No. 804,132. PATENTED NOV. 7, 1905.

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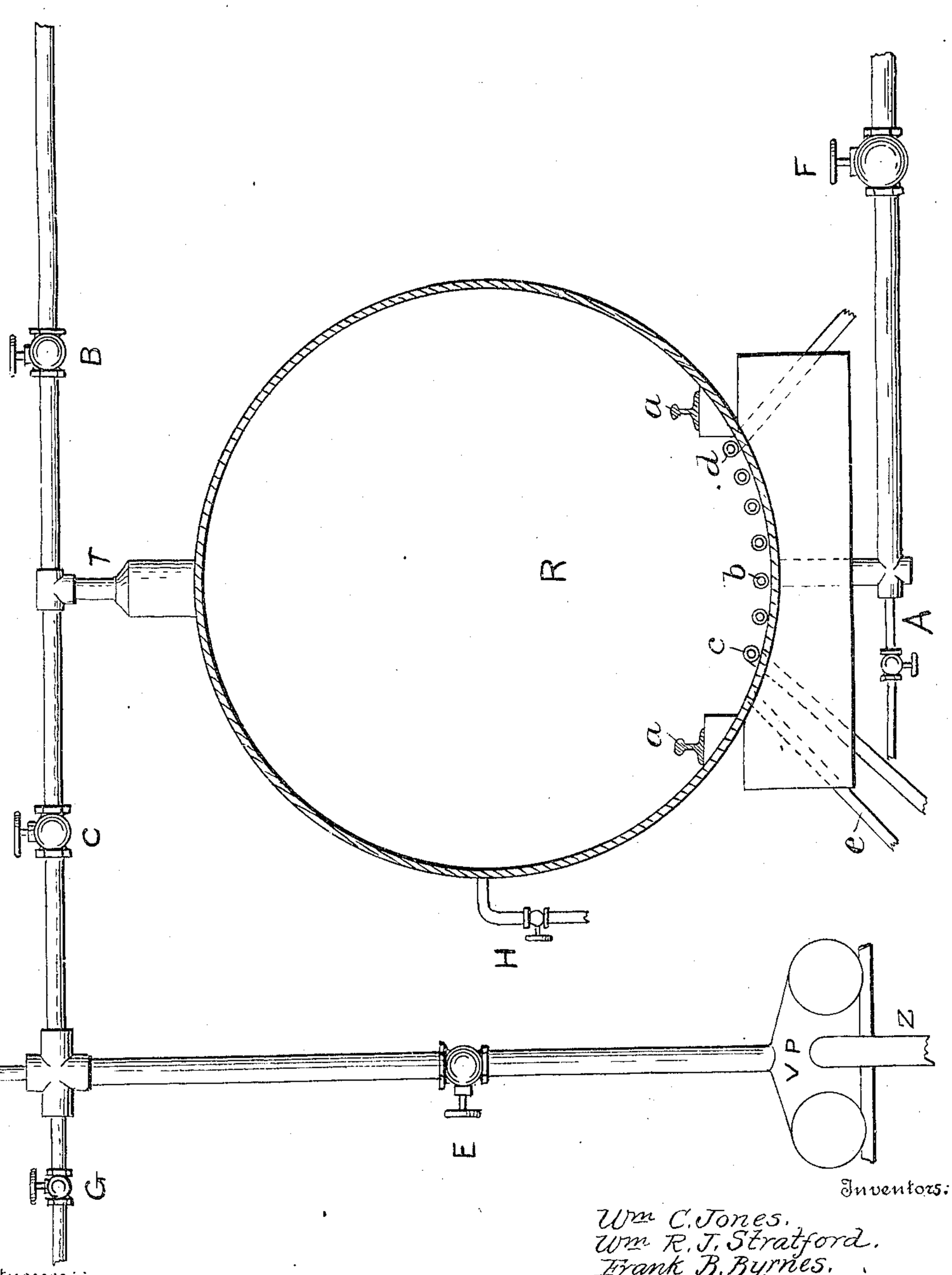
PROCESS OF SATURATING WOOD.

APPLICATION FILED JULY 12, 1904.



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UNITED STATES PATENT OFFICE.

WILLIAM C. JONES, WILLIAM R. J. STRATFORD, FRANK B. BYRNES, AND EDWARD J. NIXON, OF TEXARKANA, TEXAS, ASSIGNORS TO THE INTERNATIONAL CREOSOTING & CONSTRUCTION CO., OF GALVESTON, TEXAS, A CORPORATION.

PROCESS OF SATURATING WOOD.

No. 804,132. Specification of Letters Patent. Patented Nov. 7, 1905.

Application filed July 12, 1904. Serial No. 216,286.

To all whom it may concern:

Be it known that we, WILLIAM C. JONES, WILLIAM R. J. STRATFORD, FRANK B. BYRNES, and EDWARD J. NIXON, citizens of the United States, residing at Texarkana, in the county of Bowie and State of Texas, have invented new and useful Improvements in the Art or Process of Saturating Wood for Preservation, of which the following is a specification.

This invention has relation to the art or process of saturating wood with a view of preserving the wood against decay.

Heretofore it has been found difficult to thoroughly penetrate the whole body of the timber without the use of an excess amount of preservative.

The present invention has for its object the removal of this objection by a mode of procedure which secures the even penetration of the wood with a less amount of preservative.

The present invention, broadly stated, consists in injecting a sufficient amount of preservative into the wood or timber to be preserved and then by powerful air-pressure cause the chemical preservative to penetrate the wood to a greater depth. Before subjecting the wood to any kind of preservative it is relieved of sap and thoroughly seasoned. It is then placed in a vacuum and the preservative is applied under force and pressure. The surplus preservative is then drawn off and the air-pressure stated applied, with the effect of forcing the preservative that is in the wood to a much greater depth.

Various forms of means may be employed to carry out our process; but after extensive experimentation an apparatus like that herein shown and described has been found by us entirely successful and desirable.

The annexed drawing, and letters of reference marked thereon, forms a part of this specification, the same letters indicating the same parts wherever they occur.

The drawing is a diagram of the front of the apparatus entire, some of the parts being removed for the sake of clearness of explanation of the invention.

In the drawing, R designates a retort of suitable diameter, length, and strength, having doors, which are not herein shown, but which are of usual construction and function in similar cases, and *a a* designate tracks upon which a car or cars loaded with timber may be run in and out of the retort.

b indicates a closed coil for the reception of steam or hot air or heat, the interior of the retort *c* being the inlet-pipe to the coil and *d* the outlet, while *e* indicates a pipe for introducing steam to the retort for the purpose of assisting in the vaporization of the sap and moisture of the timber.

A designates a valve controlling a sap-drain leading from the bottom of the cylinder to any place suited to its reception.

B is a valve controlling the outlet for the steam, which may be through a pipe leading from the top of the retort.

C is a valve controlling the opening in a pipe also leading from the top of the retort to a vacuum-pump or other means.

The pipes controlled by the valves B and C may lead horizontally in opposite directions from a common vertical pipe T, communicating with the top of the retort.

D is a valve controlling a pipe communicating with a jet-condenser and the pipe controlled by valve C.

E is a valve controlling a pipe communicating with the pipe controlled by the valve C and with a duplex vacuum-pump V P, which has a discharge-pipe Z leading therefrom.

F is a gate controlling a pipe that communicates with the retort and the tank containing the chemical preservative, so that the latter can be drawn into the retort or forced therefrom through the same pipe.

G is a valve controlling an air-pipe leading from the open to the retort or pipes controlled by the valves B C D E.

H is a valve controlling a hydraulic inlet-pipe communicating with the retort.

The operation of our process is as follows: The wood to be treated is run into the retort on a car or cars and the doors (not shown) are closed. Steam in desired quantity is then admitted to the retort and is also circulated through the closed coils *b* to raise the temperature until the moisture in the wood begins to vaporize. As soon as vaporization is fully set up the valve A is opened and the sap is allowed to drain away. When the sap is exhausted, the steam is allowed to escape through the pipe controlled by the valve B. Valves

A and B are then closed and valves C, D, and E are opened and a vacuum is raised through the means of the vacuum-pump V P, and this vacuum is maintained until the wood is seasoned. Valves C, D, and E are now closed, and the gate F is opened, filling the retort with the chemical preservative, and when this is done the gate F is opened and the surplus preservative is returned to the tanks. Finally, the gate F is closed, the valves C and G are opened, and a pressure raised in the retort by means of compressed air and is maintained until the preservative has been distributed through the wood.

This process is not only conducted and maintained on the best-known scientific principles, but experiments therewith have shown it to be efficient in the highest degree.

We claim—

1. The art of preserving wood which consists in first vaporizing the sap and other liquid substances therein, then drawing off the sap and other similar ingredients and maintaining the wood under a vacuum until thoroughly dried; then saturating it with a chemical preservative and subjecting it to a pressure of the fluid; then drawing off the surplus preservative, and finally subjecting the wood to a high pressure of air, and maintaining such pressure until the preservative has thoroughly penetrated all portions of the wood.

2. The art of preserving wood which consists in seasoning the timber substantially as described; injecting into it the quantity of preservative desired; and finally, under air-pressure, distributing the preservative more thoroughly through the timber.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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