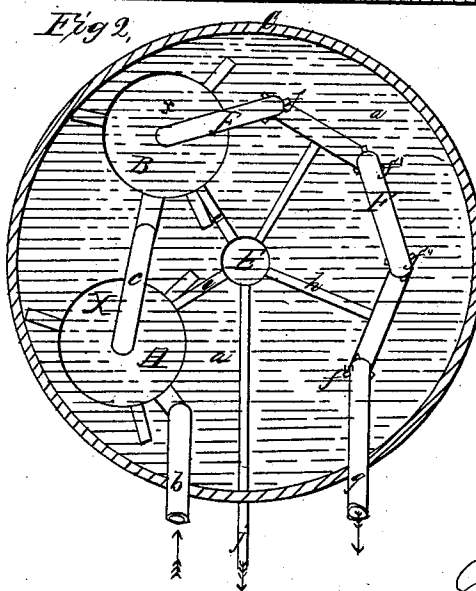
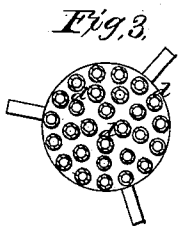
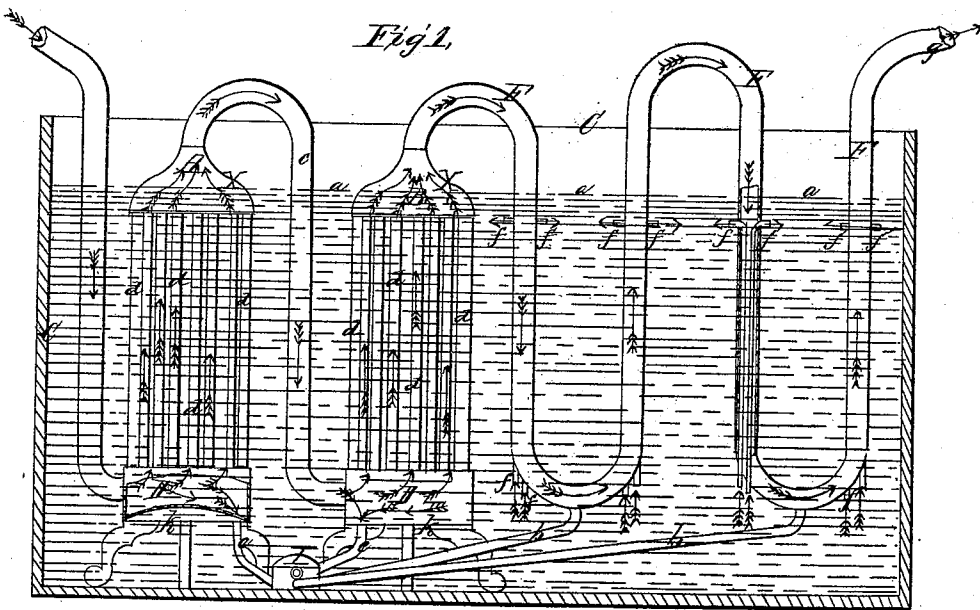


G. W. SHAW.

SEPARATOR TO BE USED IN DISTILLING LIQUORS.

No. 100,196.

Patented Feb. 22, 1870.



Witnesses,
M. Drake,
C. N. Woodward.

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United States Patent Office.

GEORGE W. SHAW, OF BUFFALO, NEW YORK.

Letters Patent No. 100,196, dated February 22, 1870.

IMPROVEMENT IN SEPARATORS TO BE USED IN DISTILLING LIQUORS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, GEORGE W. SHAW, of Buffalo, in the county of Erie, and State of New York, have invented certain Improvements in Separators to be used in Distilling Liquors, of which the following is a specification, reference being had to the accompanying drawings.

Nature of Invention.

The object of my invention is to separate the low from the high wines, and to throw back the low wines to the still, and pass the high proof forward to the worm; and consists in employing two or more upright separators provided with small condensing tubes, and connecting therewith a series of circulating pipes, each containing small condensing tubes, all connected with a low-wine trap, the whole setting in a tub or tank through which a constant circulation of cold water is had.

General Description.

Figure 1 shows the whole device as arranged in a tub filled with water, *a a a* showing the water-line.

Figure 2 is a plan.

Figure 3, a plan of one of the separators.

Figure 4, a plan of one of the circulating pipes, showing the condensing tubes.

b is a pipe or tube leading from the doubler to the first upright separator, A. This is connected at the top by a pipe, *c*, with another similar separator, B. As many of these upright separators may be used as found necessary.

Each one is provided with a dome, *x*, and a series of condensing tubes, *d d d*, which stand vertically, and through which the hot liquor in a vaporous state passes.

The cold water in the tub C encloses these tubes *d d*, and condenses a portion of the hot vapor which falls into a drum or chamber, D, attached to each separator, which has a convex bottom, and from thence runs off by means of pipe *e* into a receptacle or trap, E. This is low wine.

The convex bottom is important, as thereby the condensed liquor falls down out of the way of the rushing hot vapor.

The vapor that is not condensed in the separators passes into a series of upright lengths, F, of connecting pipe. These run up and down, and each upright length contains a number of smaller pipes or condensing tubes, *fff*, opening out at the bottom and top into the water, the top opening being just below the surface of the water-line *a a*.

These are for the purpose of aiding in the condensation of the hot vaporous spirit which is circulating through these large pipes and which exits at last at *g* into the worm.

The use and operation of these pipes *fff* is as follows:

The cold water comes in at the bottom openings, and, as it is heated by the hot vapor surrounding the pipes, it rises and flows out at the top, thus keeping up a constant circulation.

As the hot vapor passes through these circulating and by the cold water pipes, a portion of it condenses and falls to the bottom of each bend of the large pipe, and from thence is conducted off by means of a small pipe, *h*, connected with and discharging into the bottom of the trap E, (the other conduit pipes *e e* from the separators also discharge into the bottom of this trap,) while the low wine as it accumulates flows off near the top through a pipe, *j*.

The liquid always standing in this receptacle prevents any of the hot vapor from passing through, forming, therefore, an effectual trap. These connections are clearly shown in figs. 1 and 2.

The tops of these bends of the circulating pipes stand up out of the water, and their contact with the cold air also aids condensation. Therefore, by my apparatus, none but the highest proof or more volatile of the liquor can reach the worm, while the low wine is condensed and drawn off, as described, an effect not produced by any other separator that I am acquainted with.

I claim—

1. The arrangement of the apparatus as a whole, consisting of the upright separators A B, with condensing tubes *d d*, and drum D, the connecting pipe or pipes F, with condensing tubes *fff*, and the eduction pipes *e e* and *h h*, leading to trap E, the whole operating in the manner and for the purpose specified.

2. The construction and arrangement of the separators A B, with the dome *x*, separated condensing tubes *d d*, and drum D, with convex bottom *k*, as herein set forth.

3. The combination and arrangement of the supplementary condensing pipes *fff* with the circulating pipe F, in such a manner as to produce the united effect of creating a circulation of the water through said condensing pipes, and of condensing the vapor within the circulating pipe, as set forth.

4. The combination of the submerged trap E, arranged as described, with separators A B, and circulating pipe F, in the manner and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GEORGE W. SHAW.

Witnesses:

J. R. DRAKE,
C. N. WOODWARD.