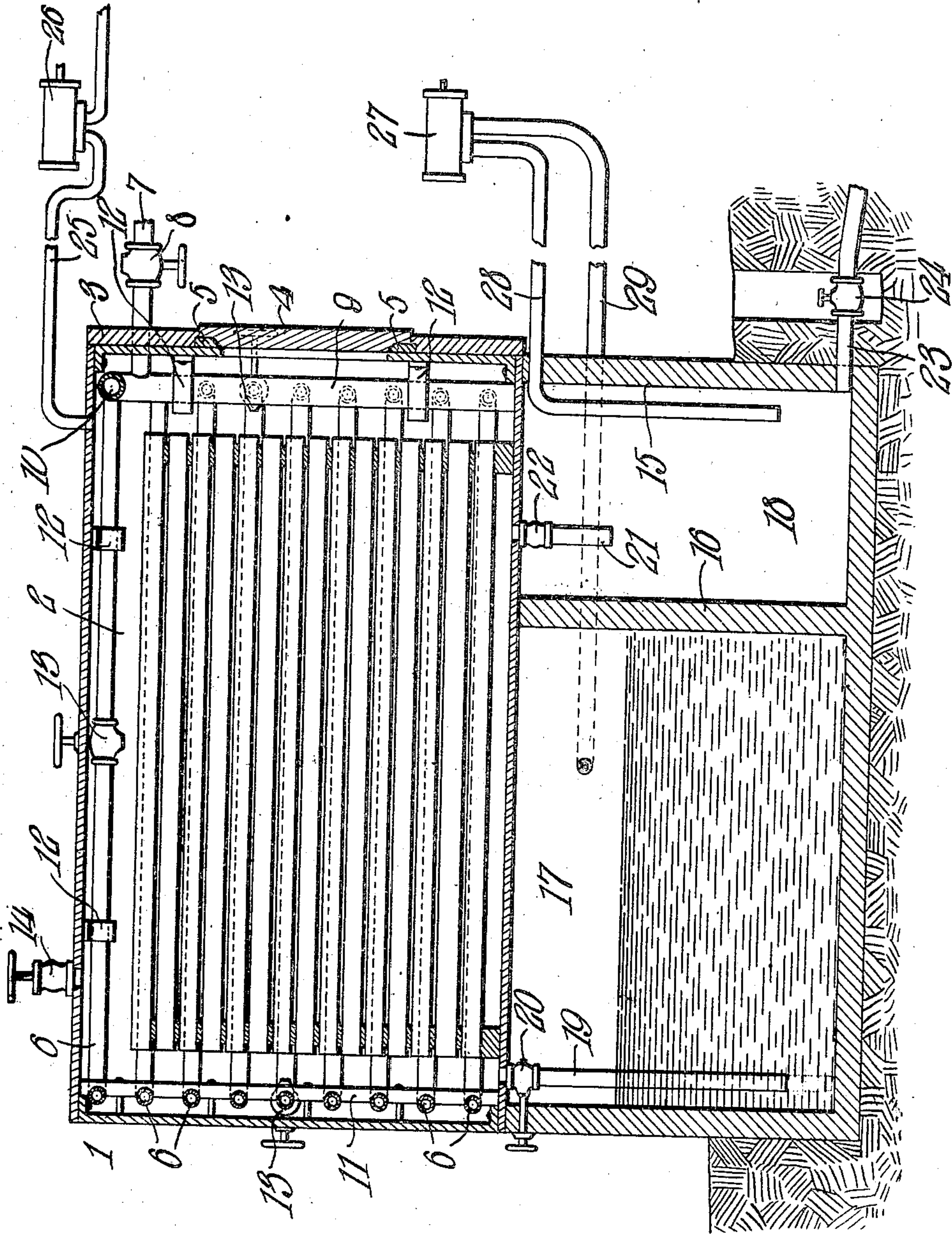


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 APPARATUS FOR USE IN TREATING WOOD.
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904,589.

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Witnesses

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APPARATUS FOR USE IN TREATING WOOD.

No. 904,589.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, SIDNEY S. WILLIAMS, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Apparatus for Use in Treating Wood, of which the following is a specification.

This invention relates to an apparatus designed for use in treating wood; and has for its object to provide a structure for such purpose whereby the pores of wood in the form of lumber or manufactured articles may be filled with a liquid preservative or oil, also for drying and steaming wood in its various forms and conditions.

Another object of the invention is to provide means for introducing the preservative or oil into the chamber solely by atmospheric pressure set up by creating a vacuum therein, and permitting the unused preserving fluid at the end of the operation to flow by gravity from the chamber back into the storage tank.

A further object of the invention resides in means for treating the wood after subjecting the same to oil and withdrawing the same, which means consists in cleansing the extraneous oil from the wood by live steam which, condensing, enters with the oil and dirt into a separate tank where, after settling, the oil is withdrawn and the waste matter discharged from the tank.

The accompanying drawing represents a vertical longitudinal section of the apparatus.

The numeral 1 indicates a horizontally disposed chamber made preferably of sheet metal, in the manner of a steam boiler, and rectangular in cross section with vertical walls 2. Through one of the walls is made a door opening surrounded by a frame 3 in which fits a door 4 having its edges provided with some form of packing 5 to seal the door opening air tight when the door is closed and fastened. Coils 6 of steam pipe lie close to the four walls and the top of the chamber within the same, to which coils steam is conveyed through a pipe 7 from a suitable boiler or steam generator, not shown, the admission of steam being controlled by a valve 8.

To permit entrance to the chamber on the side provided with the door 4, a header 9 may be used on each side of the door opening and connected at the top of the chamber by a cross pipe 10 above said door opening. The pipe coils 6 are fastened to the walls and top of the chamber in any suitable manner,

as by bars 11 or stirrups 12, thus strengthening the chamber to resist atmospheric pressure when the air therein is exhausted. The steam pipes are provided with one or more valves 13, operated from outside the chamber, for admitting live steam into said chamber when occasion demands, as for instance when wood is to be steamed, or cleaned after being subjected to an oil bath. On top of the chamber is an inlet valve 14 to admit air to the chamber at certain times as will be hereinafter described.

The chamber 1 rests on a foundation 15 of masonry or concrete divided by a partition wall 16 into two receptacles or tanks 17 and 18 the former tank having a greater cubical capacity than the latter. A pipe 19, provided with a valve 20, leads from the bottom of the chamber 1 into the larger tank 17 and a similar pipe 21 opens into the smaller tank 18, said pipe also having a valve 22. The valves 20 and 22 may be operated from outside the tanks in the manner shown. From the bottom of the smaller tank 18 a waste pipe 23, intercepted by a valve 24, leads to a sewer or some other place for receiving refuse materials.

Connected to the top of the chamber 1 is an air pipe 25 leading to an exhaust pump of any suitable construction shown conventionally at 26. A second pump, also conventionally shown at 27, is arranged to pump liquid from the smaller tank 18 through a pipe 28 and force it into the larger tank by way of the pipe 29.

To use the apparatus above described, articles to be treated whether in the form of lumber or manufactured products after previous seasoning, are placed in the chamber until it is full, a slight space separating them from the pipe coils 6, and care taken that as much as possible of the surface of each article be exposed. After closing and fastening the door, the valve 8 is opened admitting steam to the coils 6 which kiln dries the articles in the usual manner by dry steaming.

After thoroughly drying the articles the valve 14 on top of the chamber is closed as are also the valves 20 and 22. The air in the chamber is then exhausted by the air pump 26 after which the valve 20 is opened and the preserving fluid in the tank 17 passes up the pipe 19 into the chamber and fills it. The preservative enters more or less rapidly into the pores of the wood. When the wood

becomes fully saturated with the preservative, the inlet valve 14 and the valve 20 are opened and the unused preservative runs back into the tank 17. The door is then
5 opened and the articles removed from the chamber.

Wood designed for building purposes can be successfully saturated with oil by substituting it for the preservative in the tank 17.
10 After treatment and the oil returned to tank 17, the valves heretofore mentioned are again closed and live steam under light pressure introduced into the chamber through the valves 13 for the purpose of cleaning the
15 articles of excess oil making them more convenient to handle. The valve 22 is afterwards opened and the mixture of oil, condensed steam and dirt flows from the chamber into the smaller tank 18 where after
20 settling the oil is pumped back into the tank 17 by the pump 27.

What is claimed is:

1. An apparatus for use in treating wood comprising a chamber for the wood to be
25 treated, a door therefor adapted to be closed air tight, steam pipe coils within said chamber, an air inlet valve for said chamber, tanks below said chamber one of which is adapted to contain the fluid for treating the
30 wood and the other for receiving waste from said chamber, a valved pipe extending from said chamber directly into each tank, and means for exhausting air from said chamber to cause the treating fluid to enter the same
35 solely by atmospheric pressure and flow from said chamber when the air inlet valve is opened into the treating fluid tank.

2. An apparatus for use in treating wood comprising a closed chamber for the wood to
40 be treated having a door in one side adapted to close air tight, steam pipe coils within said chamber on its sides and top, means for rigidly holding said pipe coils to said parts for strengthening them against external
45 pressure, valves in said coils operative from without to admit steam into the chamber, means for exhausting air from the chamber to cause the treating liquid to enter solely

by atmospheric pressure, and means for admitting air to the chamber to permit the
50 surplus of said treating fluid escaping therefrom by gravity.

3. An apparatus for use in treating wood comprising a closed chamber for the wood provided with an air tight door, tanks be-
55 low said chamber one for holding the treating liquid and the other to receive waste from said chamber, means for heating the chamber by steam passing through pipe coils, means for exhausting air from the chamber
60 and filling the same with the treating liquid from said holding tank by atmospheric pressure alone, and means for permitting the return by gravity of the surplus treating liquid to the holding tank.

4. An apparatus for use in treating wood comprising a closed chamber for the wood provided with an air-tight door, a tank be-
70 low said chamber for holding the treating fluid, a second and smaller tank also below the chamber to receive the fluid waste therefrom, a valved pipe connecting the larger tank directly with said chamber, steam pipes within the chamber for heating the same,
75 means for exhausting air from said chamber to cause the treating liquid to enter therein by atmospheric pressure when the valved pipe is opened, means whereby the excess liquid may pass by gravitation from the chamber to the larger tank, valves on said
80 steam pipes to admit steam to the chamber for cleaning the wood therein, a second valved pipe connecting the chamber directly to the smaller of said tanks through which the waste caused by cleaning the wood
85 passes, and means for returning the liquid purified in the smaller tank into the larger one.

In testimony that I claim the foregoing as my own, I have hereto affixed my signa-
90 ture in the presence of two witnesses.

SIDNEY S. WILLIAMS.

Witnesses:

JANE E. BEEBE,
CHARLES E. SALISBURY.