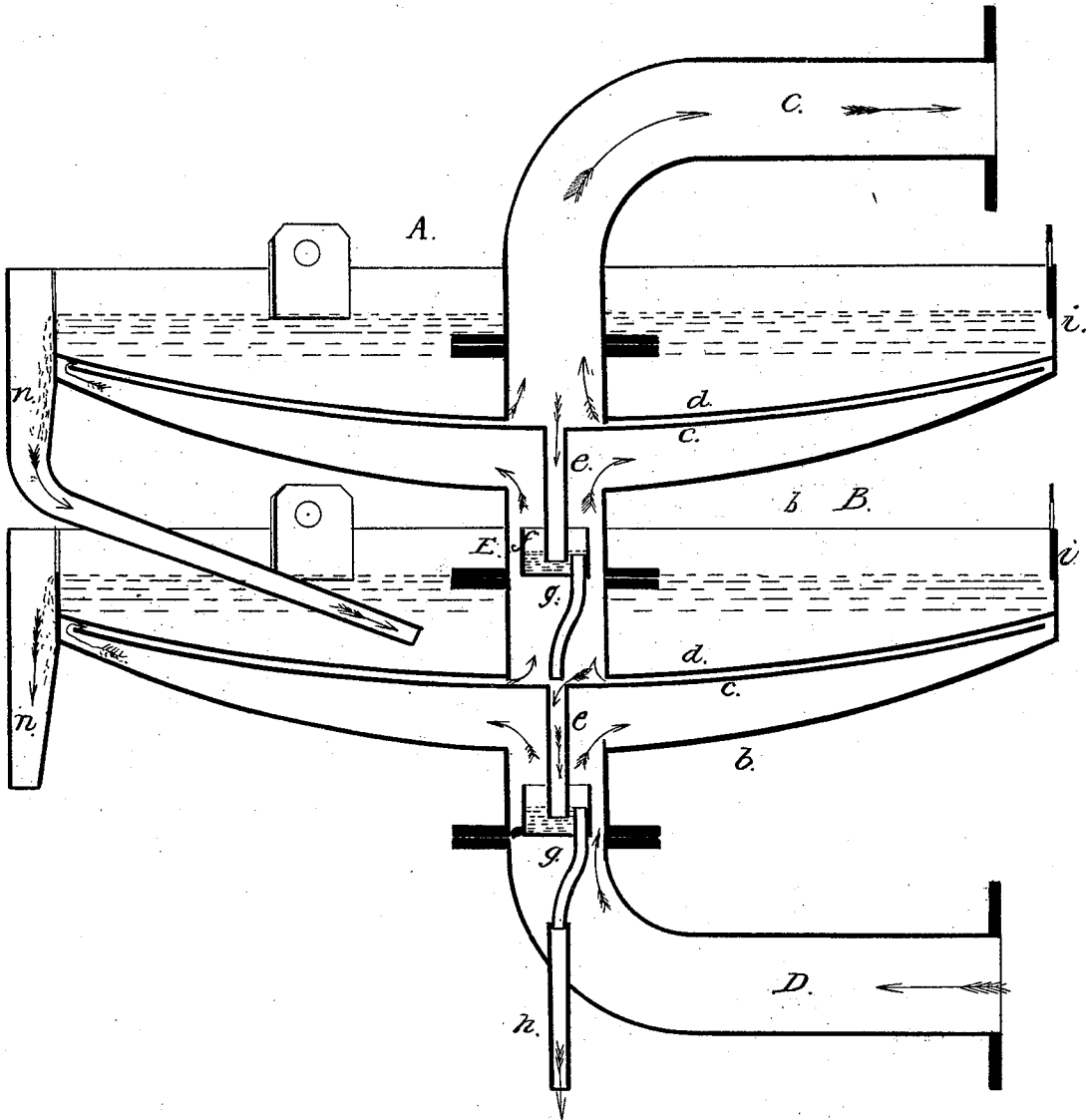


E. G. Starck.

Alcohol Still.

N^o 90,886.

Patented July 1, 1869.



Witnesses:

J. T. Dodge
L. Baile

Inventor:

E. G. Starck
by Dodge & Mann
his attys

United States Patent Office.

ERNST GOTTLIEB STARCK, OF CHICAGO, ILLINOIS.

Letters Patent No. 90,886, dated June 1, 1869.

IMPROVED STILL FOR ALCOHOL.

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, ERNST GOTTLIEB STARCK, of Chicago, in the county of Cook, and State of Illinois, have invented certain new and useful Improvements in Alcohol-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 used in the production of alcohol, and consists in a novel manner of constructing and arranging the condensing-pans or head, all as hereinafter described.

The drawing represents a vertical cross-section through a pair of pans constructed on my plan.

I construct circular pans A and B, each consisting of two plates or bottoms, *b* and *d*, concave on their upper sides, and secured within a hoop or ring, *i*, in such manner as to leave a space between the two plates. Between the plates *b* and *d*, I place a concave plate, *c*, of less diameter than the hoop, so as to leave a passage up around its edges, as shown.

To the bottom *b* of the lower pan B, I connect the large pipe D, connecting with and conducting the vapor from the boiler or still.

The upper plate *d* of pan B, and the lower plate *b* of the pan A, I connect by a large pipe, E, as shown.

On the upper side of plate *d* of pan A, I attach another large pipe, C, leading to the worm.

At the centre of the plates *c*, I place small pipes *e*, extending down the large pipes, and dipping into cups, or reservoirs *f*, located within the large pipes, a little below the bottom of each pan, as shown in the drawings.

Through the bottom of each of the cups *f* enters a small pipe, *g*, the upper end of which rises above the level of the lower end of pipe *e*, and the lower end of which discharges into the pipe *e* of the next pan below, all as shown.

The pipe *g* of the lowest, or bottom of the series, I extend out through the side of the pipe D, as shown, and connect it with the still, or boiler.

Near the upper edges of each of the rims *i*, I attach pipes *n*, leading down to and discharging upon the next pan below, as shown in the drawings.

The course of the steam, or vapor is indicated by the red arrows in the drawing, and that of the condensed vapor, or low-wine, by the yellow arrows.

When operating the apparatus, cold water is fed on to or in the pan A, as shown by the blue lines in the drawing, and overflows through the pipe *i*, on to pan B, and so on continuously.

The vapor passes from the boiler up through the pipe D, and striking against plate *c*, is deflected outward, and passing up past the outer edges of this plate, strikes against plate *d*, by which the heavier and grosser part is condensed.

The condensed portion, or low-wine, flows down to the centre of plate *c*, and thence down, through pipe *e*, to reservoir *f*, where it overflows into pipe *g*, and passes back to the boiler.

The remaining uncondensed vapor passes up pipe E to the pan, and is partially condensed, leaving pure, or nearly pure alcohol, which escapes through pipe C to the worm.

The fluid resulting from this second condensation flows down through the various pipes and reservoirs to pipe *h*, and is carried to the boiler.

The object of the reservoirs *f* is to prevent the vapor from blowing through the small pipes, as would occur did not the ends of pipes *e* dip below the surface of the liquid in them.

In this manner, I produce a cheap and simple still, by the use of which I can produce a very pure article of alcohol by one distillation, instead of several, as is customary.

Having thus described my invention,

What I claim, is—

An improvement in apparatus for distilling alcohol, consisting of two or more pans, A and B, with cold-water connecting-tubes *n*, each having upper and lower concave bottoms, *b* and *d*, with an intervening plate, *c*, provided with central tube *e*, also with cups *f* and pipe *g*, the whole constructed and arranged, in connection with the pipes D, E, C, and *h*, substantially as herein shown and described, for the purpose set forth.

ERNST GOTTLIEB STARCK.

Witnesses:

LOUIS SCHMIDT,
WM. H. LOTZ.