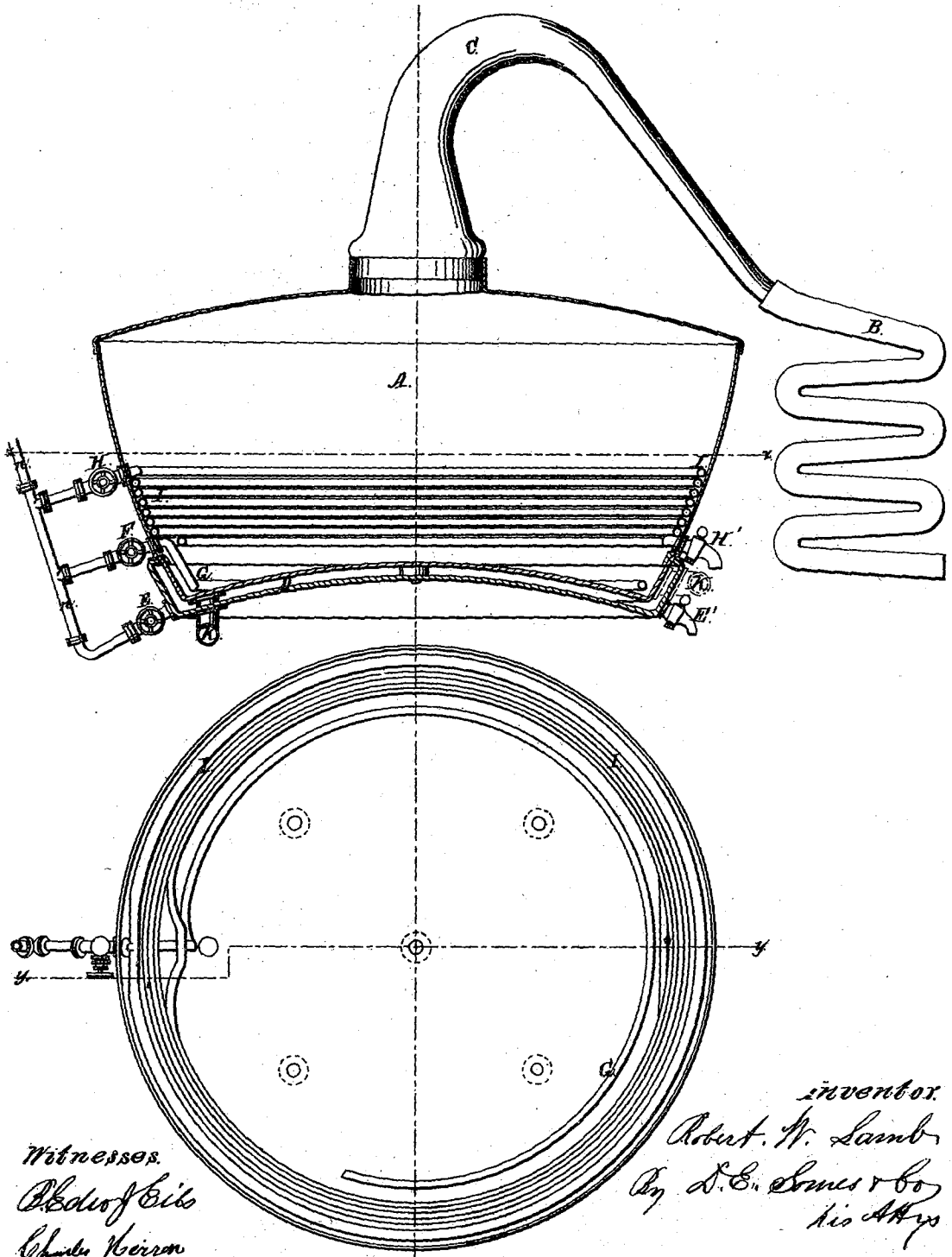


R. W. Lamb.

Still.

N^o 89,051.

Patented Apr. 20, 1869.



Witnesses.
Abel J. Ellis
Charles Keiron

inventor.
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By D. E. Jones & Co.
his Atty

United States Patent Office.

ROBERT W. LAMB, OF WILMINGTON, NORTH CAROLINA, ASSIGNOR
TO HIMSELF AND A. PAUL REPITON, JR., OF SAME PLACE.

Letters Patent No. 89,051, dated April 20, 1869.

IMPROVED STILL FOR TURPENTINE AND OTHER SUBSTANCES.

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, ROBERT W. LAMB, of Wilmington, in the county of New Hanover, and in the State of North Carolina, have invented a new and useful Improvement in Stills; and I 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.

This invention relates to an improvement in distilling spirits of turpentine, and consists in an apparatus for applying superheated steam to extract and expel the spirits of turpentine and rosin from crude turpentine and pine-wood.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Figure 1 represents a vertical section of a still with my improvements attached, taken in line *x-x*, fig. 2.

Figure 2, a horizontal section, in line *y-y*, fig. 1.

Similar letters of reference denote corresponding parts.

A represents a still, made of copper or galvanized iron of ordinary thickness. Its shape is that of the common apparatus for distilling spirits of turpentine.

B is a worm, connected by a cap-pipe, C, as usual, and to be employed in the ordinary manner for condensing the vapor passing over from the still.

The bottom of the still and its lower part, up to about one-sixth of its height, are made of stouter material than its upper part and top.

D is a wrought-iron jacket, placed over the lower end of the still, and extending up to about one-sixth of its height, where it is, by a flange, riveted, steam-tight, to the still.

With this still the jacket forms a steam-chest, there being a space between their respective bottoms as well as between their sides.

E is a globe valve, connecting the steam-chest, by the pipes *n n*, with the superheating attachment of a boiler.

F is the exit-cock for letting off condensed steam or water from the chest, as may be necessary from time to time.

F is another globe valve, attached to the still just above the jacket, or chest, connecting the steam-pipes *n n* with a pipe, G; this pipe is inside of the still, running down its side to near the bottom, and then extending around four-fifths of its circumference.

This pipe G is perforated on its under side, the holes being one-eighth of an inch in diameter; its end is closed, but has one perforation.

At a point half way down the still, on the inside, a worm, I I, of copper or galvanized iron pipes, commences, and is wound around and down the inside of the still to near where the jacket or chest commences.

The upper end of this worm is connected, by the globe valve H, with the steam-pipes *n n*, and has, at its lower end, the exit-cock H', for letting off the condensed steam or water.

K is a pipe with a gate for the exit of rosin. It is attached to the still at the lowest point, either on the bottom, as in the drawings, or on the side, as indicated by the red lines in fig. 1.

The operation is as follows:

The still is charged with crude turpentine, or short pieces of pine-wood containing rosin, when, being all closed, a jet of superheated steam is admitted through the pipe G into the still, and superheated steam is also admitted into the jacket, or chest D and the worm I I.

The contents of the still are thus acted upon by the superheated steam directly, and the heat radiated from the chest and the worm until the spirits of turpentine contained therein is separated from the rosin, and in a volatile or gaseous form passes off through the cap-pipe C to the worm B, to be condensed in the usual way, while the resinous matter melts and gathers at the bottom of the still, to be drawn off at the end of the distillation, through the pipe K.

When the superheated steam condenses in the jacket and worm, it is discharged by opening the stop-cocks H' and E'.

As it is necessary to have a high heat quickly, at certain stages of the distillation, I propose to use superheated steam, as the safest and surest means of meeting this requirement.

The advantages of the side coil are, that by it we equalize and regulate the heat throughout the entire charge, thus expediting the operation and rendering it possible to carry on distillation at a much lower degree of heat than by the usual mode, and thus secure the spirits of turpentine whiter and freer from resinous matter, and the resin uncolored by overheat, and therefore of a superior quality.

This arrangement of the coil of pipes possesses the practical advantage, proven by experience, over other combinations, that it leaves the interior of the still sufficiently open to prevent clogging of material among the pipes, which would result in an imperfect distillation of the mass, besides rendering the still unfit, temporarily, for further use.

It is a fact well known to practical distillers of crude turpentine that when it is disposed to boil over and find exit through the condensing-worm, thereby involving loss, delay, and even danger, a sudden increase of heat will prevent this tendency to overflow.

This end is partially accomplished by the side coil of pipes, and is secured by the use of superheated steam, whereby we obtain an increased heat with great rapidity without increase of pressure.

Ordinary steam for this result has been proven, by

experiment, useless under such great pressure as would practically exclude its use.

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

1. The application of superheated steam to the distillation of spirits of turpentine, as herein described.
2. The perforated pipe G, in combination with the coil I I, for the purpose of diffusing the superheated steam through the charge, as set forth.
3. The coil of pipe, arranged around the sides of

the still, substantially as described and for the purpose set forth.

4. The steam-jacket, in combination with the still, as and for the purpose described.

The above specification signed by me, this day of , 18

ROBT. W. LAMB.

Witnesses:

F. C. SOMES,
CHARLES HERRON.