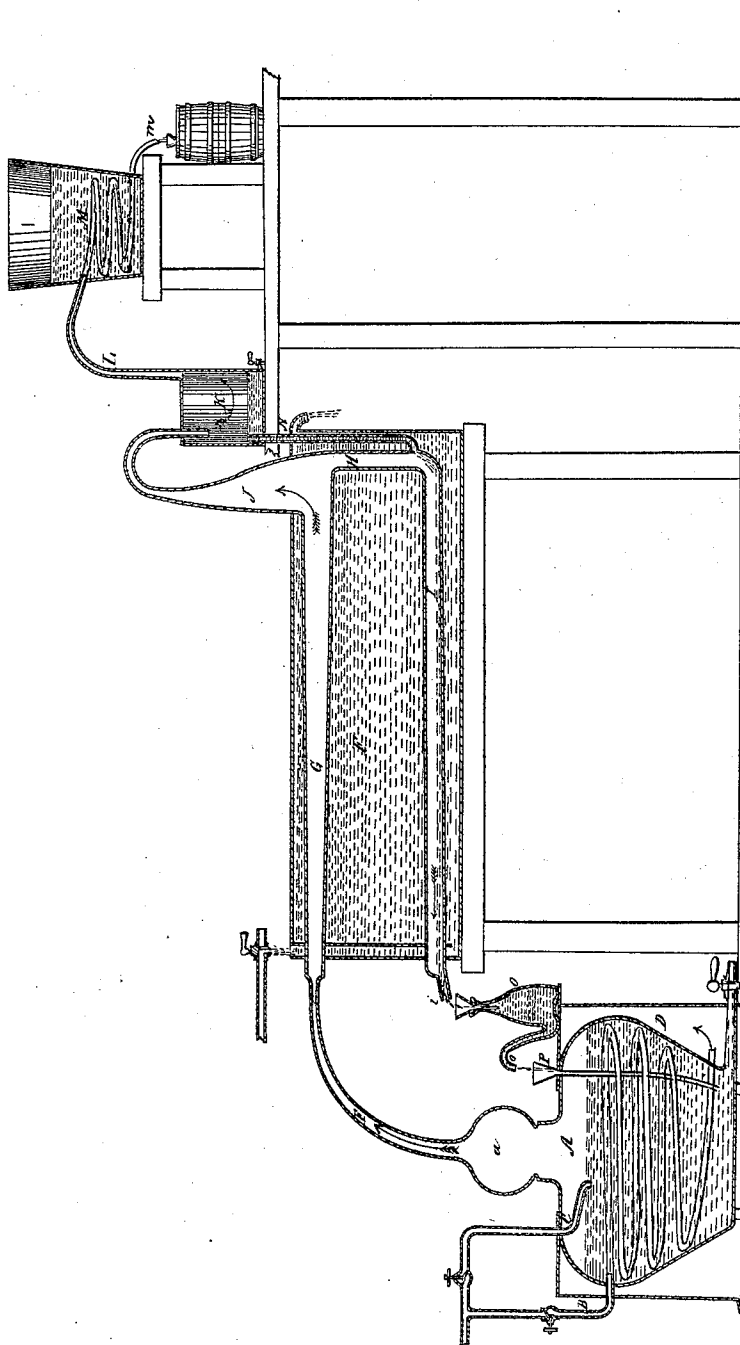


A. FRIES.
Alcohol Still.

No. 48,711.

Patented July 11, 1865.



Witnesses:

*Charles W. Hall
James H. Layman*

Inventor:

*Alexander Fries
By Knight Bros
Attys*

UNITED STATES PATENT OFFICE.

ALEXANDER FRIES, OF CINCINNATI, OHIO.

IMPROVEMENT IN THE DISTILLATION OF ALCOHOL, &c.

Specification forming part of Letters Patent No. 48,711, dated July 11, 1865.

To all whom it may concern:

Be it known that I, ALEXANDER FRIES, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in the Distillation of Alcohol; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, making part of this specification.

My improvement relates to a mode of manufacturing purified spirits or alcohol direct from the mash.

The drawing is a vertical section of an apparatus embodying my invention.

The still body or retort A may be heated by any approved means, such as steam-pipes B and C and steam-jacket D. From the retort A the crude vapor ascends through the head a and first goose-neck E into my intermediate condenser, consisting of a cold-water tank or refrigerator, F, which contains a large U-shaped tube, G H I, whose front end receives the goose-neck E, and from the upper portion of whose rear end a second goose-neck, J, ascends and discharges into a receiver, K, from whose upper portion a third goose-neck, L, passes into a common condensing-worm, M, whence the purified alcohol escapes at m. The water and alcohol condensed by contact with the sides and top of the receiver K collect in the bottom of the same, whence the lighter and more alcoholic portions are returned by the pipe N into the tube G H I.

Instead of one only a series of receivers and return-pipes may be used, where still greater purity is desired, or where a less degree of purity is demanded. The said receiver and return may be dispensed with, and the second

goose-neck may discharge into the finishing worm direct.

The fusel-oil and other empyreumatic and acid impurities, which, in the various forms of stills now in use, are either allowed to pass over with the spirit, or which, if separated from the spirit, are permitted to run back to and thereby taint the mash, I effectually and permanently separate from the aqueous and alcoholic residuums. With this object in view I cause the floor of my tube G H I to decline from its place of junction with the first goose-neck, E, to its vent-age i, while the free escape of the spirit is secured by the acclination of the upper side of the limb G from said junction to the second goose-neck, J. All the matters condensed in the tube G H I are received in a Florentine bottle, O, from whose bottom rises a goose-necked spout, o, which discharges the aqueous and alcoholic particles, with a funnel, P, by which they return to the retort, while the superior levity of the fusel-oil causes it to float on top of the said particles in the bottle O, which bottle is emptied as often as may be found necessary.

By the above-described mode of operation I am enabled to make purified merchantable spirit direct from the mash, and at a single operation, so as to dispense with the necessity of separate rectification.

I claim herein as new and of my invention—

The mode, substantially as set forth, of distilling purified spirit direct from the mash.

In testimony of which invention I hereunto set my hand.

ALEXANDER FRIES.

Witnesses:

GEO. H. KNIGHT,
JAMES H. LAYMAN.