

T. J. Dean,
Condenser for Stills.

N^o 92,941.

Patented July 27. 1869.

Fig: 1.

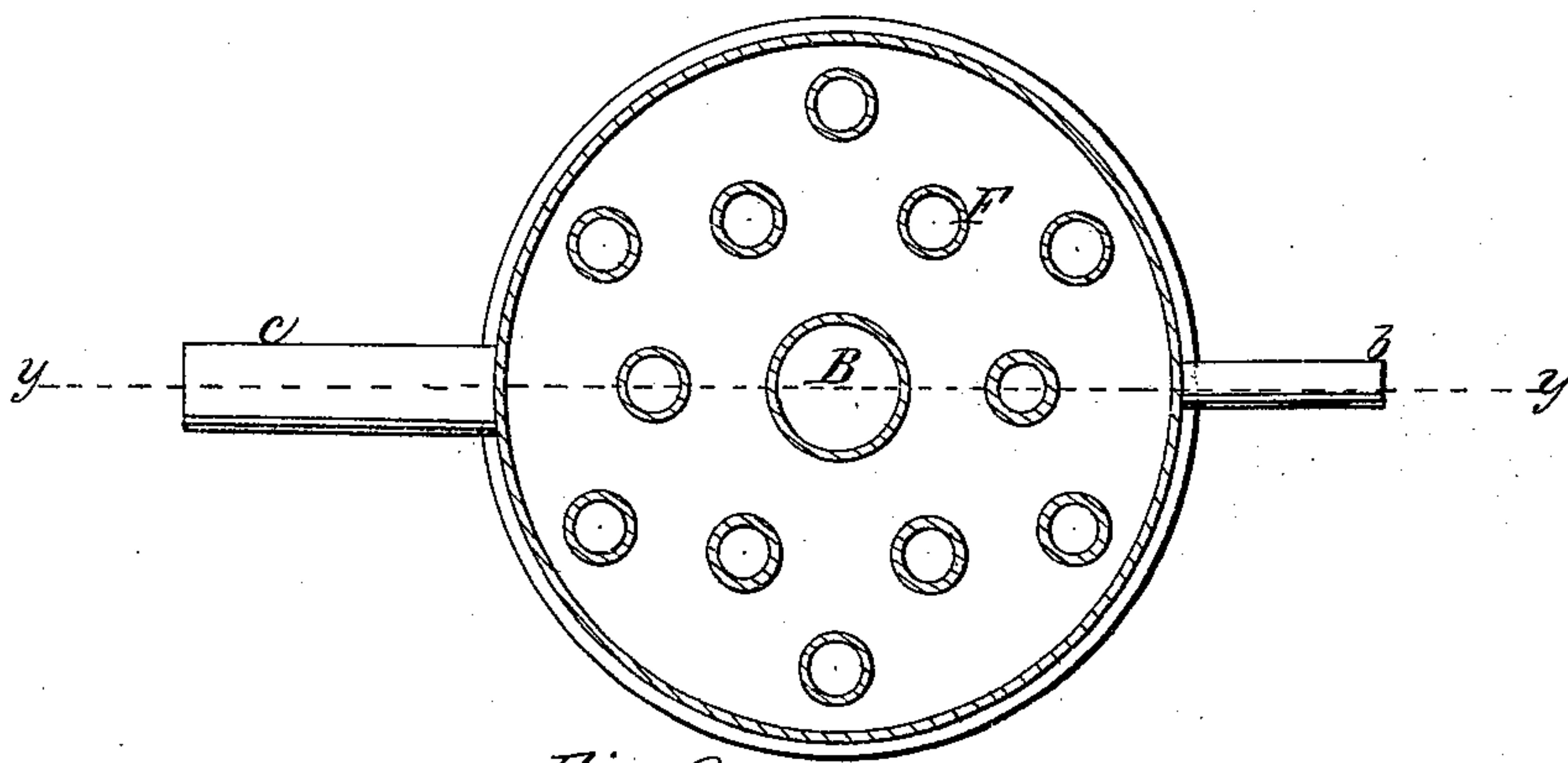
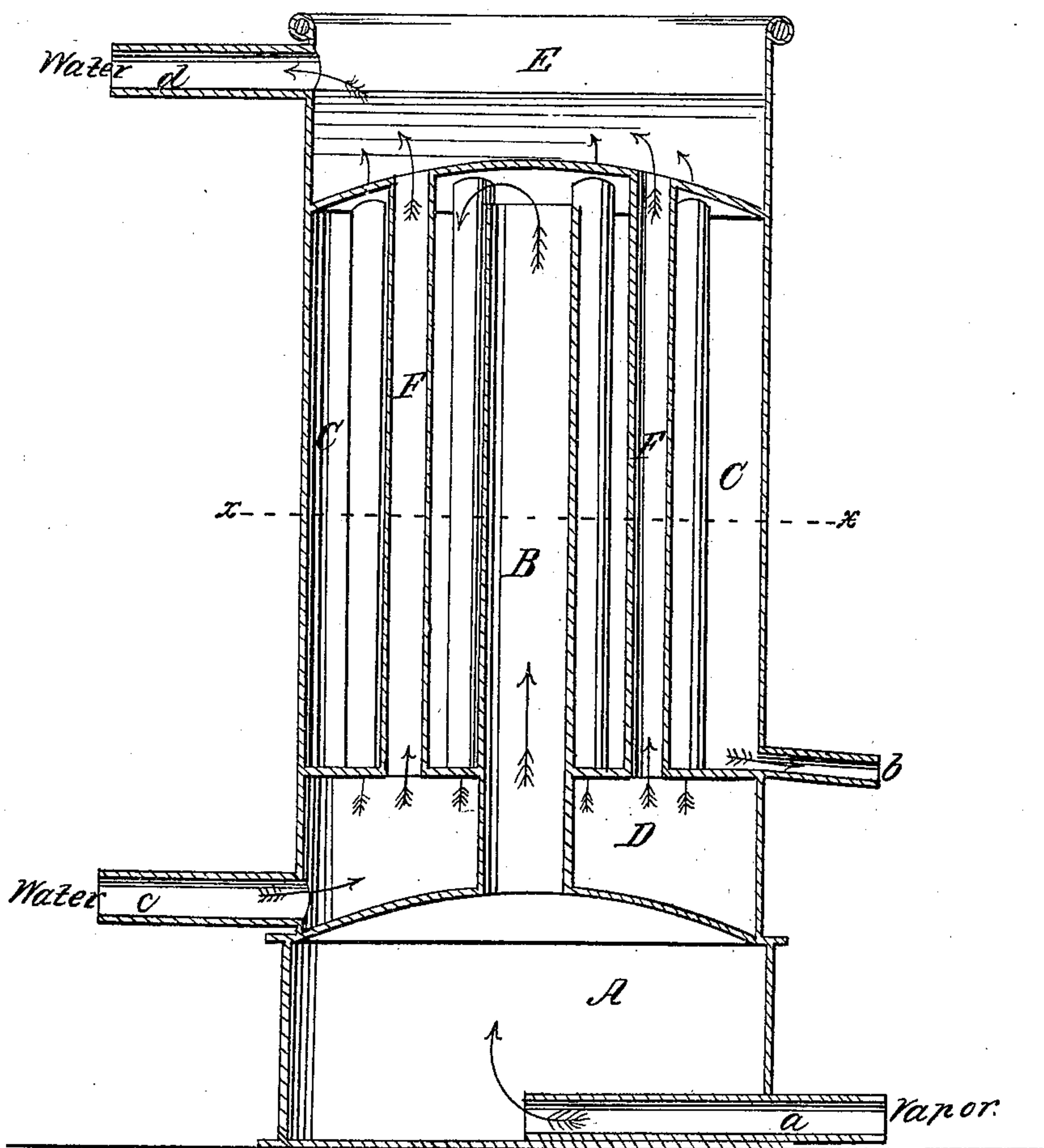


Fig: 2.



Witnesses;
L. Hailer.
Phil T. Dodge

Inventor;
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his attys.

United States Patent Office.

T. J. DEAN, OF ST. LOUIS, MISSOURI.

Letters Patent No. 92,941, dated July 27, 1869.

IMPROVED CONDENSER FOR STILLs.

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, T. J. DEAN, of St. Louis, in the county of St. Louis, and State of Missouri, have invented certain new and useful Improvements in Condensers for Stills; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention relates to stills for the distillation of whiskey or spirits; and

The invention consists in a novel manner of constructing the condenser.

In the drawings—

Figure 1 is a horizontal section on the line *x-x* of fig. 2, and

Figure 2 is a transverse vertical section on the line *y-y* of fig. 1.

The object of my invention is to obtain a condenser that shall condense the vapor rapidly, and that shall separate the fusel-oil from the spirit, and one that can be readily cleaned and kept in order.

I construct my improved condenser with a chamber, A, at the bottom, into which the vapor is admitted by a pipe, *a*, as shown in fig. 2.

Over this chamber A, is another chamber, D, which is connected, by a series of tubes, F, with another chamber, E, at the top, the tubes F passing through a larger central chamber, C, as represented in fig. 2.

A pipe, *c*, admits water to the chamber D, from whence it rises, through the tubes F, up into the overflow, or chamber E, at the top, from which it escapes through a waste-pipe, *d*; or, if preferred, the overflow, instead of passing off in a pipe, may be allowed to flow down the outside of the condenser, and, after cooling the outer shell, be caught in a trough, or ledge near the base, and conveyed away from thence.

From the chamber A, a larger central tube, B, rises, said tube passing up through the water-chamber D, and nearly to the top of the chamber C, the top of tube B being left open, so that the vapor which rises from the chamber A, up through the tube B, may escape from its upper open end into chamber C, among and between the tubes F.

As these tubes F are kept filled with cold water, flowing constantly upward, from chamber D, through

them, it follows that the vapor in the chamber C is brought into contact with a large extent of surface, kept constantly cooled by the flowing water, and, therefore, the vapor is condensed with great rapidity.

By this sudden condensation of the vapor, there is a constant tendency to create a vacuum in the heater, and hence the distillation is carried on rapidly, and at a lower temperature than would otherwise be the case.

As spirit vaporizes at about 178°, and fusel-oil at about 270°, it follows, that by vaporizing the contents of the still at as low a temperature as possible, but little of the fusel-oil will be vaporized and carried into the condenser, and what little does pass in will be condensed in chamber A, where it will remain, and from whence it can be removed whenever desired, the vapor of the spirit passing on, at a constantly-reduced temperature, into the chamber C, where it is condensed in a pure state, and from whence it flows out through pipe *b*.

By passing the water through the tubes, and the vapor among them, instead of the opposite, as has been attempted by others, it follows, that any sediment which is deposited by the water on the interior of the tubes can be readily removed at any time, as the tubes being open at the top, can be got at to clean them.

By this method of constructing the apparatus, I produce a condenser that works with great rapidity; that can be easily kept clean, and that will separate the fusel-oil from the whiskey, and thus produce a very pure article.

Having thus described my invention,

What I claim, is—

1. A condenser for stills, having the vapor delivered into a condensing-chamber, among a series of tubes, through which a current of cold water is passing, substantially as described.

2. The combination of the chamber A and tube B with the water-chamber D, tubes F, chamber C, and overflow E, all constructed and arranged to operate substantially as described.

3. The supplementary chamber A, for the condensation of the fusel-oil, so arranged that the vapor must pass through it, on its way from the heater to the condensing-chamber, as set forth.

T. J. DEAN.

Witnesses:

H. B. MUNN,
W. C. DODGE.