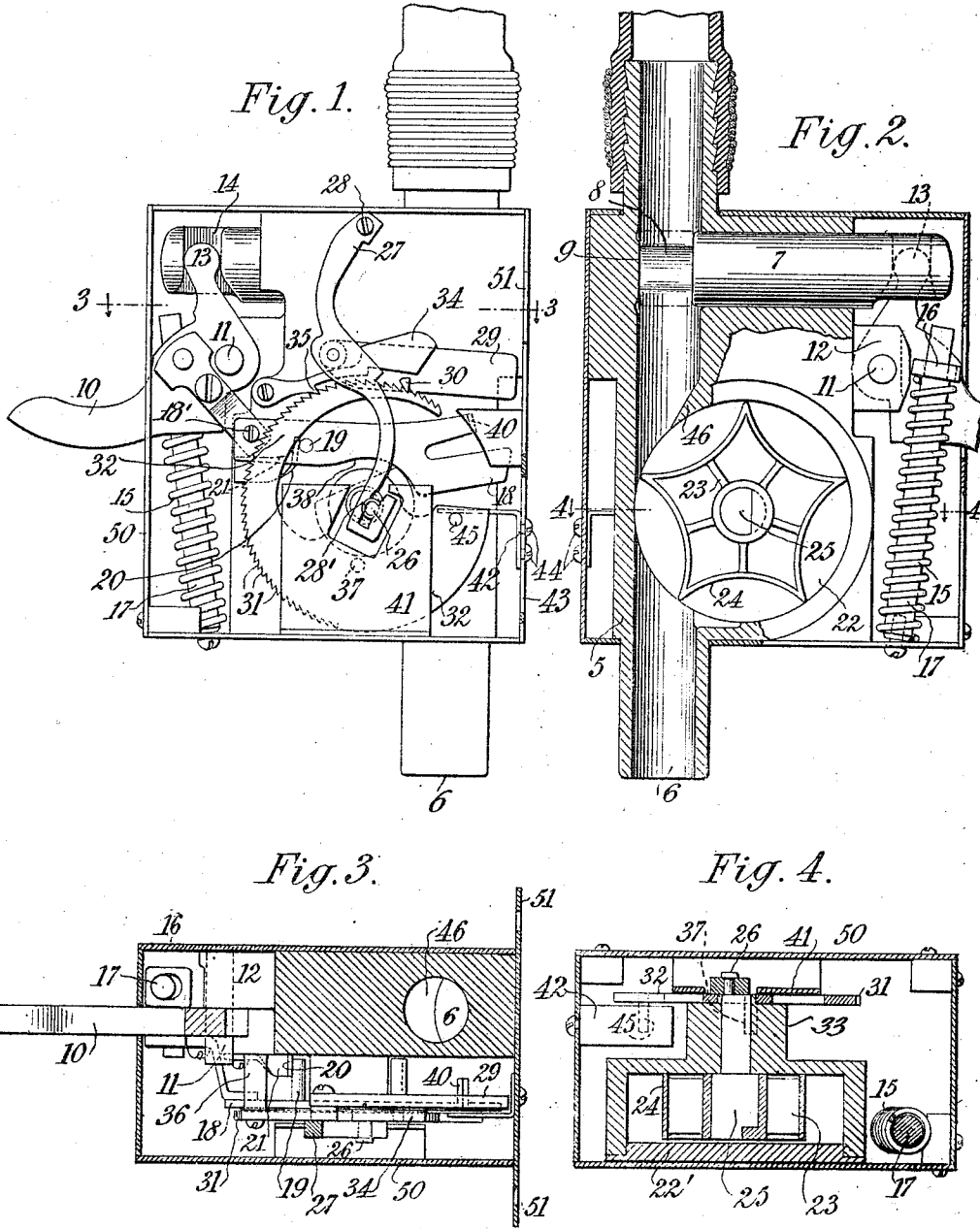


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 AUTOMATIC LIQUID DISPENSING DEVICE.
 APPLICATION FILED AUG. 26, 1910.

1,049,288.

Patented Dec. 31, 1912.



WITNESSES:
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UNITED STATES PATENT OFFICE.

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AUTOMATIC LIQUID-DISPENSING DEVICE.

1,049,288.

Specification of Letters Patent. Patented Dec. 31, 1912.

Application filed August 26, 1910. Serial No. 579,098.

To all whom it may concern:

Be it known that I, AUGUST BERTRAM, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Automatic Liquid-Dispensing Devices, of which the following is a specification.

This invention relates to liquid distributing apparatus and aims to provide improvements therein.

One object of the invention is to provide an apparatus which may be actuated to automatically deliver a measured quantity of liquid, as for instance beer.

Another object is to provide such an apparatus which may be adjusted to deliver different quantities of liquid.

Other objects are to simplify the construction of such apparatus and provide an apparatus efficient and reliable in operation.

With these objects in view the invention comprises generally a dispensing nozzle or faucet provided with a normally closed stop-cock, retaining means for retaining said stop-cock in open position during passage of liquid, releasing means, and means actuated by the flow of liquid actuating said releasing means upon passage of a predetermined quantity of liquid.

The invention will be described more in detail in connection with the accompanying drawings, illustrating one embodiment thereof, wherein—

Figure 1 is an elevation of the apparatus (with cover removed) showing one side thereof. Fig. 2 is a vertical sectional view of the apparatus. Fig. 3 is a horizontal sectional view on line 3—3 Fig. 1, Fig. 4 is a horizontal sectional view on line 4—4 Fig. 2.

In the drawings 5 designates the dispensing nozzle having a passage 6 therethrough for the flow of liquid. In the upper part of said nozzle and adapted to close the passage 6 is any suitable stop-cock or valve 7. As shown the stop-cock 7 is in the form of a slide or gate valve reciprocating in a bore 8 at right angles to passage 6 and abutting against a seat 9 formed in said passage. When in closed position the valve 7 completely shuts off the flow of liquid. Stop-cock 7 is actuated by a lever 10 pivotally mounted upon a pin 11 projecting from a lug 2 formed upon the device. Lever 10 is provided with an arm 13 engaging within a

slot 14 in the valve 7. The stop-cock 7 is normally retained in closed position by a spring 15, reacting against a fixed part of the structure and a projection 16 upon lever 10. The spring, when in the form of a coiled spring, as shown, is preferably braced by a pin 17 projecting through its coils. The pin 17 may pass through the projection 16 at one end and be attached to a fixed part of the structure at its other end.

In order to hold the stop-cock open, lever 10 is provided with a detent 18, pivoted thereto at 18'. The detent 18 is provided with a pin or stud 19, which is adapted to be engaged by a projection 20 in a fixed part of the structure. Projection 20 has a cam surface 21 on its upper side. When lever 10 is depressed to withdraw the stop-cock 7 to open position, detent 18 is moved forward, its pin 19 riding upon cam surface 21 of projection 20. When the parts reach their fully open position pin 19 drops down behind projection 20 and is retained, thus holding the parts in open position. The passage 6 now being open liquid is free to flow. In flowing out it passes through a chamber 22, preferably intersecting passage 6. This chamber is closed on its open side by a snug-fitting cap or plug 22'. In this chamber is mounted a wheel 23 adapted to be rotated by the flow of liquid. This wheel preferably has a plurality of measuring buckets 24 around its circumference, by which measured quantities of liquid are passed as it rotates. The wheel 23 is keyed to a shaft 25, passing through one side of chamber 22 to the exterior. On the end of shaft 25 is an eccentric pin 26 or equivalent device. The eccentric pin 26 engages one end of an arm 27, pivoted at 28 to a fixed part of the structure. A slot 28' is preferably formed in the arm for engagement of the pin. Arm 27 has pivoted thereto a weighted pawl 29 having a tooth 30 engaging the teeth 31 of a toothed wheel 32 pivoted in any suitable manner upon the structure, as for instance upon the reduced portion of a lug 33 projecting from the device. A weighted pawl 34 having a tooth 35 also engages wheel 32 for the purpose of preventing back motion of the wheel when actuated by pawl 29. Pawl 34 is preferably pivoted to a lug 36 projecting from the device. The tail of this pawl also overhangs the tooth 30 on pawl 29 so as to be lifted when pawl 29 is lifted out of engagement

with wheel 32. On the inner side of wheel 32 there is formed a pin or projection 37 adapted to engage detent 18, the latter preferably having a cam surface 38 for this purpose. Upon rotation of bucket-wheel 23, as by flow of liquid through the nozzle, shaft 25 is rotated. Eccentric pin 26 on shaft 25 thereby oscillates arm 27, having pivoted thereto the pawl 29. This causes pawl 29 to rotate wheel 32 step by step in accordance with the oscillations of arm 27. When a predetermined amount of liquid has passed, pin 37 on wheel 32 comes in contact with the cam surface 38 on detent 18, thus gradually raising the detent. When pin 19 on detent 18 is raised above the edge of projection 20 spring 15 is free to act, and retracts the detent and forces stop-cock 7 forward to close the passage 6 and thereby cut off the flow of liquid. Detent 18 is provided with an arm 40; which, when the detent is raised by pin 37 on wheel 32, comes in contact with the tail of pawl 29 and lifts it, together with pawl 34, out of engagement with the teeth of wheel 32. Wheel 32 is returned to initial position by any suitable means. As shown, the wheel is weighted at one side, as at 41. Substantially all of the liquid passing through the device is measured thereby, inasmuch as the raising and dropping of the detent behind its stop (and consequent release of the ratchet wheel) in the opening operation, is momentary, and the initial return of the ratchet wheel is sluggish, the latter being substantially in equilibrium. Consequently when the detent lifts the actuating stop pawl from the ratchet wheel, the latter has not acquired sufficient potential force or unstability to return it materially before the pawls again drop into engagement with the ratchet wheel.

In order to provide for the adjustment of the apparatus to deliver different quantities of liquid, there is provided an adjustable stop 42. As shown, this stop works in a slot 43 in the casing and is fixed in position by a screw or screws 44. This stop engages with a pin or projection 45 on wheel 32. By lowering the stop the initial position of the wheel, and consequently pin 37, is advanced, so that wheel 32 will have to rotate a less distance before pin 37 comes in contact with and releases detent 18 to shut off the flow of liquid. The quantity of liquid may be varied by these means either minutely or over a wide range.

A deflector 46 is preferably formed in passage 6 adjacent to chamber 22 to direct liquid upon the tips of buckets 24, in order to give the wheel 23 a more positive action.

While I have illustrated but one embodiment of the invention it is not to be understood that my invention is limited thereto, as many modifications and variations may be made within the spirit of my invention.

What I claim is:—

1. A liquid dispensing apparatus, comprising a nozzle, a stop-cock for normally closing the passage-way through said nozzle, means for opening said stop-cock, means adapted to retain said stop-cock in open position and means for actuating said retaining-means to release the stop-cock, free to operate immediately upon the opening of said stop-cock and the flow of liquid.

2. A liquid dispensing apparatus, comprising a nozzle, a stop-cock for normally closing the passage-way through said nozzle, means for opening said stop-cock, means adapted to retain said stop-cock in open position, and means for actuating said retaining-means to release the stop-cock set in motion by the flow of liquid and acting independently of the means for opening said stop-cock.

3. A liquid dispensing apparatus, comprising a nozzle, a stop-cock for normally closing the passage-way through said nozzle, means for opening said stop-cock, means adapted to retain said stop-cock in open position and means for actuating said retaining-means to release the stop-cock, set in operation immediately upon the opening of said stop-cock and the flow of liquid, and means for varying the action of the means operating to release the stop-cock, whereby the quantity of liquid passing through said device may be varied.

4. A liquid dispensing apparatus, comprising a nozzle, a stop-cock for normally closing the passage-way through said nozzle, means for opening said stop-cock, means adapted to retain said stop-cock in open position, means actuating said retaining means to release said stop-cock upon flow of a predetermined amount of liquid, and means for varying the predetermined amount of liquid said apparatus is adapted to deliver:

5. A liquid dispensing apparatus, comprising a nozzle, a stop-cock for normally closing the passage-way through said nozzle, means for opening said stop-cock, means adapted to retain said stop-cock in open position, and means for actuating said retaining means to release said stop-cock disconnected from the means for opening said stop-cock, actuated by the flow of liquid through said nozzle.

6. A liquid dispensing apparatus, comprising a nozzle, a stop-cock for normally closing the passage-way through said nozzle, means for opening said stop-cock, means for moving said stop-cock to closed position, means adapted to retain said stop-cock in open position and means for actuating said retaining-means to release said stop-cock, disconnected from the means for opening said stop-cock, actuated by the flow of liquid through said nozzle.

7. A liquid dispensing apparatus, com-

prising a nozzle, a stop-cock for normally closing the passage-way through said nozzle, means for opening said stop-cock, means adapted to retain said stop-cock in open position, and means for actuating said retaining-means to release said stop-cock, disconnected from the means for opening said stop-cock, actuated by the flow of liquid through said nozzle, said actuating means being adapted to return to initial position upon release of the stop-cock retaining means.

8. A liquid dispensing apparatus, comprising a nozzle, a stop-cock for normally closing the passage-way through said nozzle, means adapted to retain said stop-cock in open position, and means for actuating said retaining means to release said stop-cock, disconnected from the means for opening said stop-cock, actuated by the flow of liquid through said nozzle, said actuating means being adapted to return to initial position upon release of the stop-cock retaining means, and means for varying the action of said actuating means upon said retaining means.

9. A liquid dispensing apparatus, comprising a nozzle, a stop-cock for normally closing the passage-way through said nozzle, means for opening said stop-cock, means adapted to retain said stop-cock in open position, and means for actuating said retaining means to release said stop-cock, disconnected from the means for opening said stop-cock, actuated by the flow of liquid through said nozzle, said actuating means being adapted to return to initial position upon release of the stop-cock retaining means, and means for varying the initial position of said actuating means, whereby the duration of time said flow of liquid acts to actuate said actuating-means is varied.

10. A liquid dispensing apparatus, comprising a nozzle, a stop-cock for closing the passage-way through said nozzle, means for opening said stop-cock, a spring for closing said stop-cock, means adapted to retain said stop-cock in open position, a measuring bucket wheel adapted to pass measured quantities of liquid, and a ratchet wheel actuated by said bucket-wheel adapted to release said stop-cock retaining means upon passage of a determined quantity of liquid, said ratchet wheel being disconnected from the means for opening the stop-cock.

11. A liquid dispensing apparatus, comprising a nozzle, a stop-cock for closing the passage-way through said nozzle, means for opening said stop-cock, a spring for closing said stop-cock, means adapted to retain said stop-cock in open position, a measuring bucket wheel adapted to pass measured quantities of liquid, a ratchet wheel, and a pawl actuated by said bucket wheel and actuating said ratchet wheel to release said

stop-cock retaining means upon passage of a determined quantity of liquid, said ratchet wheel being disconnected from the means for opening said stop-cock.

12. A liquid dispensing apparatus, comprising a nozzle, a stop-cock for closing the passage-way through said nozzle, means for closing said stop-cock, means adapted to retain said stop-cock in open position, a measuring bucket wheel adapted to pass measured quantities of liquid, and means actuated by said bucket wheel for releasing said stop-cock retaining means, thereby releasing the said stop-cock upon passage of a determined quantity of liquid, said means comprising a ratchet wheel, adapted to return to initial position when free and means for disconnecting said bucket-wheel and ratchet wheel upon release of said stop-cock.

13. A liquid dispensing apparatus, comprising a nozzle, a stop-cock for closing the passage-way through said nozzle, means for closing said stop-cock, means adapted to retain said stop-cock in open position, a measuring bucket wheel adapted to pass measured quantities of liquid, and means actuated by said bucket wheel for releasing said stop-cock retaining means, thereby releasing the said stop-cock upon passage of a determined quantity of liquid, said means comprising a ratchet wheel, an arm actuated by said bucket-wheel having a pawl for engagement with said ratchet wheel.

14. A liquid dispensing apparatus, comprising a nozzle, a stop-cock for closing the passage-way through said nozzle, means for closing said stop-cock, means adapted to retain said stop-cock in open position, a measuring bucket wheel adapted to pass measured quantities of liquid, and means actuated by said bucket wheel for releasing said stop-cock retaining means, thereby releasing the said stop-cock upon passage of a determined quantity of liquid, said means comprising a ratchet wheel adapted to return to initial position when free, and an arm actuated by said bucket wheel having a pawl for engagement with said ratchet wheel, and means for disconnecting said arm and ratchet wheel upon release of the stop-cock, whereby said ratchet wheel is free to return to initial position.

15. A liquid dispensing apparatus, comprising a nozzle, a stop-cock for closing the passage-way through said nozzle, means for closing said stop-cock, means adapted to retain said stop-cock in open position, a measuring bucket wheel adapted to pass measured quantities of liquid, and means actuated by said bucket wheel for releasing said stop-cock retaining means, thereby releasing the said stop-cock upon passage of a determined quantity of liquid, said means comprising a ratchet wheel adapted to re-

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turn to initial position when free, and an arm actuated by said bucket wheel having a pawl for engagement with said ratchet wheel, and means for disconnecting said arm and ratchet wheel upon release of the stop-cock, whereby said ratchet wheel is free to return to initial position, and means for adjusting the initial position of said ratchet wheel.

10 16. A liquid dispensing apparatus comprising a nozzle, a stop-cock for closing the passage-way through said nozzle, means for closing said stop-cock, means adapted to retain said stop-cock in open position, a measuring bucket wheel adapted to pass measured quantities of liquid, and means actuated by said bucket wheel for releasing said stop-cock retaining means, thereby releasing the said stop-cock upon passage of a determined quantity of liquid, said means comprising a ratchet wheel adapted to return to initial position when free, an arm actuated by said bucket wheel having an actuating pawl pivoted thereto for engagement with said ratchet wheel, and means for lifting said pawl from said ratchet wheel upon release of the stop-cock, whereby said ratchet wheel is free to return to initial position.

30 17. A liquid dispensing apparatus, comprising a nozzle, a stop-cock for closing the passage-way through said nozzle, means for closing said stop-cock, means adapted to retain said stop-cock in open position, a measuring bucket wheel adapted to pass measured quantities of liquid, and means actuated by said bucket wheel for releasing

said stop-cock retaining means, thereby releasing said stop-cock, upon passage of a predetermined quantity of liquid, said means comprising a ratchet wheel adapted to return to initial position when free, an arm actuated by said bucket wheel having an actuating pawl pivoted thereto for engagement with said ratchet wheel, a stop pawl, and means for lifting said actuating pawl from said ratchet wheel upon release of the said cock, said actuating pawl operating to release said stop-pawl, whereby said ratchet wheel is released and free to return to initial position.

18. A liquid dispensing apparatus, comprising a nozzle, a stop-cock for closing the passage-way through said nozzle, means for closing said stop-cock, means adapted to retain said stop-cock in open position, a measuring bucket wheel adapted to pass measured quantities of liquid, and means actuated by said bucket wheel for releasing the said stop-cock retaining means, thereby releasing said stop-cock upon passage of a pre-determined quantity of liquid, said means comprising a ratchet wheel weighted at one side whereby it is adapted to return to initial position when free, and means for disconnecting said bucket wheel and ratchet wheel upon release of said stop-cock.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

AUGUST BERTRAM.

Witnesses:

GUSTAVE R. THOMPSON,
CHARLES K. FRASER.