

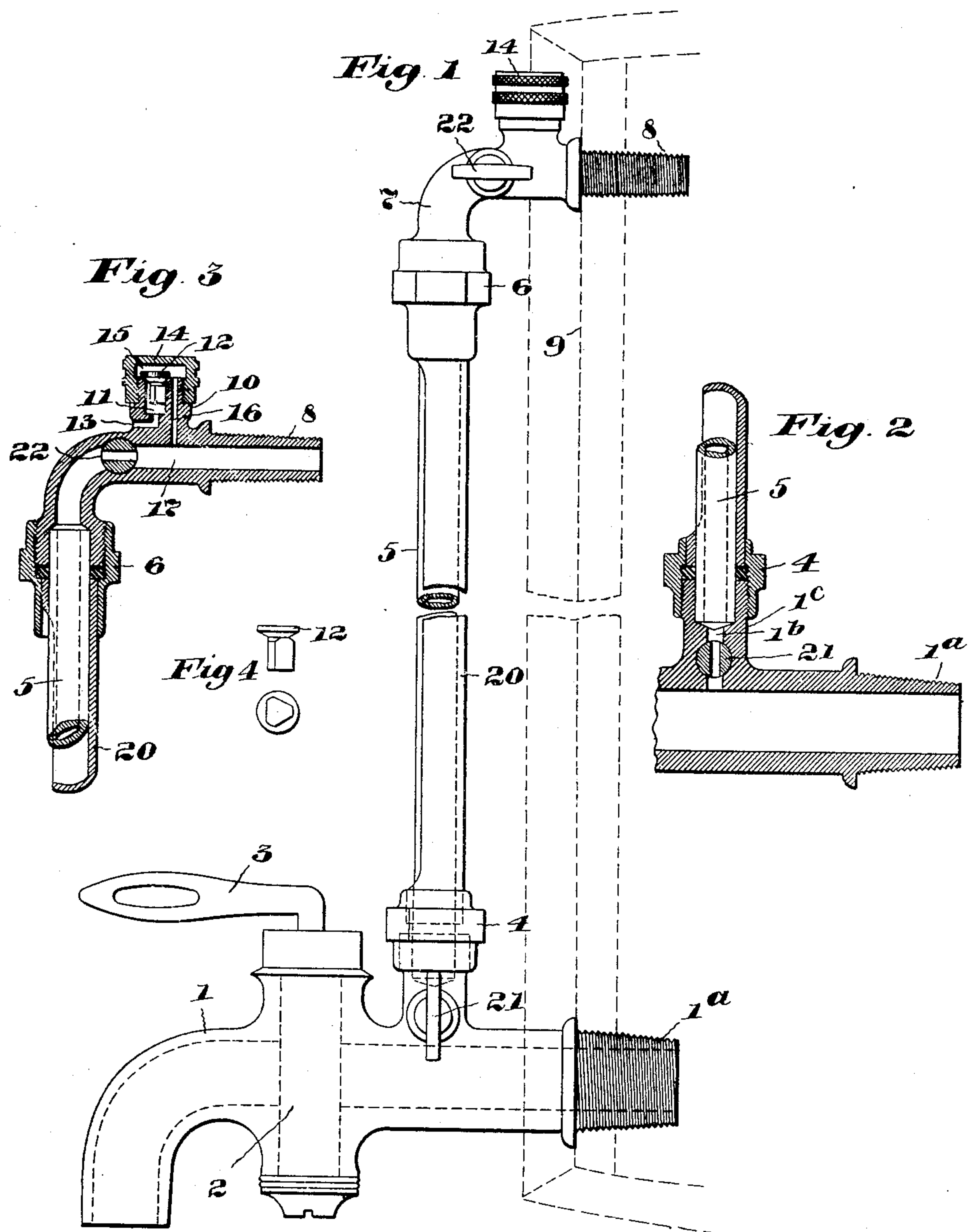
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H. D. CILLEY & L. E. COLLINS.

FAUCET.

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UNITED STATES PATENT OFFICE.

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FAUCET.

No. 803,469.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, HARRY D. CILLEY, a resident of Laconia, Belknap county, and LEFOREST E. COLLINS, a resident of Woodsville, Grafton county, New Hampshire, citizens of the United States, have invented an Improvement in Faucets, of which the following description, in connection with the accompanying drawings, is a specification, like numerals on the drawings representing like parts.

Our invention relates to faucets for drawing off liquid from closed vessels, and aims particularly to provide an attachment for such faucets which shall automatically admit air into the containing vessel to replace the liquid as the latter is drawn off, the air-inlet at all other times being closed to prevent evaporation of the liquid, such as would occur through a permanently-open air-inlet.

Our invention also aims to provide a novel attachment for faucets to indicate the level of the liquid in the vessel at all times.

The nature and other objects of our invention will be clearly apparent from a description of one embodiment thereof herein selected for illustration and shown in the accompanying drawings, and its scope will be pointed out in the appended claims.

In the drawings, Figure 1 shows in broken view a side elevation of the device in connection with a closed vessel. Fig. 2 is a detail sectional view of the lower portion of the device. Fig. 3 is a detail sectional view of the inlet-valve and upper portion of the device, and Fig. 4 a detail of the inlet-valve.

The embodiment of our invention which has herein been selected for the purposes of illustration comprises a faucet 1, of any desired construction, provided with a neck 1^a, adapted to be tapped into a liquid-containing vessel 9 and having a plug-valve 2, provided with a removable handle or key 3. At the rear of the plug-valve 2 and communicating with the main passage of the faucet is a branch passage 1^b, opening upward through a screw-threaded boss 1^c, projecting from the body of the faucet and with which is connected, by means of a suitable coupling 4, a vertical tube 5. The upper extremity of said tube is similarly connected by a coupling 6 with an elbow-joint 7, having a neck 8, adapted for insertion through the wall of the liquid-containing vessel 9.

To provide for the admission of air to the liquid-containing vessel while liquid is being drawn therefrom, the elbow-joint 7 is provided with a valve-casing 10, containing a valve-chamber 11, in which is seated an air-valve 12, and which communicates with the outer air or atmosphere by a passage 13. A threaded cap 14, adapted to be screwed down over the valve-casing 10, forms therewith a chamber or passage 15, which, by means of the passage 16 in the valve-casing 10, connects the valve-chamber 11 with the main passage 17 in the elbow-joint 7.

To provide means for indicating the level of the liquid within the vessel with which the apparatus is used, the tube 5, connecting the faucet 1 with the elbow-joint 7, as clearly indicated in the drawings, may be made in the form of a sight-glass, provided, if desired, with a shield 20.

The branch passage 1^b of the faucet 1 and the elbow member 7 may be provided, respectively, with stop-cocks 21 and 22, if desired, in order that that portion of the apparatus above the faucet may be thrown out of commission at the option of the user.

In the operation of the device the faucet 1 and the elbow member 7, having been inserted in the containing vessel respectively below and above the level of the contained liquid, the cocks 21 and 22 are opened, whereupon liquid from the containing vessel rises in the tube 5 to the level of the liquid within the vessel, this action being permitted by the fact that the faucet 1, tube 5, and elbow member 7 form a circulating-passage from the bottom to the top of said vessel.

When the faucet 1 is opened, the liquid flows out both from the vessel 9 and from the communicating tube 5, at the same time the rarefaction of the air within the upper portion of the vessel and within the elbow member 7 permitting the outside air under atmospheric pressure to raise the air-valve 12 in the valve-chamber 11, and thus admit air both to the upper portion of the containing vessel and to the tube 5 through passage 17. Inasmuch, however, as the cross-sectional area of the tube 5 is much less in proportion to that of the orifice through the stop-cock 21 of said tube than the cross-sectional area of the vessel 9 to that of the orifice of the faucet-neck 1^a the liquid within the tube 5 will fall con-

siderably more rapidly than that within the vessel when the faucet is first opened. The difference in pressures in the tube and vessel, respectively, resulting from the difference in levels of the liquid thus produced, will there-
 5 upon cause the liquid in the vessel to force that in the tube back toward its former level, and the inertia of the liquid will carry it beyond this point. Consequently the liquid
 10 within the tube 5 will oscillate violently upon the opening of the faucet 1. This rapid fall of the liquid in the tube 5 causes a proportionately powerful indraft of air through the inlet-valve 12 and serves to clear said valve and
 15 the passages connected therewith of any obstructions which may have become lodged therein. Upon shutting off the valve 2 of the faucet 1 the air-valve 15 will again seat
 20 itself in the chamber 11 and close all communication between the interior of the containing vessel and the atmosphere.

While the conditions of operation are intended to be normally as above described, it is found in practice also that when the elbow-
 25 joint 7 is inserted in the vessel below the level of the liquid therein the air-valve 12 still serves to admit air to the interior of the vessel to replace the liquid drawn therefrom. This is due to the fact that the difference in
 30 pressures between that of the atmosphere at the air-inlet 13 and that within the vessel produced by the drawing off of liquid permits the air entering at the air-inlet 13 to raise the valve 12 against the pressure of liquid there-
 35 on and to pass through the liquid in the passages 16 and 17 into the interior of the vessel 9. Upon the closing of the faucet 1 the weight of the valve and the pressure of liquid there-
 40 on will serve to close the same, thus maintaining the preservation of the liquid within the vessel against evaporation, as above described. It will be evident, therefore, that with a de-
 45 vice of the above-described construction an air-inlet is provided which is automatically opened upon opening of the faucet 1 and which closes immediately upon the shutting off of said faucet, and consequently the evaporation of the liquid contained in the vessel which takes place through the ordinarily open bung-
 50 hole is entirely eliminated, whereby great

economy, especially in the case of alcoholic and other volatile liquids, is effected.

It is to be understood that our invention is not limited to the embodiment herein shown, but may be varied both as to the construction 55 and relative arrangement of the parts without departing from the spirit and scope of the invention.

We claim—

1. As an article of manufacture, a faucet 60 for drawing liquid from a closed vessel, combined with a vent-plug having a valve therein fitted to open when liquid is withdrawn from the vessel, and having liquid-level-indicating means communicating at its upper end with 65 the vent-plug and at its lower end with the faucet.

2. As an article of manufacture, a faucet for drawing liquid from a closed vessel, combined with a vent-plug having a valve therein 70 fitted to open when liquid is withdrawn from the vessel, and having liquid-level-indicating means communicating at its upper end with the vent-plug and at its lower end with the faucet, and means for cutting off communi- 75 cation between said liquid-level-indicating means and the vessel.

3. As an article of manufacture a faucet for drawing liquid from a closed vessel having means adapted to establish communication be- 80 tween its discharge-passage and the interior of the vessel above said faucet, and an air-inlet valve in said communicating means operable upon operating the faucet.

4. As an article of manufacture a faucet for 85 drawing liquid from a closed vessel having means adapted to communicate with the interior of said vessel above said faucet, liquid-level-indicating means in said communicating means, and an air-inlet valve also in said com- 90 municating means operable upon operating the faucet.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

HARRY D. CILLEY.

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Witnesses:

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