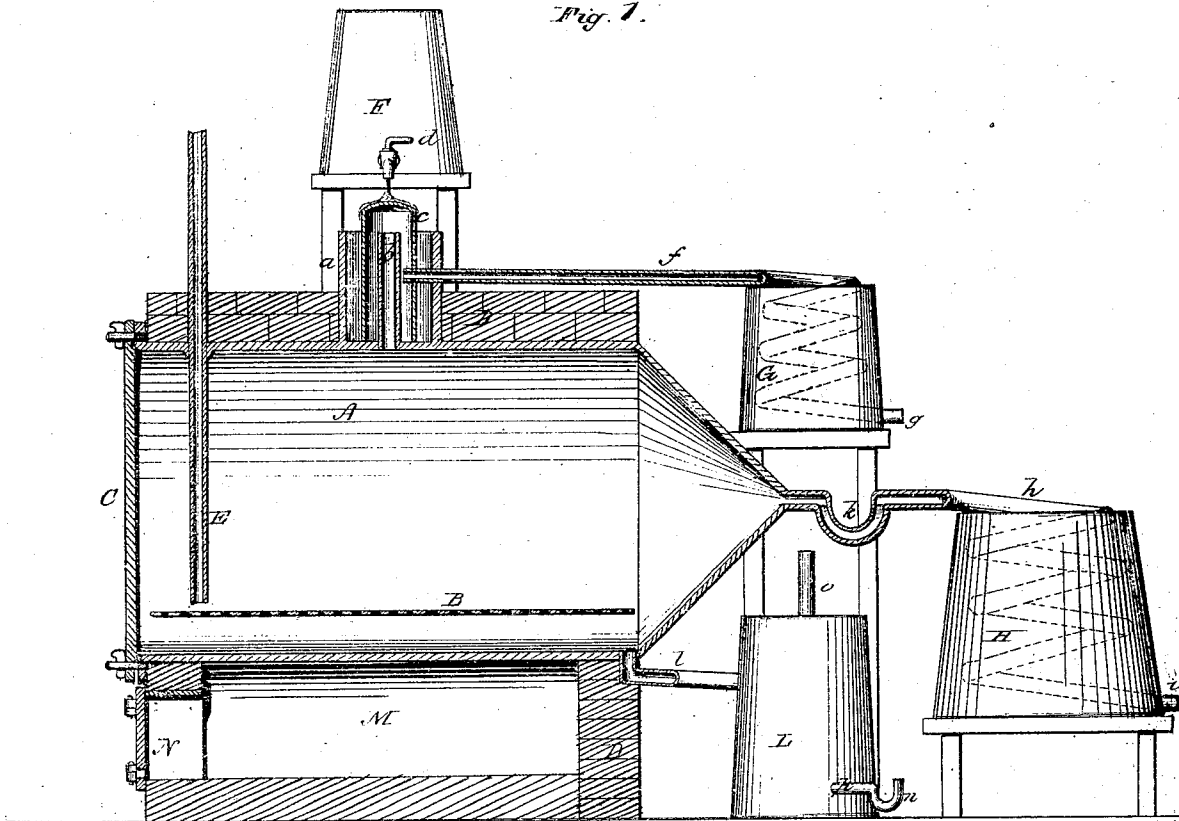


T. W. WHEELER.
DISTILLING PINE WOOD.

No. 105,019.

Patented July 5, 1870.

Fig. 1.



Witnesses,

L. Hailer

Phil. T. Dodge

Inventor,

T. W. Wheeler

by Dodge & Mann
his attys -

UNITED STATES PATENT OFFICE.

THOMAS W. WHEELER, OF NEW BERNE, NORTH CAROLINA, ASSIGNOR TO HIMSELF AND E. W. CARPENTER, OF SAME PLACE.

IMPROVEMENT IN DISTILLING PINE WOOD.

Specification forming part of Letters Patent No. 105,019, dated July 5, 1870.

To all whom it may concern:

Be it known that I, THOMAS W. WHEELER, of New Berne, in the county of Craven and State of North Carolina, have invented certain Improvements in Process of Distilling Turpentine from Pine Wood, &c., of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to processes for distilling turpentine and other substances from pine wood; and it consists in the construction and arrangement of a novel apparatus by which, during the process, and at one and the same time, the lighter oil or turpentine, the heavy oils, and a tarry residuum, may be drawn from different points of the same.

In the drawing, Figure 1 is a longitudinal vertical section of my apparatus, showing a portion of the same in side elevation.

In the construction of my apparatus I make a retort, A, of any size desired, and of any suitable form, with a perforated floor or platform, B, on its inside, and at some little distance from its bottom, as shown in the figure, and also with a lid, C, attached in any of the usual ways, as shown in the same figure. This retort A is put or set up in mason-work D, and has passing through its upper side, and near its front end, a steam-pipe, E, which extends downward nearly to the perforated floor B, as shown in the figure. There is also on its upper side an upright cylindrical projection, a, with a pipe, b, communicating with the retort, extending up through its center. Over this pipe b is placed a covered cylindrical tube, c, of the requisite size to leave some space between it and the tube or pipe b on the one side, and the cylindrical projection on the other, as clearly shown in the figure.

Over or near the retort is placed a cold-water cistern, F, provided with a cock, d, and so arranged that the water may be allowed to drip on the top of the tube c when desired. To the side of the tube c is connected a pipe, f, which runs to a worm-tub, G, within which it is coiled, and afterward passes out at the side near the bottom of the tub, as shown at g.

The rear end of the retort may be made square or cone-shaped, as shown in the drawing. In either case a pipe, h, extends from its center to a worm-tub, H, within which it is coiled,

and afterward passes out at the side, near the bottom of the tub, as shown at i, and is provided with a trap, k, between the retort and the worm-tub, as shown. From the bottom of the retort is another pipe, l, leading into a tight receiver, L, with a pipe, m, extending from it, provided with a trap, n, and also with a pipe, o, rising from its upper end, all as shown in the figure.

Underneath the retort is arranged a furnace, M, with gate N, in the usual manner.

In operating the apparatus thus constructed the retort A is first charged with the pine wood, and the lid C firmly secured. Steam is then introduced through the steam-pipe E, when it thoroughly fills the retort and dissolves all the soluble components of the wood. The vapors arising from this distillation pass up the pipe b. As they reach its top, the heavy oil therein is at once condensed by the coldness produced under the upper end of the cylinder C by means of the cold water running or dripping thereon from the cold-water cistern F, and is thrown back into the retort, while the vapors containing the lighter oils pass up over the end of the pipe b, then out through the pipe f, and into its worm in the tub G, which is full of cold water, and condenses the vapor into a liquid, which is drawn from the pipe at g, and which consists, principally, of turpentine, though, in a further distillation, it is found to contain paraffine, naphtha, &c. At the same time the vapors that are mainly charged with the heavy oils pass along the pipe h to the worm-tub H, which is also full of cold water, and in like manner condenses the vapors into oil, which is drawn from the pipe at c, the trap k in the pipe preventing any of the lighter gases from passing over at the same time. While the light and heavy oils are thus being drawn simultaneously from the retort, the residuum of the distillation of the wood passes down through the perforated floor B, and out through the pipe l, into the receiver L, from which it is drawn by a pipe, m, provided with a trap, n, to prevent any escape of gas. The receiver L is also provided with a pipe, o, which is kept closed during the process, but serves at other times to afford access to the interior.

It ordinarily takes from fifteen to twenty-

two hours to run off a charge of the retort, and during this time the heat in the retort should be kept up to about 110° Fahrenheit.

In this way I am able to construct a simple and cheap apparatus for the distillation of the light and heavy oils from pine wood, and to draw off these products at one and the same time, and without the use of any materials or apparatus for rectifying.

I have found that the turpentine produced in this way is of an excellent and useful quality, while what I have termed the "residuum," is found especially useful as a substitute for a coarse varnish.

Having thus described my invention, what I claim is—

1. The apparatus consisting of the retort A, with pipe E, for the introduction of steam, the cylindrical projection a, tube b, covered cylindrical tube c, with cold-water cistern F, and the pipes f, h, and l, with the connecting-tubs for condensing, when arranged substantially as herein described, and for the purpose set forth.

2. The process, substantially as herein described, of distilling from pine wood turpentine, heavy oil, and tar residuum, separately and at the same time, in the manner set forth.

THOMAS W. WHEELER.

Witnesses:

H. B. MUNN,

PHIL. T. DODGE.