(No Model.)

L. SMITH.

PORTABLE DISTILLING APPARATUS.

No. 301,636. Patented July 8, 1884.

Fig. 1.

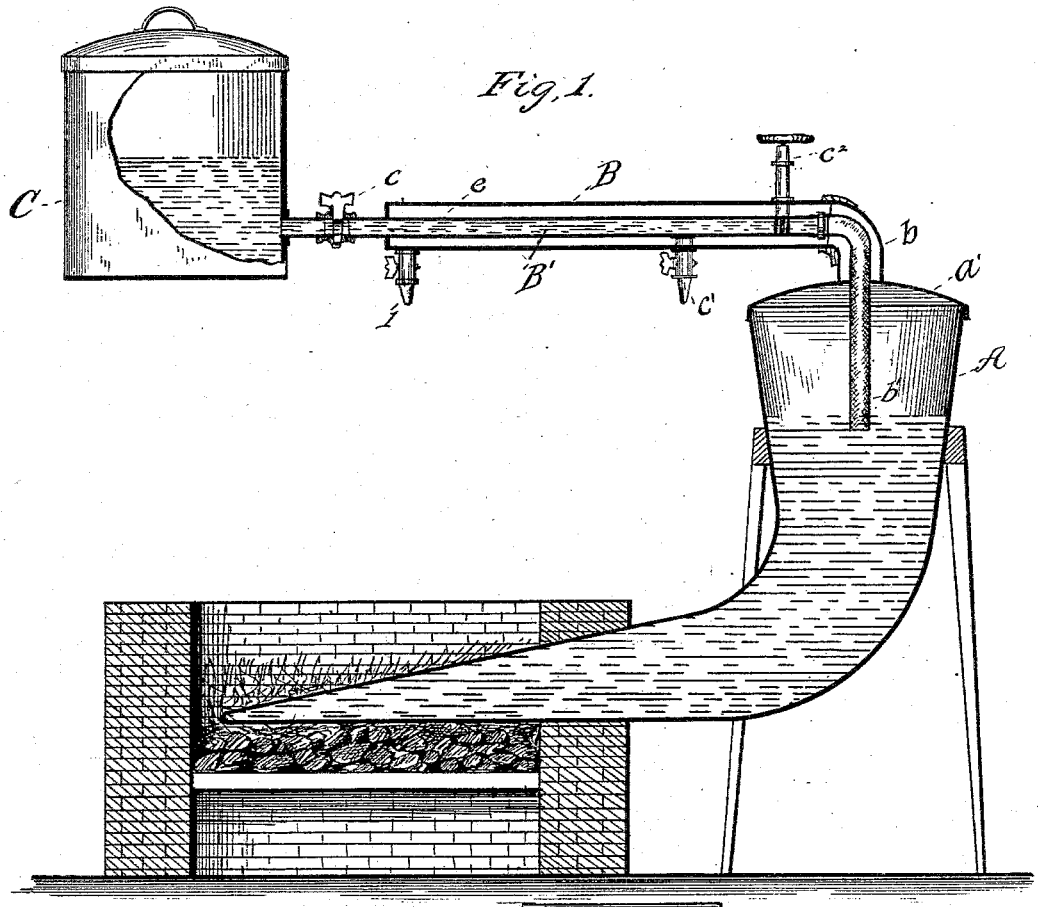


Fig. 2.

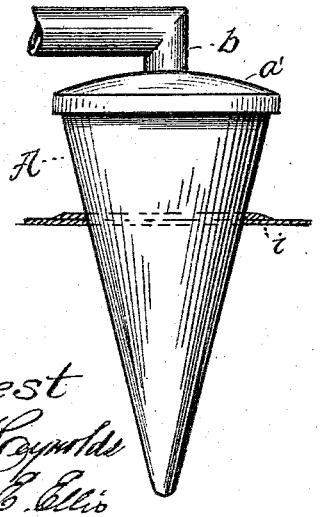
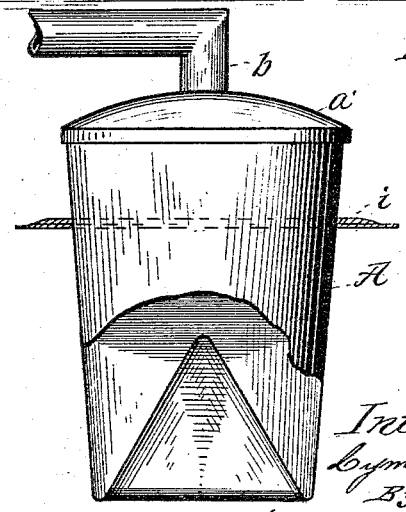


Fig. 3.



Attest
J. W. Reynolds
Edward C. Ellis

Inventor
Lyman Smith
By
Duffy & Lemmo
his Attys

UNITED STATES PATENT OFFICE.

LYMAN SMITH, OF KANSAS CITY, MISSOURI.

PORTABLE DISTILLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 301,636, dated July 8, 1884.

Application filed December 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, LYMAN SMITH, of Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Portable Distilling Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to apparatus for the distillation of water to free it of its impurities, and thus render it fit for drinking purposes.

The object of my invention is to provide an apparatus so simple in construction and easy of management that in sections of country where it is difficult to obtain pure water it will be found especially useful.

To this end the invention consists in such details of construction and combination of parts as will be hereinafter distinctly pointed out.

Referring to the drawings hereunto annexed, Figure 1 represents a vertical sectional elevation of the distilling-vessel suitably supported, together with the inlet-pipe for the water and the outer annular pipe for the condensation of the steam as it is generated, and the tank or receptacle for holding the water to be distilled. Figs. 2 and 3 are detail views of modified forms of the distilling-vessel.

In many western as well as other settlements the inhabitants thereof are unable to procure water sufficiently pure for drinking purposes, although it may be found in plenty in a brackish or impure condition, and consequently they have to pay for its transportation to them from other parts. The purpose of my invention is to supply a cheap device, by which people so situated can always keep themselves provided with plentiful quantities of pure water, distilled from such as may be found in their neighborhood.

Reference being had to the parts by letter, A represents the distilling-vessel, which terminates at its bottom portion into a long neck, *a*, branching off in a curvilinear manner, and converging to a point at the end. This vessel is made, preferably, of cast-iron, and is provided at the top with a suitable lid or cover, *a'*, said cover fitting the vessel snugly, so as to form a tight joint, and having in it an opening, over which is fitted and secured an elbow, *b*, for connection with a suitable pipe, B. This connection may be made by any ordinary coupling device.

The pipe B is arranged annularly to another or inner pipe, B', which is connected at its outer end with the water tank or vessel C, and having attached to its inner end a small branch pipe, *b'*, which projects into the vessel A through the elbow *b*. This pipe B' is provided at or near its outer end with cock *c*, by which the supply of water to the still is controlled, while nearer its opposite end is provided a cock, *c'*, and a valve, c^2. The cock *c'* is designed to be of smaller capacity than cock *c*, for a purpose to be hereinafter described. Between the two pipes as thus arranged is formed an annular space, *c*, into which the vapor arises and is condensed, it being drawn off through the cock marked *l*, located at the outer end of pipe B.

In case the generation of vapor in the vessel A should be so rapid as to heat the inner pipe or conduit, B, and thus retard condensation in the chamber *c*, by turning on the cock *c* and opening *c'*, a circulation of cold water from the tank may be produced, and thus cool the pipe B' to keep up a sufficiently rapid condensation. When the cock *c'* is opened to produce this circulation, its capacity being smaller than the cock *c*, it will not permit the water to escape as rapidly as it flows from the tank C. In consequence of this some water would flow on through into the vessel A, and for the purpose of controlling this at will I have provided the valve c^2.

In Figs. 2 and 3 I have shown modified forms of the vessel A, which are each provided with an annular ring, *i*, by which they may be set into an ordinary stove, their connections at the top being the same as has been explained with reference to Fig. 1. Their forms will be readily understood without further explanation.

This entire apparatus may be constructed

of separable portions, so as to enable it to be readily packed for transportation.

The purpose of having the still terminate to a point at its lower end is to enable it to be pushed far into a fire whenever it is desired to use the apparatus.

The pipes B B′ may be of any length desired, and the whole apparatus so constructed as to be readily carried from place to place, thus rendering it useful to those who oftentimes have to penetrate far into sections of country where it is difficult to obtain pure water—as, for instance, mining and surveying parties.

I am aware that in former instances stills have been provided with conical bottoms; but they have, so far as I am aware, always been built within their operating-furnaces, whereas I employ an apparatus which is portable in entirety, and this form of vessel is selected in order that it may at any time be projected into the mass of burning fuel and again withdrawn therefrom when the distilling operation has ended.

Having thus described my invention, what I claim is—

1. The combination of the pipes B B′, arranged concentrically to each other, with the cocks c, c', and c^2, substantially as shown and described.

2. The vessel A, terminating at its lower portion in the manner shown, and suitably supported, in combination with the supply-conduit, having cocks c c' and valve c^2, and the pipe B, arranged annularly to said conduit, and provided with draw-off cock l, all substantially as shown and described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

LYMAN SMITH.

Witnesses:
EDWARD E. ELLIS,
M. P. CALLAN.