J. B. MASON.

Alcohol Still.

No. 103,064. Patented May 17, 1870.

FIG. 1

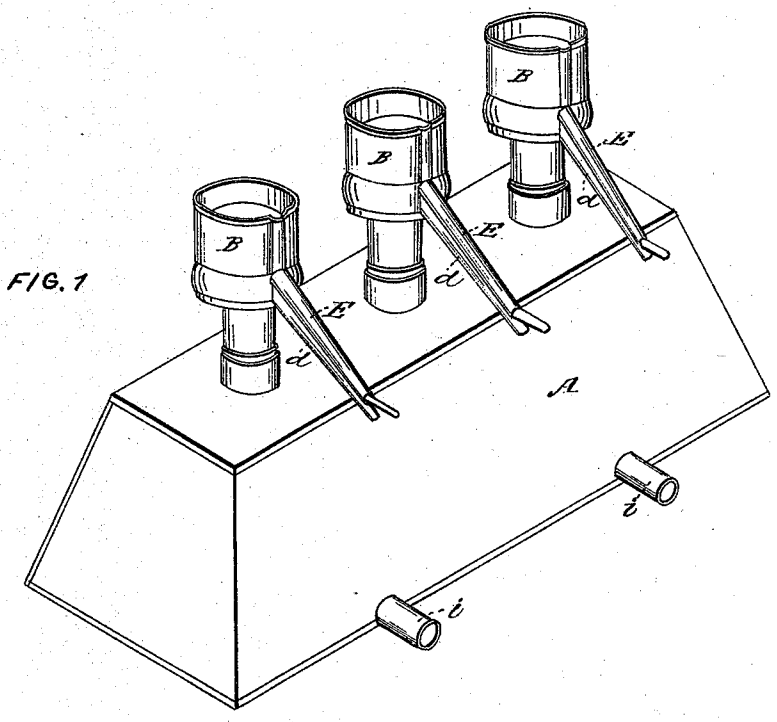


FIG. 2

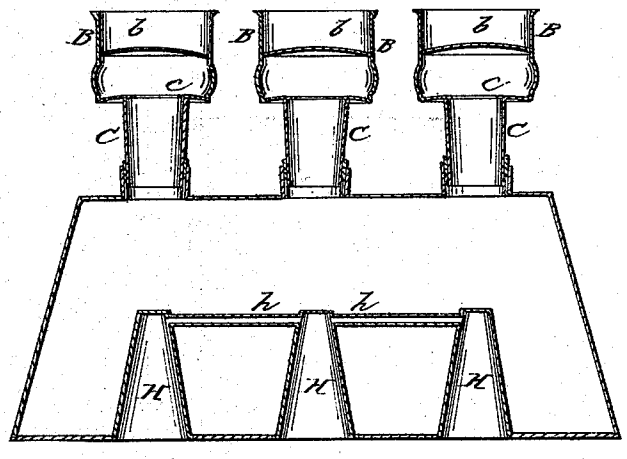
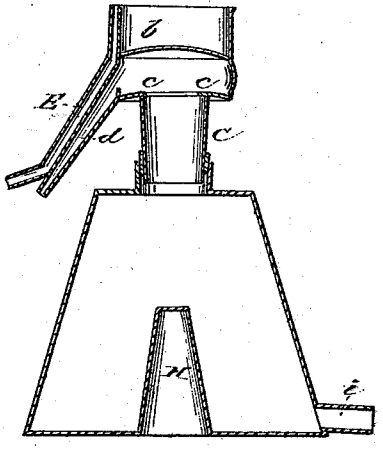


FIG. 3



WITNESSES:

E. W. Woods

L. M. Alexander

INVENTOR:

James B. Mason.

United States Patent Office.

JAMES B. MASON, OF CHAPEL HILL, NORTH CAROLINA.

Letters Patent No. 103,064, *dated May* 17, 1870.

IMPROVED COLD-CAP STILL FOR THE DISTILLATION OF ALCOHOLIC AND OTHER LIQUIDS.

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, JAMES B. MASON, of Chapel Hill, in the county of Orange and State of North Carolina, have invented an Improved Cold-cap Still for the Distillation of Alchoholic and Other Liquids, and I hereby declare the following to be a full and exact description of the same, reference being had to the accompanying sheet of drawings which form a part of this specification, in which—

Figure 1 is a perspective view of my invention.

Figure 2 is a longitudinal vertical section; and

Figure 3, a vertical cross-section.

This invention is based on the following principles, viz:

The still should possess a large heating surface, so as to raise the liquid to the vaporizing point in a short time and without having too great a temperature at any one point, which would occasion the burning of the contents.

This is often the case with the stills of the ordinary construction, when the distillation is urged too much, and is entirely avoided by my invention by the form of the body of the still, which is a low prism with rectangular base and top, and also by projecting within the body of the still-heating tubes, as hereinafter described.

After the formation of vapor within the still it should be removed as quickly as possible, or changes will take place injurious to the quality of the spirits produced, besides a loss in time and fuel.

This is accomplished in my invention by the manner of constructing and placing the cap, which is so placed that the vapors enter it almost as soon as formed, and are immediately condensed.

For this purpose the cap is kept cold by means of a cold-water vessel, and also by separating the cap from the body of the still by means of a non-conducting composition which prevents the passage of heat from the still to the cap.

By this arrangement the vapors are rapidly withdrawn when formed, and being at once condensed, all pressure in the still is prevented.

This in turn hastens the evaporation, and, as a consequence, the yield of distillate in a given time and for a given amount of fuel, is largely increased.

To enable others to make and use my invention I will proceed to describe it.

In the drawing—

A is the body of the still, made in the form shown in fig. 1.

I do not limit myself to the exact proportions shown, for these may be greatly varied without departing from the principles of the invention as above set forth.

The cap B, which may be single or duplicated any number of times, as required, is divided by a partition, *b*, so as to form a cold-water vessel immediately over the main body or "cap" proper of the still.

At the base of the cap is a circular flange *c*, highest where it joins the neck of the cap C, so as to form a channel around the base of the cap, into which the spirit, as fast as condensed, runs, and thence through *d*, into the worm-tube, which is of the ordinary construction and need not be described.

Any vapor not condensed in the cap will also pass into the worm-tube.

At the lower portion of the neck C of the cap is formed a channel, which is filled with plaster or other non-conducting material.

The plaster may be retained by a ring or band of sheet metal, or by other means.

Instead of a groove a flange to support the plaster may be formed around the neck of the cap, or instead of these, any suitable device may be employed whereby a barrier of non-conducting material may be interposed between the body of the still and the cap, the object being to keep the cap as cold as possible.

The top of the cap is kept filled with cold water, which is constantly renewed.

The waste water passes off by the pipe *e*, either to the worm-tub or to some other vessel.

The form of the still gives a large heating surface.

This is further increased by the heaters H, which project from the fire space into the body of the still, as shown in figs. 2 and 3.

These heaters are placed directly under the caps. They are connected with each other by the pipes or flues *h*.

These heaters materially aid in producing evaporation, and being directly under the opening to the cap, produce the vapor near the point where it can be taken off with the least delay.

A return-flue may be placed inside of the heaters, so as to cause a circulation therein of air; but it is not necessary to keep up a high degree of heat in the heaters.

The contents of the still may be drawn off by the pipes *i i*.

The size of the still may be greatly varied.

For a three-cap still, as shown in the drawing, a suitable proportion for the parts would be twelve feet long, six feet wide, and four feet high.

The special advantages of my improvement are rapidity and economy of work, and also a better quality in the result of distillation.

The invention is applicable to stills for the distillation of all kinds of liquids, spirits and essences.

Having thus described my invention,

What I claim, and desire to secure by Letters Patent of the United States, is—

1. The cold-cap still herein described having the body of the same forming a prism, as described.

2. The combination of the heaters H and connecting flues *h*, with the still A, as described.

3. The non-conducting band around the neck of the cap, so as to prevent the heating of the cap, as described.

JAMES B. MASON.

Witnesses:

E. W. WOODS,

J. M. ALEXANDER.