(No Model.)

H. R. DRAKE.

Air Pump.

No. 231,217. Patented Aug. 17, 1880.

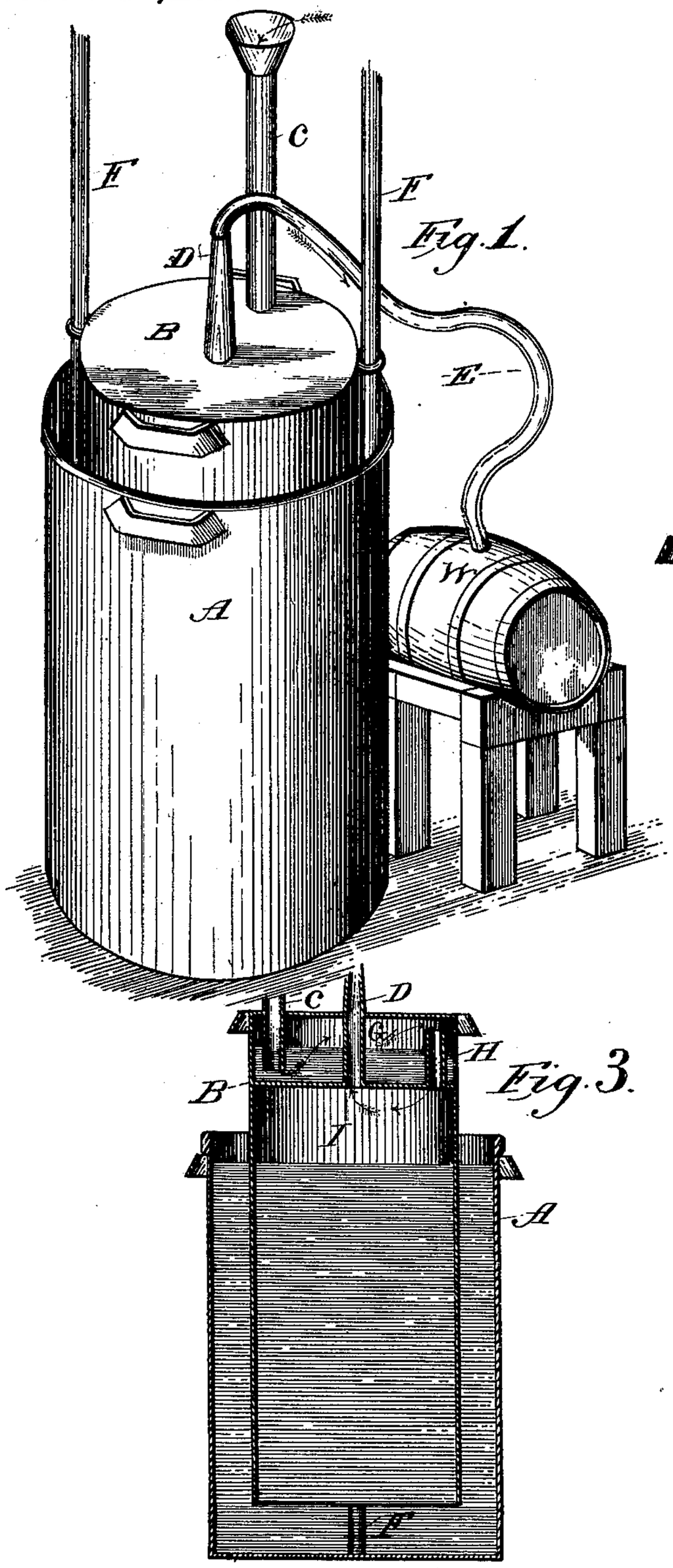

Fig. 1.

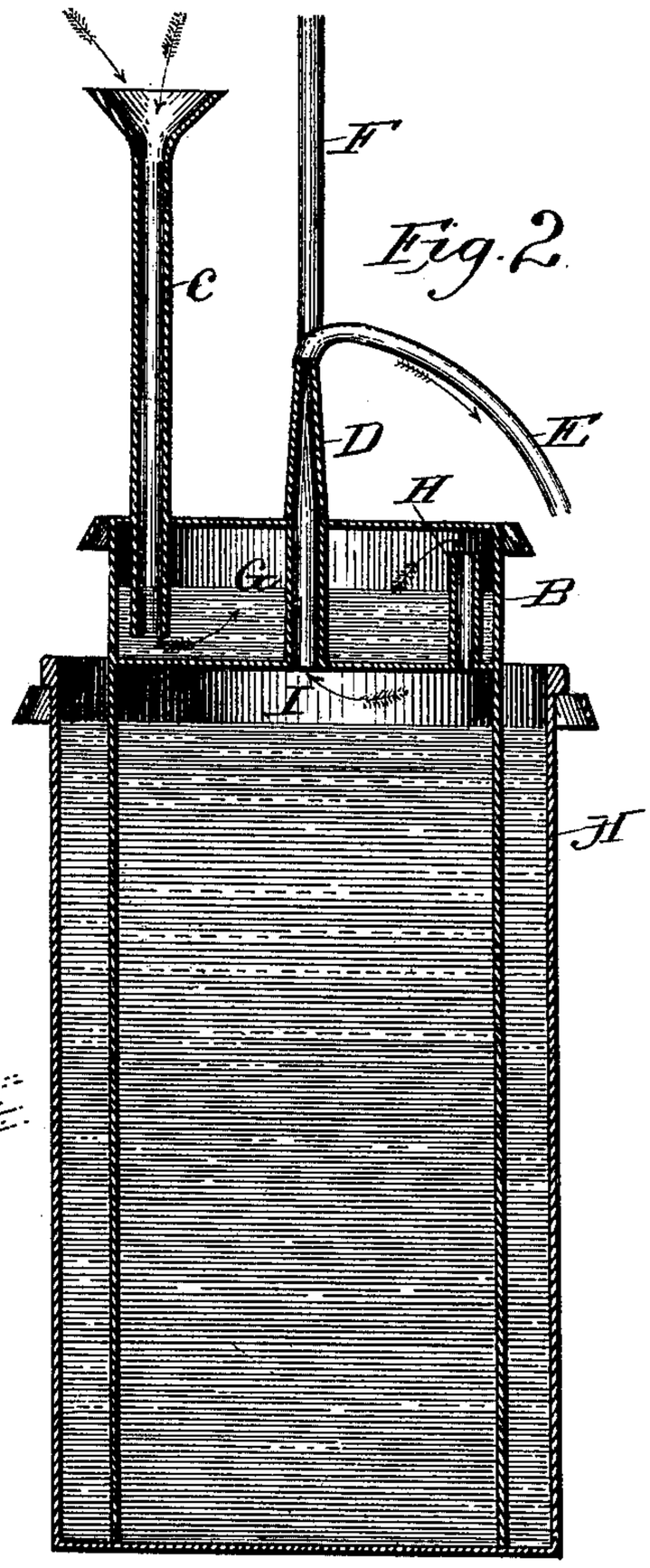

Fig. 2.

Fig. 3.

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HIRAM R. DRAKE, OF FORT ATKINSON, WISCONSIN.

AIR-PUMP.

SPECIFICATION forming part of Letters Patent No. 231,217, dated August 17, 1880.

Application filed April 22, 1880. (No model.)

To all whom it may concern:

Be it known that I, HIRAM R. DRAKE, of the city of Fort Atkinson, State of Wisconsin, have invented an Improved Air-Pump, of which the following is a specification.

The object of my invention is to prevent the escape of gas through the vent of a vessel while drawing from it gaseous or fermented liquids, and also to provide an automatic air-supply to take the place of the liquids drawn off, the manner and purpose of which I now proceed to describe in detail.

Similar letters of reference indicate like parts in each figure.

Figure 1 is a perspective view of my automatic fluid-vent and air-supply in position and ready to be charged for use. Fig. 2 is a vertical section of Fig. 1 with the front half of the device removed to show the inner construction. Fig. 3 is a vertical section of the same, showing the inner cylinder partially raised, as when being charged for use.

A is a cylindrical reservoir for water, provided with guide-rods F, passing perpendicularly upward inside of reservoir A and provided each with a stop-nut upon the upper end.

B is a hollow cylinder, open at the bottom, and provided with guide D, in which the guide-rods F work, and whereby cylinder B is held in a perpendicular position while sliding up and down the rods.

G is a fluid-valve chamber in the top of the cylinder B, through the center of which is placed tube D, which forms a passage from air-chamber I up through the chamber G and down through hose E into barrel W.

Tube H is set in the partition or bottom of chamber G, near one side, and extends nearly to the top of the chamber, whereby a passage is opened from air-chamber I into chamber G.

Funnel-tube C is secured in the top of the cylinder B, extending down nearly to the bottom of chamber G. Tube C may communicate only with chamber G and operate the same.

The reservoir A, it will be observed, is stationary, and the cylinder B movable up and down upon the guide-rods F, which are permanently secured to the bottom of reservoir A. The reservoir A is filled with fluid, as in Figs. 2 and 3. Any kind of fluid may be used.

To charge the device for use, fill the chamber G half-full of fluid. Then raise cylinder B, having its lower edge submerged. While raising the cylinder, as in Fig. 3, the air rushes down the funnel-tube C, bubbles up through the fluid into chamber G, passes down through tube H into and fills chamber I, as indicated by arrows in Fig. 3. Cylinder B is thus buoyed up by the air, and there being no escape, except through tube D and hose E, into the barrel W, a steady pressure of air is supplied to the barrel to fill the vacancy produced by drawing the fluid therefrom until the air is exhausted from chamber I, when it may be recharged, as before.

As cylinder B is allowed to rest after being raised, its weight produces an atmospheric pressure upon the fluid in chamber G, which forces it into funnel-tube C and closes the passage, leaving no escape of gas from the barrel at any time, but forces the fluid from it while drawing.

The hose E should have sufficient length to allow of raising cylinder B its full height.

The preserver may be placed in the cellar or any other place for convenience apart from the barrel, and be connected by a hose to operate the same.

Having fully described the construction, purpose, and operation of my invention, what I claim, and desire to secure by Letters Patent is—

1. In liquid-preservers, the reservoir A, air-chamber I, chamber G, tube D, tube C, and hose E, connected with barrel W, constructed and operated together substantially as described, for the purpose set forth.

2. Reservoir A, with guide-rods F and cylinder B, in combination with a liquid valve, G, H, D, and C, substantially as described, for the purpose set forth.

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Witnesses:

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