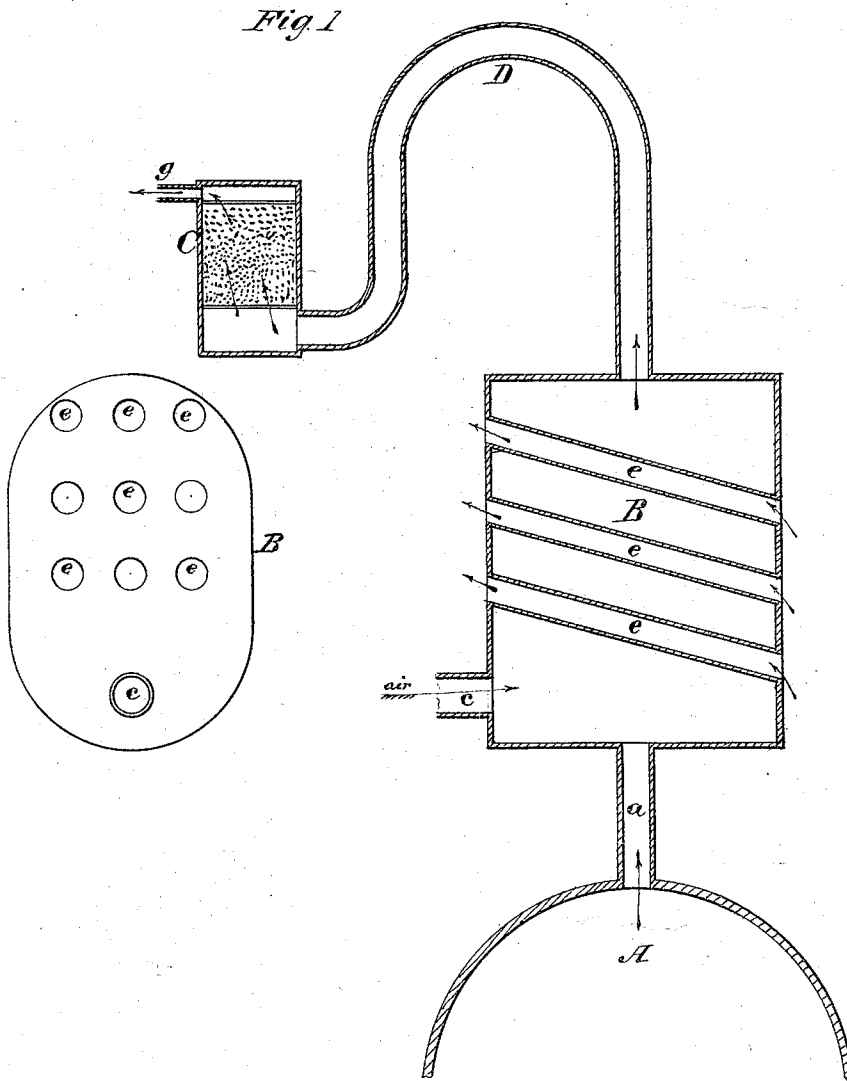


H. PURDY.

Improvement in the Manufacture of Spirits.

No. 130,743.

Patented Aug. 20, 1872.



Witnesses:
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UNITED STATES PATENT OFFICE.

HIRAM PURDY, OF BURLINGTON, IOWA.

IMPROVEMENT IN THE MANUFACTURE OF SPIRITS.

Specification forming part of Letters Patent No. 130,743, dated August 20, 1872.

To all whom it may concern:

Be it known that I, HIRAM PURDY, of Burlington, in the county of Des Moines and State of Iowa, have invented a new mode of developing and eliminating alcohol from various vegetable substances; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a sectional view of the apparatus. Fig. 2 is a view of one side of the condenser.

Similar letters of reference indicate corresponding parts in the two figures.

In ordinary distillation a considerable amount of watery vapor passes off with the alcohol, which renders necessary a subsequent reheating to drive off the alcohol. My object is to avoid the necessity of this reheating by conducting the products of distillation directly into a tubular condenser, into which air is forced in a uniform current, which, mingling with the vapor, causes the watery particles thereof to condense and become separated from the alcoholic particles, which pass off to be condensed in the proper worm.

The following description of my invention will enable others skilled in the art to understand it.

In the accompanying drawing, A is a still, communicating by pipe *a* with a condenser or refrigerator, B. From the top of this condenser a pipe, D, leads to a filter, C, which communicates by a pipe, *g*, with a worm in which the alcoholic vapor is condensed. A blower or air-pump forces a blast of cold air through the pipe *c* into the condenser B, at the same time air circulates freely through the inclined tubes *e e*, the inclination of which induces currents through them from their lower to their higher ends, both of which are open. These transverse currents greatly aid in cooling the contents of the condenser. The mixed vapor of alcohol and water passes from the still into the condenser B, through its bottom, and in this vessel the watery vapor is cooled down to such a temperature that it condenses, leaving the alcohol to pass over and be condensed in the proper worm. The air-blast through pipe *c* not only serves as a condensing medium for the watery vapor in the vessel B, but it also affords sufficient

pressure to force the alcohol through the filter C.

Instead of introducing the air-blast, as shown in the drawing, it may be introduced into the ordinary doubler which is used by distillers, or in various other parts of the apparatus; and it may be forced in by a blast or drawn in by the motion of the vapor in its passage from the still to the condenser, or in various other ways, all having the object and effect of commingling atmospheric air with the vapor of alcohol and water in its passage to the condenser. If forced in by a blast through a tube the axis of which makes an acute angle with that of the tube through which the vapor passes, the atmospheric pressure upon the liquid in the still may be so far reduced as to make an appreciable difference in the facility with which evaporation takes place therein, which will sensibly diminish the cost of such evaporation.

I am aware that the patent of J. Dennis of August 10, 1869, shows a contrivance for mingling a blast of cold air with the vapor from the still for substantially the same purpose as is contemplated by me; I therefore make no broad claim for effecting such an intermingling. I am also aware that filters have long since been well-known contrivances to aid in the distillation of alcohol. I use the ordinary still and the ordinary filter without laying any claim to either by itself; but

What I do claim as my invention, and desire to secure by Letters Patent, is the following:

1. In a distilling apparatus having a refrigerator, B, into which the vapor from the still A passes through a pipe, *a*, to meet and mingle with a blast of cold air through another pipe, *c*, I claim a series of inclined pipes *e e*, to aid in the cooling and condensation of the vapor, substantially as and for the purpose described.

2. In such an apparatus I also claim the filter C, in combination with the refrigerator B and pipes *a* and *c*, by means of which combination the alcoholic vapor introduced through the pipe *a* may be aided in passing through the said filter by the blast of air through the pipe *c*.

Witnesses: HIRAM PURDY,
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