

C. K. Dutton,

Still.

No. 94,584.

Patented Sept. 7. 1869.

Fig. 1.

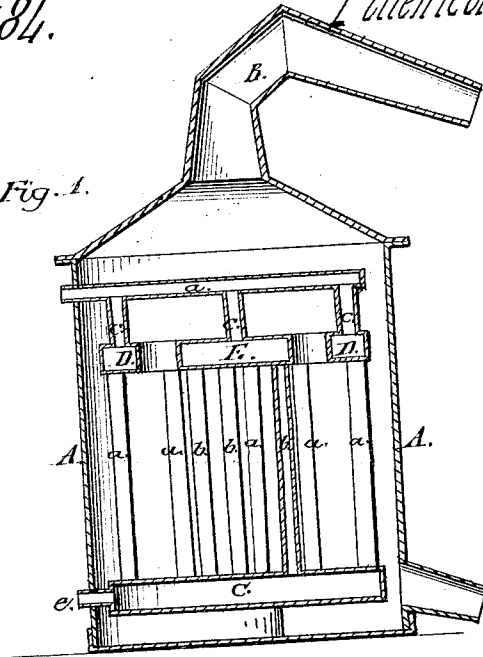
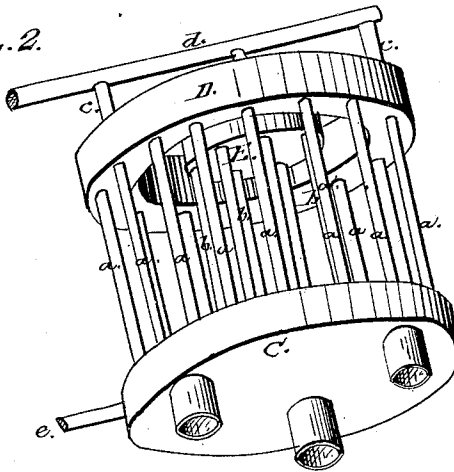


Fig. 2.



WITNESSES:

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# United States Patent Office.

CHARLES K. DUTTON, OF NEW BERNE, NORTH CAROLINA.

Letters Patent No. 94,584, dated September 7, 1869.

## IMPROVEMENT IN 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, CHARLES K. DUTTON, of New Berne, in the county of Craven, and in the State of North Carolina, have invented certain new and useful Improvements in Stills; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the interior arrangement of a still, by which the heat is applied in a different manner from any still now in use.

In order to enable others skilled in the art to which my invention appertains, to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, which form a part of this specification, and in which—

Figure 1 is a longitudinal vertical section, and

Figure 2 is a perspective of the interior arrangement of the still.

A represents the outer case or covering, and is the same as the ordinary copper or iron still. This casing is rendered air-tight, so as to secure the substance evaporated, which passes out of the cap through the pipe B, and is condensed in a worm in any of the known and usual ways.

On the bottom of the casing A is placed a hollow drum, C, said drum resting on legs or supports, as shown in fig. 1, so as to be raised a suitable distance above said bottom.

Near the outer edge of the drum C is placed a series of perpendicular tubes, *a a*, which lead from said drum to a drum, D, this latter drum being placed any convenient distance from the former, and supported by the pipes *a a*.

I also provide the drum C, further inward toward the centre, with another series of pipes, *b b*, which lead to another drum, E, these pipes being also perpendicular, and from the drums D and E pipes *c c* lead to an exhaust-pipe, *d*, which carries the steam or hot air out from the still.

The steam or hot air is admitted into the drum C through the pipe *e*.

The steam enters the lower drum C through the pipe *e*, passing through the outer casing A, and is equally distributed, through the tubes *a a* and *b b*, to the upper drums D and E, and passes out of these in the pipe *d*, passing through the outer casing.

The substance to be distilled or evaporated is placed in the still and entirely covers or surrounds the drums and tubes.

Said drums and tubes may be constructed of iron, brass, copper, or any other metal, the drums and tubes to be of any length or size desired.

The advantages of this arrangement over any other now in use are mainly as follows:

The heat is applied internally, and as fresh steam or hot air is constantly admitted into the lower drum, and as the tubes are perpendicular and equal in length, the steam has but a short distance to pass to reach the exhaust, thus passing out before it becomes condensed. Also, as any number of tubes may be used, a greater amount of heating-surface is presented than by any outward application of heat.

As superheated steam or hot air may be used, any required degree of heat can be obtained. Valves are to be attached to the exhaust, so that any desired pressure can be obtained. As the tubes are short and perpendicular, and as heat naturally rises upward, a greater amount of heat is obtained than could possibly be obtained in coils of pipe or tubes placed in a horizontal position.

Another advantage is, that by having a superheater and thermometer attached, the heat can be easily controlled, which is a very essential point in distillation, as turpentine and oil are seriously affected by too much heat.

Having thus fully described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. Passing steam, or its equivalent, through one or more series of perpendicular pipes inside of a still, substantially as and for the purposes herein set forth.

2. Providing a still with hollow drums connected by perpendicular pipes, for the purpose of applying the heat internally, substantially as herein set forth.

3. The combination of the hollow drum C, perpendicular pipes *a a* and *b b*, and drums D and E, all substantially as and for the purposes herein set forth.

4. In combination with the outer casing A, the drums C D E, perpendicular pipes *a a* and *b b*, inlet-pipe *e*, and exhaust-pipe *d*, all constructed and arranged to operate substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing, I have hereunto set my hand, this 1st day of March, 1869.

CHARLES K. DUTTON.

Witnesses:

EDM. F. BROWN,  
LEOPOLD EVERT.