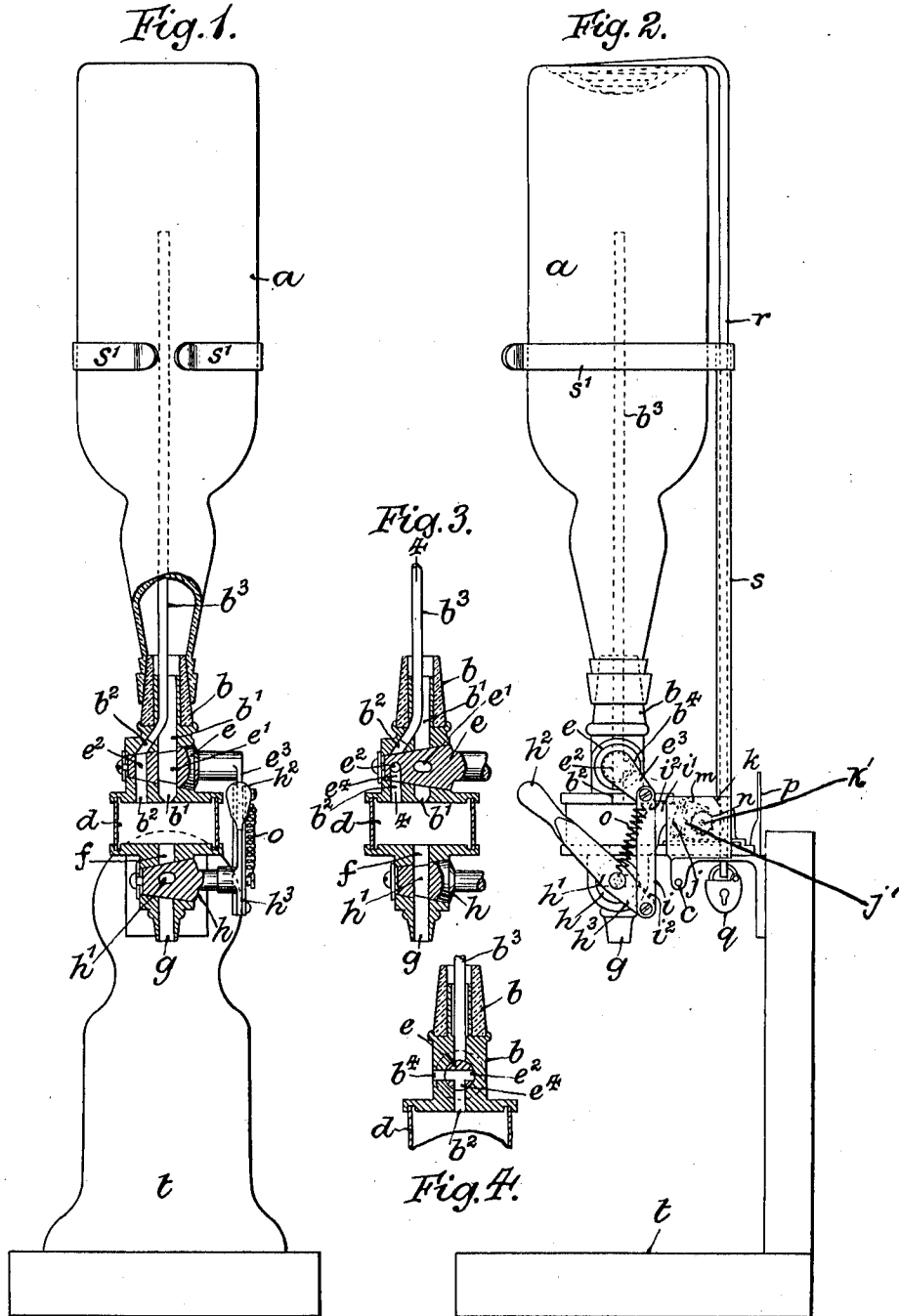


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 APPARATUS FOR DELIVERING MEASURED QUANTITIES OF LIQUOR.
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1,004,019.

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WITNESSES

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To all whom it may concern:

Be it known that I, DOUGLAS GRIFFITHS, subject of the King of Great Britain, residing at No. 5 Josephine avenue, Brixton, London, England, have invented new and useful Improvements in Apparatus for Delivering Measured Quantities of Liquor, of which the following is a specification.

This invention relates to an improved contrivance for serving liquors in automatically measured quantities from an inverted bottle or other vessel which is not open to the atmosphere at its upper end. The contrivance is of that type in which a measuring chamber is filled by opening a communication between the upper side thereof and the bottle or other vessel, the contents of the measuring chamber being evacuated by opening a communication from the lower end thereof to the atmosphere subsequent to the closure of the passage by which the chamber is filled. In such contrivances the refilling of the measuring chamber must be accompanied by the displacement of the air contained in the otherwise empty chamber to the bottle or other vessel simultaneously with the admission to the chamber of a corresponding volume of liquor and, after the completion of the refilling operation, the liquor will follow the upward flowing air and completely occupy the upward passage for the air up to the level of the liquor in the bottle or other vessel. Thereby an exact hydraulic balance will be effected within the downward passage for the liquor and the upward passage for the air which, according to the arrangements of previous inventions, prevents or delays the refilling of the measuring chamber when, after evacuation of its contents, it is again placed in communication with the bottle or other vessel. Now according to the present invention, the arrangement is such that the operation of the evacuation of the contents of the measuring vessel has the effect of emptying of liquor a portion of the passage through which air rises into the bottle or other vessel and substitutes air for the liquor in that portion so that, when the measuring chamber is again placed in communication with the bottle or other vessel, the pressure in the downward flow passage for the liquor will predominate and the refilling will commence promptly and take place rapidly. This constitutes the entirely

new feature of the present invention the absence of which in prior inventions has caused them to fail in achieving the purpose desired.

The accompanying drawing shows an embodiment of the invention.

In this drawing:— Figure 1 is a part sectional front elevation showing the measuring chamber open to the bottle. Fig. 2 is a corresponding side elevation not in section. Fig. 3 is a sectional front elevation of a portion showing the measuring chamber closed relatively to the bottle and open to the atmosphere, and Fig. 4 is a corresponding sectional side elevation taken along the line 4—4 of Fig. 3.

In this drawing the bottle *a* is secured in a liquid-tight manner to the serving contrivance by the insertion of the spigot *b* into the mouth of the bottle when the latter is upwardly directed, the inversion of the bottle taking place by angular displacement around a hinge at *c*. In the spigot *b* and the base thereof, a passage *b*¹ is formed for the flow of liquid from the bottle to a measuring chamber *d* there being a second passage *b*² also connecting the measuring chamber with the bottle, which passage may be continued upward within the interior of the bottle by a tube *b*³ as shown, but this is not essential. The two passages *b*¹ and *b*² are commanded by the plug *e* of a turn-cock, the holes *e*¹ and *e*² in the plug which complete the passages *b*¹ and *b*² respectively, when the said holes are vertically directed, being bored diametrically through the plug *e*. From the measuring chamber *d* a vertical passage *f* is provided leading downward to a spout *g*, the passage being commanded by the plug *h* of a second turn-cock formed with a diametrically bored hole *h*¹. The lever arms *e*³ and *h*³ secured respectively to the said plugs *e* and *h* are interconnected by a link *i* and one of the plugs, the lower one as shown is provided with an operating lever *h*² which, on being angularly displaced downward, first closes the passages *b*¹ and *b*² which connect the measuring chamber with the bottle and then opens the passage *f* which leads from the measuring chamber to the spout *g*, owing to the holes *e*¹, *e*² and *h*¹ being sufficiently narrow in the radial directions of the plugs *e* and *h*, for the holes *e*¹, *e*² to become covered by solid portions of the base of the spigot *b* which constitutes

the shell of the plug, prior to any portion of the hole h^1 coming opposite the passage f . On the completion of the filling of the measuring chamber with liquid, the last portion of the volume of air which is forced up the passage b^2 by the liquid descending through b^1 , will be followed by liquid which, if there is a tube b^3 , will stand therein at a level which differs from that in the bottle only to an amount due to the superior capillary action caused by the relatively small diameter of the tube b^3 . If, after closing the passages b^1 b^2 and emptying the chamber d , the passages b^1 b^2 were reopened without any displacement of the liquid contained in either of them, there would be no initial tendency to refill the chamber with liquid through b^1 because the head therein would be balanced by that in the passage b^2 . According to the present invention the pressures in the two passages are thrown out of balance by the extraction of the liquid from the lower end of the passage b^2 during the inflow of air from the atmosphere to the chamber d in the operation of emptying it of liquid. For this purpose a hole b^4 is bored in the base of the spigot b which constitutes the shell of the plug e which hole leads from the atmosphere into the before-mentioned diametrically bored hole e^2 of the plug e . Also a hole e^4 is bored in the plug e as far as the hole e^2 this hole e^4 being vertical and in line with the lower end of the passage b^2 when the operating lever h^2 is depressed to the position to discharge the contents of the measuring chamber. The inflow of air through b^4 , e^4 and the lower end of the passage b^2 to the upper end of the measuring chamber will empty this passage of liquid and substitute air, while the hole e^1 will be fully charged and in the portion of b^1 , between the plug and the measuring chamber, the liquid will be retained by the fact that air will be unable to freely enter to take its place. To insure the retention of liquid in the lower end of the passage b^1 it is somewhat constricted at its extremity as shown. Accordingly when the plug e is again displaced into the position to open the passages b^1 b^2 the head of liquid contained in b^2 will be sufficiently less than that in the passage b to enable the chamber to promptly refill with liquid and displace the air upward from the measuring chamber through the passage b^2 . The evacuation of the contents of the measuring chamber will commence under a relatively considerable head and therefore with a corresponding velocity. The initial momentum of the stream in the discharge spout thereby acquired, causes the stream to continue the evacuation with a velocity in excess of that

due to the head which gradually diminishes to zero. In consequence of this rapidity of evacuation the last drop of liquid in the spout will be drawn through, and dripping avoided.

The link i carries a cam-piece i^1 , which, when the link is moved downward by the upward displacement of the lever h^2 , displaces against the influence of a spring j^1 the pivoted lever j of a counter k and causes the claw of a pawl m pivoted to the lever j to pass over a tooth of a ratchet wheel n , mounted on the spindle k^1 of the counter k . On the return movement of the link i , the lever j will be returned by its spring to its initial position, thereby drawing back the pawl m while the latter is in engagement with a tooth of the ratchet-wheel n , whereby the counter will be actuated to register another unit. The upper and lower ends of the cam-piece i are beveled at i^2 which bevels, by coming in contact with the lever arms e^3 and h^3 alternately, determine the extreme positions of the operating lever h^2 . Preferably the operating lever is depressed to discharge the contents of the measuring chamber and the reverse movement effected by the operation of the spring o .

The bottle is secured in the upright position by a spring-catch p and locked by a padlock q the bow of which is passed through a hole formed in a rod r the upper bent end of which fits in the recess formed in the inverted base of the bottle, the rod being inserted downward through a tube s which carries clips s^1 which embrace the sides of the bottle.

The contrivance may be secured to a wall-plate or fastened to a stand t as shown.

I claim:

In a contrivance for delivering liquid in automatically measured quantities from a vessel, a measuring chamber, between said vessel and said chamber a double ported plug-cock one port of which has a lateral branch and the shell of which is formed with two passages both extending between said vessel and the plug of said cock and with two passages both extending between said plug and said chamber and with an air inlet in communication with said lateral branch in the closed condition of said plug-cock, a plug-cock beneath said chamber and means so interconnecting said plug-cocks that one opens after the other closes.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DOUGLAS GRIFFITHS.

Witnesses:

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R. WILSON.