating members of my device passes.

A connection is indicated at 8 through which my device is connected with the cold water receptacle of a water cooler of the type in which water is supplied by displacement from an inverted water bottle as shown in Fig. 4.

9 is a tubular reciprocating member provided with a push piece at 10 adapted to be pressed inwardly by the operator when the device is to be operated. The member 9 is provided with inwardly extending vertical supporting ledges 10 and 11, and with a horizontally extending ledge 12; and it is obvious that a coin inserted through a slot 13 in the upper side of the section 1 will fall upon and be arrested by the ledge 12, while the ledges 10 and 11 will form a support for the vertical face of the coin.

14, 14 are slots formed in the tubular member 9, and 15 is a pin passing through holes in the section 1 and through the said slots.

16 is a disk resting against the pin 15, and 17 is a spring interposed between the disk 16 and the push piece 10 and acting to force the member 9 toward the left and maintain it in the position shown in Fig. 1. The member 9 is also provided with slots 18, 18 located in a plane at right angles to that of the slots 14, 14, for the purpose of allowing the inner end of said member to move past springs located within the section 1 as hereinafter disclosed.

20 is a second reciprocating member extending through the stuffing box 7, and provided with an abutment here shown as a projecting disk portion 21, and an extending stem portion 22, upon which stem portion is located a valve 23. This valve is free to move upon the stem 22, and a spring 24 between the valve 23 and the disk 21 forces the valve against a shoulder 25 on the stem 22. The stem 22 is prolonged as at 42, which projection is adapted to engage the valve 30 hereinafter mentioned to force it from its seat.

26 is a spider attached to and moving with and acting as a guide for the valve 23, and 27 is a seating surface against which the valve 23 seats.

The section 2 is provided with an internal

abutment or shoulder 28, and 29 is a spring located between said shoulder and the disk 21 and acting to force the disk and reciprocating member 20 toward the left and maintain it in the position shown in Fig. 1 of the drawing.

30 is a second valve carried by a stem 31 and guided by spiders 32, 32, and seating against a seating surface 33. A spring 34 keeps this valve closed against its seat.

35 is a measuring vessel preferably of glass, and secured to the section 2 by suitable coupling means as shown; and 36 is a conduit through which the liquid purchased is delivered to the purchaser. The measuring vessel 35 is in open communication with the atmosphere by means of an opening 43 in the upper end thereof, to permit the escape of air as liquid enters the measuring vessel.

38 is a passage leading from the interior of the section 1, and through which coins fall to a suitable coin receptacle not shown.

39, 39 are yielding members, here disclosed as springs, within the section 1 and are here shown as secured at one end thereto. The free ends of said members are provided with projections at 40, herein shown as formed by bending the ends of the springs so as to form inwardly facing hook-like members, the purpose of which is to catch the coin and insure its discharge from the ledge 12 of the reciprocating member 9.

In Fig. 4 I have illustrated my device as used by me with one of my improved water coolers. In said figure, 45 is an outer receptacle for containing ice, which receptacle is provided with a suitable cover 49. 44 is an inner receptacle for containing water supplied from an inverted water bottle 47. The casing of my coin controlled device is represented as a whole by the reference character 48, and the measuring vessel thereof and supply conduit leading thereto by 35 and 8 as in the other figures. The line A B, indicates the level of water in the inner receptacle, and in the measuring vessel after water has been admitted thereto.

The operation of my device is as follows: A coin is dropped through the slot 13 and comes to rest with its edge resting upon the ledge 12, its vertical face supported by the ledges 10 and 11, and its other vertical face in proximity to the free ends of the springs 39, 39, which serve to prevent the coin from tilting forward and falling from the ledge 12. The operator now pushes the reciprocating member 9 to the right and the coin is carried past the ends of the springs 39, 39, which are free to swing apart to permit the coin to pass by them, and is brought into engagement with the inner ends of the second reciprocating member 20. From this point the members 9 and 20 move together and the valve 23 is thus forced to its seat, thereby cutting off communication between the conduits 36 and 37. The reciprocating members 9 and 20 continue their movement, the stem 22 moving through the valve 23, and the projecting end 42 of the stem 22 is brought into engagement with the valve 30 and force it open, when the movement of the several parts toward the right ceases. The valve 23 being now closed upon its seat and the valve 30 open, liquid from the receptacle 44 is free to flow through the connection 8 and conduit 38 into the measuring glass 35 until the level therein corresponds to the level of the liquid in the receptacle 44. The operator now permits the reciprocating member 9 to move to the left to its original position, during which movement the valve 30 is first colsed, thereby cutting off communication between the coupling 8 and conduit 36; and the valve 23 then opened, thereby establishing communication between the conduits 36 and 37 and permitting the liquid in the measuring vessel 35 to flow therefrom to a suitable receptacle placed so as to receive it. During the first part of the movement to the left of the parts above enumerated the coin moves with the member 9; but the disk 21 of the second reciprocating member 20 soon comes into engagement with the connecting section 3, and stops, thereby relieving the coin from pressure to which it has been subjected by the spring 29; and as the member 9 continues its movement to the left the periphery of the coin is brought into engagement with the projections 40 of the springs 39 and pulled from the ledge 12 as indicated at 41, Fig. 1, when it is free to fall into the coin receptacle placed so as to receive it. The ledges 10 and 11 extend a part of the way only across the inner end of the reciprocating member 9, whereby an opening 43 is formed, so that the inner end of the said member will pass by the inner end of the second reciprocating member 20 without operating it, if the member 9 is pressed to the right without a coin having been first dropped into the slot 13. The slots 18 in the member 9 permit the inner end thereof to pass by the free ends of the springs 39, 39, as said member is pushed inward.

In Fig. 5 I have illustrated my device with a slightly modified form of the second reciprocating member and valves operated thereby. In this figure, 50 is the slot for receiving the coin, and 51 the opening through which the coin leaves the device. 52, 53, 54, and 55 are parts of the casing similar in construction to the corresponding parts shown in Fig. 1. The second reciprocating member is here designated as 56, and is shown as provided with an enlarged head 57, between which and the partition 53 is located a spring 58 corresponding in function with the spring 29 in Fig. 1. 59 is a stop for limiting the return movement of the member 56. The

member 56 is prolonged and has a valve 60 free to move thereon, and a spring 61 holds the valve against the stop 62 until the valve reaches its seat 65, and yields during the continued movement of the member 56. 63 is a second valve provided with a recess 64 into which the end of the member 56 enters, and which recess forms a guide for the end of said member. The valves 60 and 63 in this form of my device seat against soft rubber seats 65 and 66 located in rabbets in the section 55. 67 is the supply conduit, 68 the conduit leading to the measuring vessel and 69 the discharge, all as in the device illustrated in Fig. 1. 70 and 71 are spiders for supporting and guiding the stem 72 of the valve 63. The operation of this form of my device is identical with the operation above disclosed of the form shown in Fig. 1, and detailed statement thereof is believed to be unnecessary.

My device as thus far disclosed is designed to receive and be operated by a penny. I, however, contemplate adopting it for dispensing liquids to be sold at five cents or a nickel per glass or other quantity, in which case I cut away the central portion of the supporting ledge 12 thereby forming two projecting coin supports 73, 73, separated by an open space 74, as shown in Fig. 6. This space is slightly wider than the diameter of a penny. With this arrangement, it will be seen that while a penny or coin of less diameter and thickness than a five cent piece or nickel may be dropped through the slot 13, the device cannot be operated by such a coin, for as soon as the reciprocating member 9 is moved toward the right the coin will pass through the space 74 and fall into the coin receptacle without operating the valve mechanism.

While I have disclosed my device as used in connection with a water cooler in which a constant level is maintained, which level is below the upper end of the measuring vessel, I also use my device for dispensing liquids the level of which is above the upper end of the measuring vessel, or which are under pressure. In such cases means must be provided for preventing the liquid from overflowing through the air vent or opening 43 in the upper end of the measuring vessel. I have, in Fig. 7, illustrated one embodiment of means for accomplishing such a result. In said figure 75 is a nipple having a valve seat 76 at its lower end against which seats a valve 77 having a downwardly extending stem 78; 79 is a cage acting as a guide for the valve 77, and serving also as a means for securing the various parts in position in the upper wall of the measuring vessel 35, and 80, 81 are packing gaskets for securing a tight joint between the parts. 82 are openings in the cage 79, and 83 is a hollow ball adapted to float upon the surface of the liquid in the measuring vessel 35, and to engage the stem 78 of the valve 77 and close said valve as the float approaches the upper end of the measuring vessel. With this arrangement, it is obvious that air may escape freely from the measuring vessel as liquid flows thereinto, and that the escape of liquid is prevented by the valve 77 which will be closed by the float 83 as the level of the liquid in the measuring vessel approaches the upper end thereof.

I claim as my invention—

1. In a liquid vending device, a reciprocating member; operating means therefor; a normally open valve carried by said reciprocating member; a seat for said valve; a second normally closed valve and seat therefor; a supply conduit leading to said second valve; a discharge conduit leading from said first valve; a conduit connecting said valves; a conduit leading from said last mentioned conduit; a measuring glass with which said last mentioned conduit communicates; and means carried by said reciprocating member adapted to operate said second valve after said first mentioned valve has been seated.

2. In a liquid dispensing device, a reciprocating member; a second reciprocating member in alinement therewith and adapted to be operated by said first mentioned reciprocating member; an abutment upon said second member; a spring engaging said abutment; a stem carried by said second member; a valve carried by said stem and free to move thereon; a second valve in line with and adapted to be engaged by the end of said stem; a measuring vessel; a supply conduit leading from a source of liquid supply past said second valve and to said measuring vessel; and a discharge conduit leading from said measuring vessel past said first mentioned valve.

3. In a liquid vending device, a casing comprising two main sections and an interposed connecting section; means for securing said sections together; a reciprocating member located in one of said sections; a second reciprocating member in alinement with said first reciprocating member and adapted to be operated thereby, and extending through said connecting section and into said second section; an abutment carried by said second reciprocating member and located in said second section; a spring within said second section and in engagement with said abutment; supply and discharge conduits in said second section and leading respectively from a source of liquid supply to a measuring vessel, and from the measuring vessel to the exterior of the device; a stem projecting from said second reciprocating member; a normally open valve carried by and free to move upon said stem, and adapted to control said discharge conduit; and a

second normally closed valve adapted to control said supply conduit, and to be engaged by the end of said projection.

4. In a liquid vending device, a reciprocating member; a second reciprocating member in position to be operated by said first mentioned member; an abutment upon said second member, a spring engaging said abutment and opposing the movement of said member; a measuring vessel; a supply conduit leading from a source of liquid supply to the said measuring vessel; a discharge conduit leading from said measuring vessel; a projecting stem carried by said second reciprocating member; a normally open discharge valve carried by and free to move upon said stem; a shoulder upon said stem; a spring surrounding said stem and adapted to press said valve against said shoulder; and a normally closed supply valve in position to be engaged and opened by the end of said projecting stem.

5. In a liquid vending device, a receptacle wherein a constant level of liquid is maintained; a measuring vessel extending above the level of the liquid in said receptacle; a supply conduit extending from said receptacle to said measuring vessel; a discharge conduit extending from said measuring vessel; valves for controlling the flow of liquid through said conduits; and mechanism for operating said valves.

6. In a liquid vending device, a receptacle wherein a constant level of liquid is maintained; a measuring vessel extending above the level of the liquid in said receptacle; a supply conduit extending from said receptacle to said measuring vessel; a normally closed valve in said supply conduit; a discharge conduit extending from said measuring vessel; a normally open valve in said discharge conduit; valve operating means for closing said discharge valve and for opening said supply valve in succession; and mechanism for actuating said valve operating means.

7. In a liquid vending device, a receptacle wherein a constant level of liquid is maintained; a measuring vessel extending above the level of the liquid in said receptacle; an opening in the wall of said measuring vessel above the level of the liquid in said receptacle; a supply conduit extending from said receptacle to said measuring vessel; a normally closed valve for controlling the flow through said supply conduit; a discharge conduit extending from said measuring vessel; a normally open valve for controlling the flow through said discharge conduit; valve operating means for closing said discharge valve before said supply valve is opened, and for then opening said supply valve; and mechanism for actuating said valve operating means.

This specification signed and witnessed this 27th day of March A. D. 1907.

HENRY GREELEY CORDLEY.

In the presence of—

JOHN STEINHAUSER,

GEO. W. FIELD.