July 26, 1938. D. MAYNE 2,124,924

DEVICE FOR DISPENSING SIRUPS AND LIKE LIQUIDS

Filed April 15, 1936 2 Sheets-Sheet 1

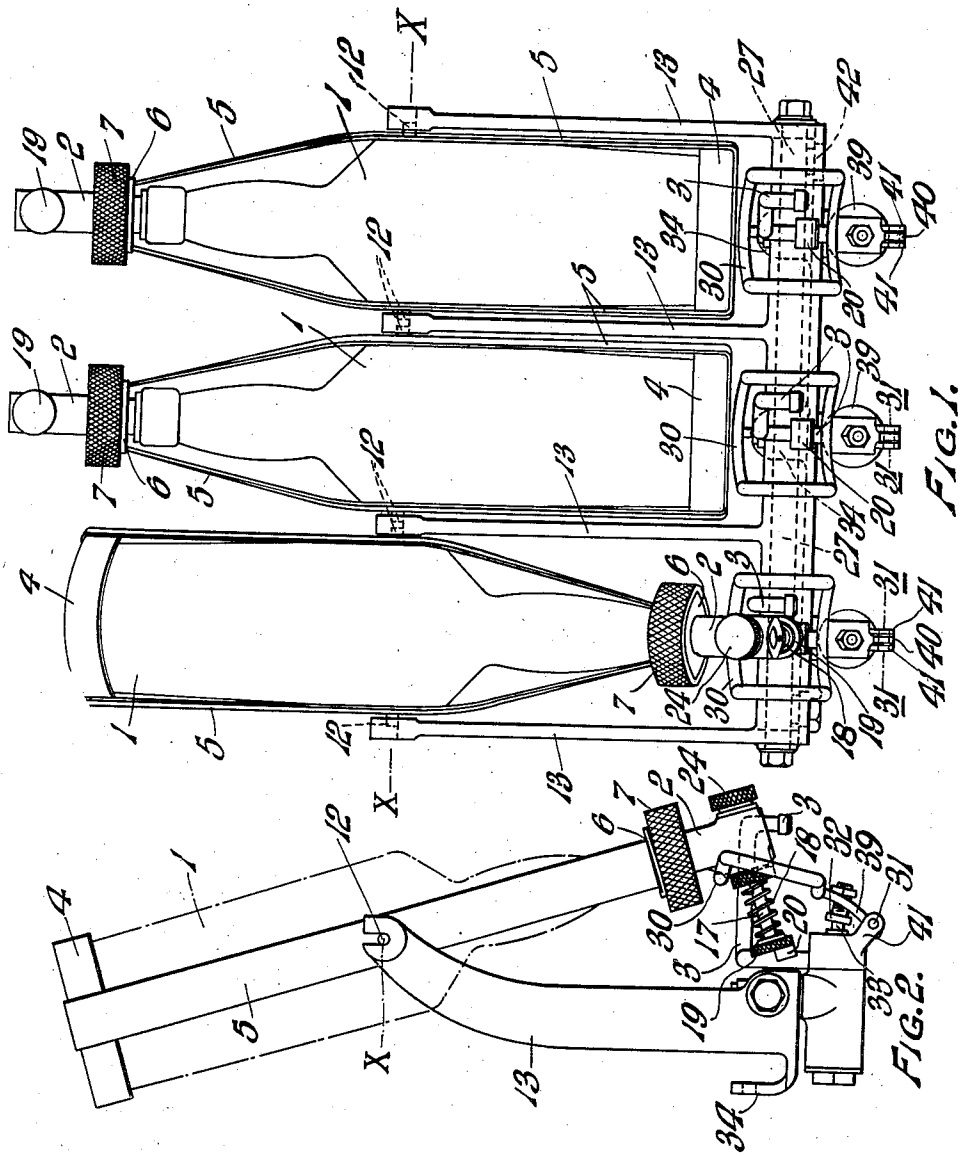


FIG. 1.

FIG. 2.

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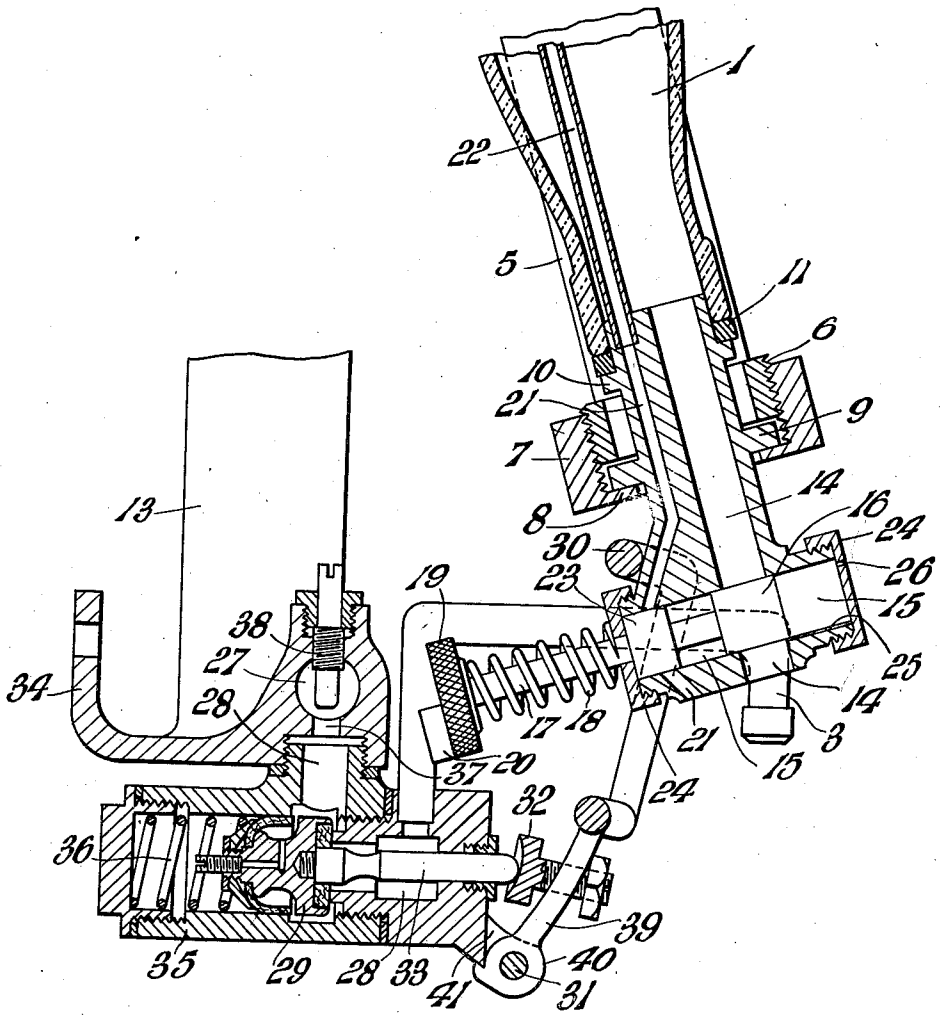


FIG. 3.

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UNITED STATES PATENT OFFICE

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DEVICE FOR DISPENSING SIRUPS AND LIKE LIQUIDS

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In Great Britain April 16, 1935

26 Claims. (Cl. 225—21)

This invention relates to apparatus for dispensing liquids and more particularly to apparatus for mixing liquid (such as sirup) from a bottle with liquid (such as water) from a supply source.

The object of the invention is the provision of an improved apparatus of this character and the invention consists broadly in the combination of a bottle holder mounted on a base in such a way as to be adapted to turn over from a normal position at which the bottle is upright to a delivering position at which the bottle is inverted, and a tap or cock so arranged and connected as to deliver the liquid from the supply source at the same time as the liquid from the bottle, the delivery of the two liquids being in the correct predetermined proportion.

In order that the invention may be the more clearly understood an apparatus in accordance therewith will now be described, reference being made to the accompanying drawings wherein:

Figure 1 is a front elevation of said apparatus, showing two bottles in the normal position and another in the inverted position.

Figure 2 is a side elevation of the same, showing a bottle in the inverted position.

Figure 3 is a reproduction in section to an enlarged scale of the lower portion of Figure 2.

Referring to the drawings the same illustrate an apparatus which constitutes a means for supporting a number of bottles 1 in a normally upright position from which they may be inverted by rotation about an axis x—x, and a means whereby, when any bottle is so inverted a stream of the sirup contents is liberated through a valve fitting 2 which covers the mouth of said bottle, and simultaneously a stream of water is liberated through a pipe 3. The streams discharge in the correct proportions so that when a measure of beverage is required all that is necessary is to locate the vessel, invert the appropriate bottle until said vessel is filled with the sirup and water to the required extent, and then permit the bottle to swing back to the upright position. It will be noted that the act of inverting the bottle will agitate the sirup so as to mix adequately its constituents of different densities.

Each bottle is carried in a frame or holder which pivots about said axis x—x, said frame or holder consisting of a shallow cup 4 in which the base of the bottle rests, a pair of arms 5 connected at one end to diametrically opposite points of said cup and at the other end to diametrically opposite points of an externally screw threaded ring element 6 located just beyond the mouth of the bottle, the aforesaid valve fitting 2 which passes through said ring element and engages the mouth of the bottle in the manner of a stopper, and a milled nut 7 in screwed relation on said ring element 6 and having a flange 8 engaging a flange 9 on the fitting 2, so that when said nut 7 is tightened, the bottle is gripped between the cup 4 at one end and the valve fitting 2 at the other. As shown said valve fitting actually enters the mouth of the bottle, having a flange 10 which rests, with a washer 11 in between, on the rim of said bottle.

The pivotal mounting of said frame or holder is effected by means of trunnions 12 carried by the arms 5 and resting in bearing slots in the upper ends of upright supports 13. The shallow cup 4 is loaded with a partial lead filling so that when the holder is released it will always swing back to the normal upright position.

The valve fitting 2 is formed with a longitudinal flow passage 14 through which the sirup is adapted to flow, and a transverse valve passage 15 which intersects said flow passage and in which the valve element 16 is adapted to reciprocate. A valve rod 17 secured to said valve element 16 extends to the outside, and a spring 18 is in compression between the valve fitting 2 and an enlarged head 19 on said valve rod, in such a way that said valve element is biased to the position shown in Figure 3 at which the flow passage 14 is closed. When the bottle is swung to the inverted position said enlarged head 19 engages a fixed stop 20 as shown in Figure 3, and as the movement of the bottle is continued, the spring 18 is compressed and the valve element 16 moves to the right hand end of the passage 15 thereby opening the flow passage 14 and permitting the sirup to flow.

The valve fitting 2 is also provided with an air passage 21 which is intersected by said valve passage 15 and from the inner end of which an air tube 22 extends to the base end of the bottle. An auxiliary valve element 23 integral with the valve element 16 is provided which at the normal position of said valve element closes said air passage 21, and, as said valve element opens said flow passage 14, opens said air passage 21 thereby admitting air to the base end of the bottle to replace the sirup.

In construction it will be seen that the valve passage is bored completely through the valve fitting 2 and is closed at its two ends by means of caps 24.

As the bottle is swung back to its normal position, the valve element 16 will instantly return

to the closing position, and, in order to prevent the sirup in the extremity of the flow passage 14 beyond said valve element 16 from being thrown out by centrifugal force, a small longitudinal groove 25 is formed in the inner periphery of the valve passage 15 so as to establish a connection between the extremity of said flow passage and the right hand end of said valve passage after the valve element is at the closed position. By virtue of said valve element moving to the closed position a suction is set up at this right hand end of the valve passage which will serve to draw the said sirup from the extremity of the flow passage into said valve passage. A very small vent hole 26 is formed in the cap 24 closing the right hand end of the valve passage 15 so that in due course the pressure in said valve passage becomes atmospheric.

The stream of water liberated through each pipe 3 flows from a common conduit 27 and through a passage 28 which is normally closed by means of a valve 29 and is opened when the respective bottle is swung to the inverted position, by the valve fitting 2 of said bottle engaging the transverse member 30 of a unit pivoted about an axis 31, which unit carries an adjustable presser member 32 which engages the projecting extremity of a valve rod 33 secured to said valve 29. As will be clear from Figure 3, the unit carrying the presser member 32 will, as the bottle moves to the inverted position, be rocked to the left about its axis 31 and the presser element 32 will force the valve 29 leftwards to the open position.

As will be clear from the drawings, the conduit 27 is formed in an integral part of the basic supporting structure of the apparatus which includes the upright supports 13 and comprises a flange 34 for mounting the apparatus to a vertical wall.

The valve 29 moves within a valve chamber 35 which is supported directly from said basic supporting structure and carries the pipe 3. The construction of said valve 29 and valve chamber 35 will be clear from the drawings, it being observed that said valve is biased to the closing position by means of a spring 36.

The communication between the conduit 27 and each passage 28 is through a restricted hole 37 as shown in Figure 3 and screws 38 are provided which project radially into said conduit to an adjustable extent so that the extremity of each partially closes to an adjustable degree the respective hole 37. Thus the rate of flow of water through each pipe 3 can be preselected to suit the particular sirup in the respective bottle.

The construction of the pivoted unit comprising the member 30 and carrying the presser member 32 is clearly shown in Figures 1 and 2. This unit forms one rigid whole and consists of a frame portion of which the member 30 forms the upper frame member and a disc shaped portion 39 in which the presser member 32 is screwed and which is formed with a lug 40 pivotally mounted between lugs 41 integral with the valve chamber 35.

The numeral 42 designates the port by which the water is supplied to the conduit 27.

What I claim and desire to secure by Letters Patent is:

1. A beverage dispensing device comprising a faucet adapted to be connected to a source of liquid, means in cooperative relation with said faucet for tiltably holding a bottle and directing the discharge therefrom into mixing relation with the liquid discharged from said faucet, and means operated by the tilting of said bottle to effect the discharge of the contents of said bottle and the flow of liquid through said faucet simultaneously in the required proportion to produce a beverage.

2. A beverage dispensing device comprising a faucet adapted to be connected to a source of liquid, a bottle holder in cooperative relation with said faucet for tiltably holding a bottle and directing the discharge therefrom into mixing relation with the liquid discharged from said faucet, and means operated by the tilting of said bottle to effect the discharge of the contents of said bottle and the flow of liquid through said faucet simultaneously in the required proportion to produce a beverage, said bottle holder including a base portion and a mouth portion which are adapted respectively to abut against the base and mouth of the bottle, and means for adjusting said base and mouth portions from and towards one another so that the bottle is held securely between them.

3. A beverage dispensing device comprising a faucet adapted to be connected to a source of liquid, a bottle holder in cooperative relation with said faucet for tiltably holding a bottle and directing the discharge therefrom into mixing relation with the liquid discharged from said faucet, and means operated by the tilting of said bottle to effect the discharge of the contents of said bottle and the flow of liquid through said faucet simultaneously in the required proportion to produce a beverage, said bottle holder comprising a base portion and a mouth portion which are adapted respectively to abut against the base and mouth of the bottle, a supporting element for said mouth portion, arms connecting said base portion to said supporting element and a screw adjustment connecting said supporting element and said mouth portion whereby said base and said mouth portion may be adjusted from and towards one another so that the bottle is held securely between them.

4. A beverage dispensing device comprising a faucet adapted to be connected to a source of liquid, a bottle holder in cooperative relation with said faucet for tiltably holding a bottle and directing the discharge therefrom into mixing relation with the liquid discharged from said faucet, and means operated by the tilting of said bottle to effect the discharge of the contents of said bottle and the flow of liquid through said faucet simultaneously in the required proportion to produce a beverage, said bottle holder together with the bottle being biased in delivering position towards the normal or non-delivering position so that upon release thereof it swings back to the non-delivering position whereby delivery ceases from said faucet and said bottle.

5. A beverage dispensing device comprising a faucet adapted to be connected to a source of liquid, a bottle holder in cooperative relation to said faucet for tiltably holding a bottle and directing the discharge therefrom into mixing relation to the liquid discharged from said faucet, a valve carried by said holder at the mouth of the bottle and having a normally closed position at which the mouth of the bottle is closed, and means operated by the tilting of said bottle to delivering position to operate said valve to the open position and simultaneously open said faucet, whereby the contents of said bottle and liquid from said faucet are simultaneously discharged in the required proportion to produce a beverage.

6. A beverage dispensing device comprising a

faucet adapted to be connected to a source of liquid, a bottle holder in cooperative relation with said faucet for tiltably holding a bottle and directing the discharge therefrom into mixing relation to the liquid discharged from said faucet, a valve element, a valve fitting in which said valve element moves, said valve fitting being carried by said holder and covering the mouth of the bottle and having two through holes for liquid and air respectively, both of which holes are normally closed by said valve element, and means operated by the tilting of said bottle holder to the delivering position to operate said valve element to the position for uncovering said holes and to simultaneously open said faucet, whereby the contents of said bottle and liquid from said faucet are simultaneously discharged in the required proportion to produce a beverage.

7. A beverage dispensing device comprising a faucet adapted to be connected to a source of liquid, a bottle holder in cooperative relation to the faucet for tiltably holding a bottle and directing the discharge therefrom into mixing relation to the liquid discharged from said faucet, a valve carried by said holder at the mouth of the bottle and having a normally closed position at which the mouth of the bottle is closed, an extension from said valve adapted to engage a fixed stop as the bottle holder approaches the delivering position, thereby, as said bottle holder continues moving, forcing said valve, to an open position permitting delivery of the liquid, spring means resisting opening movement of said valve, and means for simultaneously opening said faucet, whereby the contents of said bottle and liquid from said faucet are simultaneously discharged in the required proportion to produce a beverage.

8. A beverage dispensing device comprising a faucet adapted to be connected to a source of liquid, a bottle holder in cooperative relation to said faucet for tiltably holding a bottle and directing the discharge therefrom into mixing relation to the liquid discharged from said faucet, a valve element, a valve casing for said element carried by said holder and which covers the mouth of the bottle and has two through holes for liquid and air respectively, both of which are normally closed by said valve element, the air hole having a tube extending from it into the bottle, and the end portion of said liquid through-hole beyond the valve element passage being permanently connected by a bleeder channel to a portion of said valve passage in which a suction is developed by said valve element moving to the closed position, whereby the liquid in said end portion of the through hole is prevented from being projected into the atmosphere as the bottle is returned to the normal position, and means operated by the tilting of said bottle holder to the delivering position to operate said valve element to the position for uncovering said holes and to simultaneously open said faucet, whereby the contents of said bottle and liquid from said faucet are simultaneously discharged in the required proportion to produce a beverage.

9. A beverage dispensing device comprising a faucet adapted to be connected to a source of liquid, a bottle holder in cooperative relation to said faucet for tiltably holding a bottle and directing the discharge therefrom into mixing relation to the liquid discharged from said faucet, said bottle holder including a base portion and a mouth portion which are adapted respectively to abut against the base and mouth of the bottle, means for adjusting said base and mouth portions from and towards one another so that the bottle is held securely between them, and a valve element carried by and moving in said mouth portion, said mouth portion having a through hole for the liquid in the bottle normally closed by said valve element, and means operated by the tilting of said bottle holder to the delivering position to operate said valve element to the position for uncovering said hole and to simultaneously open said faucet, whereby the contents of said bottle and liquid from said faucet are simultaneously discharged in the required proportion to produce a beverage.

10. A beverage dispensing device comprising a faucet adapted to be connected to a source of liquid, a bottle holder in cooperative relation to said faucet for tiltably holding a bottle and directing the discharge therefrom into mixing relation to the liquid discharged from said faucet, a valve incorporated in said bottle holder and having a normally closed position at which the mouth of the bottle is closed, and means operated by the tilting of said bottle holder to delivering position to operate said valve to the open position and simultaneously open said faucet, whereby the contents of said bottle and liquid from said faucet are simultaneously discharged in the required proportion to produce a beverage.

11. A beverage dispensing device comprising a faucet adapted to be connected to a source of liquid, means in cooperative relation to said faucet for tiltably holding a bottle and directing the discharge therefrom into mixing relation with the liquid discharged from said faucet, means operated by the tilting of said bottle holder to effect the discharge of the contents of said bottle and the flow of liquid through said faucet simultaneously, and means for adjusting the rate of flow from said faucet.

12. A beverage dispensing device comprising a faucet adapted to be connected to a source of liquid, a bottle holder in cooperative relation to said faucet for tiltably holding a bottle and directing the discharge therefrom into mixing relation to the liquid discharged from said faucet, a valve carried by said holder and having a normally closed position at which the mouth of the bottle is closed, and means operated by the tilting of said bottle holder to delivering position to operate said valve to the open position and simultaneously open said faucet, whereby the contents of said bottle and liquid from said faucet are simultaneously discharged, means being provided for preadjusting the rate of flow through said faucet.

13. A beverage dispensing device comprising a plurality of faucets, a common conduit connected to said faucets and communicating with a source of liquid, a corresponding plurality of bottle holders associated with respective faucets for tiltably holding bottles and directing the discharges therefrom in mixing relation with the liquid discharged from the respective faucets, and means operated by the tilting of any bottle holder to effect the discharge of the contents of the bottle held thereby and the flow of liquid through the coresponding faucet simultaneously in the required proportion to produce a beverage.

14. A beverage dispensing device comprising a bottle holding frame, a rigid supporting frame to which said bottle holding frame is pivoted about a horizontal axis, means for biasing said bottle holding frame together with the bottle about said axis to a normal position at which the bottle is mouth uppermost so that it may be tilted to a delivering position and will upon release return to

the normal position, said bottle holding frame comprising a base portion and a mouth portion which respectively abut against the base and mouth of the bottle, a supporting element for said mouth portion, arms connected at one end to said base portion and at the other to said supporting element, and a screw adjustment connecting said supporting element and said mouth portion.

15. A beverage dispensing device comprising a bottle holding frame adapted to receive and hold a bottle, a valve carried by said frame and having a normally closed position at which the mouth of said bottle is closed, a rigid supporting frame to which said bottle holding frame is pivoted about a horizontal axis, means for biasing said bottle holding frame together with said bottle about said axis to a normal position at which the bottle is mouth uppermost, whereby said bottle holding frame is adapted to swing about said axis into the inverted position of the bottle and when released to swing back to the normal position, an operating extension from said valve, a fixed stop adapted to be engaged by said extension as the bottle approaches the inverted position, thereby, as said bottle continues, forcing said valve to an open position permitting delivery of the liquid, and spring means urging said valve to closed position.

16. A beverage dispensing device comprising a bottle holding frame adapted to receive and hold a bottle, a rigid supporting frame to which said bottle holding frame is pivoted by rigid pivots about a horizontal axis, a valve element, a valve fitting carried by the bottle holding frame and having a valve passage in which said valve element moves and which covers the mouth of the bottle and has a through hole for the liquid in the bottle which intersects said valve passage and is normally closed by the valve element, means whereby suction is developed in a portion of said valve passage by said valve element moving to the closing position, a bleeder channel permanently connecting the end portion of said through hole beyond the valve passage to the said portion of said valve passage, means for biasing said bottle holding frame together with the bottle to a normal position with the bottle mouth uppermost, whereby said bottle holding frame is adapted to be swung about said axis together with said bottle into inverted position and when released to swing back to its normal upright position, and means whereby said valve is operated from the closing to the opening position as said bottle reaches the inverted position and returned to the closing position as said bottle leaves the inverted position.

17. A beverage dispensing device comprising a bottle holder, supporting means to which said bottle holder is pivoted about a horizontal axis, and means for biasing said bottle holder, together with the bottle, about said axis to a normal position at which the bottle is mouth uppermost so that it may be tilted to a delivering position and will upon release return to the normal position, said bottle holder comprising two portions which respectively abut against the two ends of the bottle, a supporting element for one of said portions, a screw adjustment connecting said supporting element to said last named portion and means attaching said supporting element to the other portion.

18. A beverage dispensing device, comprising a faucet adapted to be connected to a source of liquid, means in cooperative relation with said faucet for tiltably holding a bottle and directing the discharge therefrom into mixing relation with the liquid discharged from said faucet, and means operated by the tilting of said bottle into its discharging position to effect the flow of liquid through said faucet.

19. A beverage dispensing device, comprising a faucet adapted to be connected to a source of liquid, a bottle holder in cooperative relation with said faucet for holding a bottle so that it may be tilted from an upright position to a delivering position at which the discharge therefrom is directed into mixing relation with the liquid discharged from said faucet, means operated by the tilting of said bottle into its discharging position to effect the flow of liquid from said faucet, said bottle holder together with the bottle being biased towards the upright position so that upon release thereof it automatically swings back.

20. A beverage dispensing device, comprising a faucet adapted to be connected to a source of liquid, a bottle holder in cooperative relation with said faucet for holding a bottle so that it may be tilted from an upright position to a delivering position at which the discharge therefrom is directed into mixing relation with the liquid discharged from said faucet, means operated by the tilting of said bottle into its discharging position to effect the flow of liquid from said faucet and discharge from said bottle, said bottle holder together with the bottle being biased towards the upright position so that upon release thereof it automatically swings back.

21. A liquid dispensing device comprising a bottle holder, supporting means to which said bottle holder is pivoted about a horizontal axis so that it can be turned to and from a delivering and a non-delivering position, said bottle holder comprising two portions which respectively abut against the two ends of the bottle, a supporting element for one of said portions, a screw adjustment connecting said supporting element to said last named portion and means attaching said supporting element to the other portion.

22. A liquid dispensing device comprising a bottle holder, supporting means to which said bottle holder is pivoted about a horizontal axis so that it can be turned to and from a delivering and a non-delivering position, said bottle holder comprising two portions which respectively abut against the two ends of the bottle and a screw adjustment for drawing said two portions towards one another.

23. A liquid dispensing device comprising a bottle holder adapted to receive and hold a bottle, a valve having a normally closed position at which the mouth of the bottle is closed, means for supporting said bottle holder so that the same is movable to and from a delivering and a non-delivering position, a fixed stop and means whereby, as the bottle moves into the delivering position, said valve cooperates with said stop so as to be operated to the open position.

24. A liquid dispensing device comprising a bottle holder adapted to receive and hold a bottle, a valve supported by said bottle holder and having a normally closed position at which the mouth of the bottle is closed, means for supporting said bottle holder so that the same is movable to and from a delivering and a non-delivering position, a fixed stop and means whereby, as the bottle moves into the delivering position, said valve cooperates with said stop so as to be operated to the open position.

25. A liquid dispensing device comprising a faucet adapted to be connected to a source of

liquid means in cooperative relation to said faucet for movably holding a bottle and directing the discharge therefrom into mixing relation with the iquid discharged from said faucet, and means operated by the movement of said bottle into the discharging position to effect flow of liquid through said faucet.

26. A liquid dispensing device comprising a faucet adapted to be connected to a source of liquid, means in cooperative relation with said faucet for movably holding a bottle and directing the discharge therefrom into mixing relation with the liquid discharged from said faucet and means operated by the movement of said bottle to effect the discharge of the contents of the bottle and the flow of liquid through said faucet simultaneously to produce a beverage.

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