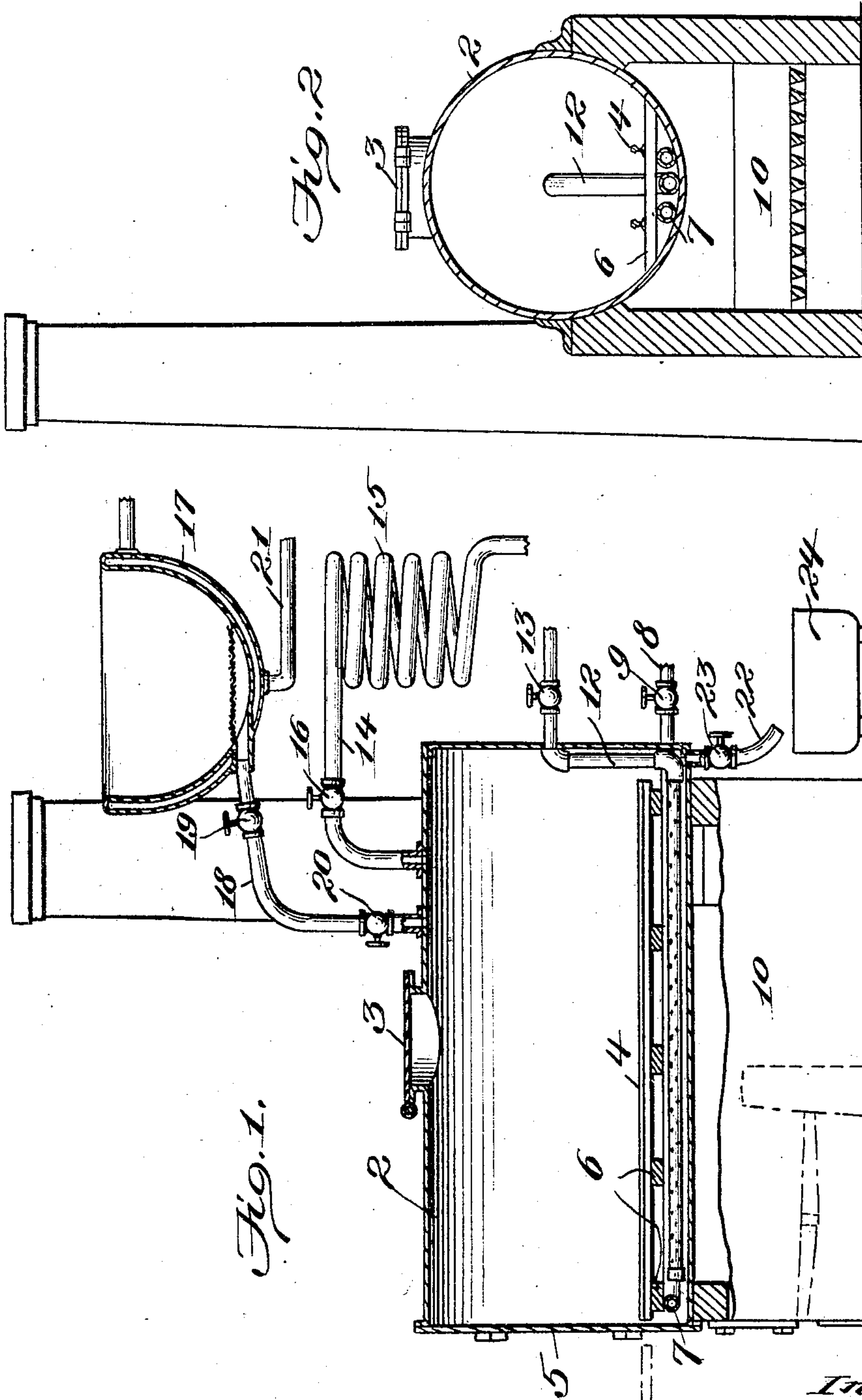


No. 862,680.

PATENTED AUG. 6, 1907

J. W. THOMPSON & T. J. NEWSOM.
PROCESS OF OBTAINING TURPENTINE FROM WOOD.
APPLICATION FILED MAY 18, 1907.



Witnesses:
C. D. Hester
J. B. Kiefer

Inventors
John W. Thompson
Thomas J. Newsom
By
James L. Norris
attor.

UNITED STATES PATENT OFFICE.

JOHN W. THOMPSON, OF RALEIGH, AND THOMAS J. NEWSOM, OF CLINTON, NORTH CAROLINA,
ASSIGNORS OF ONE-HALF TO SAID THOMPSON, TWO-TENTHS TO SAID NEWSOM, AND
THREE-TENTHS TO ALFRED P. McPHERSON, OF LILLINGTON, NORTH CAROLINA.

PROCESS OF OBTAINING TURPENTINE FROM WOOD.

No. 862,680

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed May 18, 1907. Serial No. 374,338.

To all whom it may concern:

Be it known that we, JOHN W. THOMPSON and THOMAS J. NEWSOM, citizens of the United States, residing at Raleigh and Clinton, in the counties of Wake and Sampson, respectively, and State of North Carolina, have invented new and useful Improvements in Processes of Obtaining Turpentine from Wood, of which the following is a specification.

This invention relates to a process of obtaining turpentine from wood.

By our invention we take light wood as it is commonly known and subject the same to the action of crude turpentine and afterward subject the wood thus treated to the action of heat to drive off the turpentine vapors not only from the wood, but from the crude turpentine as well, such vapors being subsequently condensed.

We find that by treating the wood with crude turpentine, the vaporization of the turpentine bodies in the wood can be materially facilitated with respect to certain methods of procedure with which we are familiar. We not only therefore treat the wood to heat but treat the crude turpentine as well and thereby do at one proceeding what has generally heretofore taken, so far as we know, two distinct steps. Not only do we effect this saving but, as indicated, the vaporization of the turpentine products in the wood when treated with crude turpentine is accomplished very much more quickly than when the wood is not thus treated. At the conclusion of the vaporization the rosin which settles in the treating retort or tank can be drawn off therefrom.

In carrying out the process we prefer to place the wood in a retort, and it is immaterial what the form of this retort is and in what condition the wood is when introduced into the retort. The wood may be in the form of chips, saw-dust, blocks, lumber, logs, or any other form. We have therefore mentioned specifically several characters in which the wood may be when introduced into the retort.

We use the words "crude turpentine" in a generic sense with the object of including such things as virgin dip, scrape, or the gum of pine trees.

From what has been stated it will be evident that the apparatus for carrying out the process may be of any desirable kind. In the drawings accompanying and forming part of this specification we have shown in detail one suitable form of apparatus for this purpose.

Referring to these drawings: Figure 1 is a sectional side elevation of said apparatus and Fig. 2 is a transverse sectional view of the same.

Like characters refer to like parts throughout the several figures of the drawings.

In said drawings there is shown a still or retort as 2

and this retort may have in its top an opening through which the light wood when in a finely divided condition, such as in the shape of chips or saw-dust, can be introduced, said opening during distillation being closed by a door as 3 held against the retort in some steam-tight manner. When the wood is introduced into the still or retort 2 in large blocks, sticks or lumber it may be put on cars, one or more of which can be rolled on to the track 4 within said still or retort through the open outer end thereof, which open outer end during distillation is closed by a door as 5. The track 4 may be supported in any desirable way in the retort or still 2, for example, by the frame-work 6 which is shown as resting on the steam coil 7 constituting a continuation of the pipe 8 having a valve as 9, by opening which steam can circulate through said coil to initially heat the wood. Or initial heating of the wood can be secured by a furnace as 10 on which the retort or still 2 is mounted. The track 4 constitutes a continuation of the track 11, shown in dotted lines in Fig. 1 as located outside the still. The cars travel along the track 11 and, when the door 5 is opened, they can be pushed from said track 11 on to the track 4, after which said door can be closed.

In some cases we may use the heat generated by the furnace 10 augmented by that in the coil 7, for distilling the wood in the retort or still 2, or we may use the heat of the furnace alone for this purpose. The invention, as will be obvious, does not reside in this or any other similar or mechanical detail. We prefer to utilize steam for the distillation, and for this purpose the steam pipe 12 may be employed, said steam pipe extending into the retort or still downwardly and then horizontally along the bottom interiorly of the same. The pipe 12 is represented as equipped with a hand-valve 13. The turpentine vapors are led off from the retort or still 2 by a pipe as 14 which has a coil or worm as 15 constituting a continuation of the same, the pipe 14 being equipped with a hand-valve 16 between the retort 2 and the worm 15.

We have shown as situated above the retort 2 a tank as 17, and this tank or vessel constitutes a suitable receptacle for the crude turpentine and wherein such material can be heated to a molten or substantially molten condition. That is to say, the said crude turpentine will be brought to such a state by heat that it will freely flow. This is the preferred way of carrying out our method, although, as will be understood, we are not restricted in this respect. From the interior of the tank or vessel 17 to the top of the retort or still 2 a pipe as 18 leads, said pipe being provided at different points in its length with valves 19 and 20 both of which, during distillation, are closed. The tank or vessel 17 is jacketed and into the space between the shells or

walls thereof a steam-pipe as 21 leads for the purpose of bringing the crude turpentine in said tank to a molten or fluid condition. Any other procedure might be adopted for obtaining this effect.

- 5 It will be assumed that the valve 9 is closed, that there is no fire in the furnace 10, that the valves 13, 16, 19 and 20 are also closed, and that the tank or vessel 17 contains a body of crude turpentine in a molten condition, which condition has been secured by steam from the pipe 20. Assuming these several things to exist, the process in its preferred form is carried out as follows: Should it be intended to distil wood in the form of finely divided chips, such wood is introduced through the opening in the top of the still or retort 2, after which
- 10 the doors 3 and 5 are closed. The valves 19 and 20 are then opened and the crude turpentine is permitted to gravitate from the pipe 17 through the pipe 18 into the retort 2 to cover the said wood. When the wood is covered or when it has been sufficiently treated with crude
- 20 turpentine, whether it be wholly covered or not, the valves 19 and 20 are closed. The valves 13 and 16 are then opened and, as soon as the valves are opened, steam is caused to traverse the inner portion of the pipe 12 and is emitted in jets therefrom through perforations
- 25 therein. This steam thus admitted into the retort or still 2 rises therein and passes through the coated or impregnated wood for the purpose of driving off the turpentine which enters as vapor the pipe 14 and then the worm 15, being condensed in the latter. The turpen-
- 30 tine vapors are at the same time driven off from the crude turpentine. We do not restrict ourselves to any particular temperature of heat in the distillation of turpentine, but such heat may be in the neighborhood of 320° Fahrenheit, at which temperature the turpentine
- 35 within the wood is volatilized and leaves the same, and the same applies with respect to the turpentine products in the crude turpentine. At the conclusion of the turpentine distilling operation the valves 13 and 16 will be closed so that the rosin can be drawn off from the retort
- 40 2 by the pipe 22, the valve 23 in said pipe being opened for this purpose. It is obvious, of course, that during the distillation of the wood and crude turpentine the valve 23 is closed. The rosin passing from said pipe 22 can enter the vat 24 placed below the same.
- 45 We have mentioned one desirable way of carrying

our method into effect. By the apparatus shown the method may be carried out in other ways. In the case with wood in cars, the cars would be rolled into the retort or still. It is conceivable also that the distillation can be effected by the furnace 10 or by the same in connection with the steam coil 7.

While, as will be understood from the title of our invention and what has been previously stated, we desire primarily to secure turpentine from the wood as well as that from the crude turpentine associated with the wood, we also obtain rosin from the wood and crude turpentine. The mixture of wood and crude turpentine is subjected to heat for extracting the turpentine, and the heat acting on the wood is then increased for extracting the rosin from the wood.

What we claim is:

1. The method of obtaining turpentine from wood, which consists in subjecting wood to the action of crude turpentine and in subjecting the wood thus treated to the action of heat for volatilizing the turpentine in the wood.
2. A method of obtaining turpentine from wood, which consists in subjecting wood to the action of crude turpentine and in subjecting the wood thus treated to the action of heat for volatilizing the turpentine in the wood and for also volatilizing the turpentine in the crude turpentine.
3. A method of obtaining turpentine from wood, which consists in subjecting wood to the action of crude turpentine and in subjecting the wood thus treated to the action of heat for volatilizing the turpentine in the wood.
4. The method of obtaining turpentine from wood, which consists in covering the wood with crude turpentine and in subjecting the wood thus covered to the action of heat for volatilizing the turpentine therein.
5. A method of obtaining turpentine from wood, which consists in heating crude turpentine to make it molten, then covering the wood with the molten crude turpentine, and finally subjecting the wood thus covered to the action of heat for volatilizing the turpentine in the wood.
6. A method which consists in subjecting wood to the action of crude turpentine, in subjecting the wood thus treated to the action of heat to extract the turpentine from the wood and crude turpentine, and subsequently in increasing the heat to extract the rosin from the wood.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

JOHN W. THOMPSON.
THOMAS J. NEWSOM.

Witnesses:

VITRUVIUS ROYSTER,
L. D. WOMBLE.