

UNITED STATES PATENT OFFICE.

KARL LOUIS FELIX FRIEDEMANN, OF STOCKHOLM, SWEDEN.

PROCESS OF PRESERVING WOOD.

1,006,076.

Specification of Letters Patent.

Patented Oct. 17, 1911.

No Drawing.

Application filed May 13, 1910. Serial No. 561,172.

To all whom it may concern:

Be it known that I, KARL LOUIS FELIX FRIEDEMANN, a subject of the King of Sweden, residing at Stockholm, Sweden, have invented certain new and useful Improvements in Processes for Preserving Wood, of which the following is a specification.

The present invention relates to a process of preserving wood, which constitutes an improvement on another process of preserving wood described in U. S. Patent No. 937,802, dated October 26, 1909, granted to me and Werther A. G. von Heidenstam as joint inventors. By the process described in the said patent, a layer of carbonate of lime is formed in the outer layers of the wood after the wood has been impregnated with a water solution of calcium cresate, which layer of carbonate prevents to a certain degree the washing out and decomposition of the impregnating substance.

The object of the present invention is to provide a more reliable protection against washing out and decomposition of the impregnating substance than that afforded by the layer of carbonate of lime alone.

The essential feature of the invention accordingly consists in impregnating the wood with solutions of combinations of phenols with alkali earths and successively impregnating the wood with an oil.

After the wood has been impregnated with combinations of phenols with alkali earths, the oil may be introduced into the wood and then the wood may be exposed to the action of atmospheric air or a gaseous mixture containing carbonic acid gas; or the subjecting of the wood to the action of the atmospheric air or carbon dioxid-containing gas mixture may immediately follow the impregnation of the wood with the phenol combination, and the oil may be introduced into the wood last.

I will now proceed to give a specific example of the manner in which my invention may be carried into practice.

The wood to be preserved is placed in an impregnation vessel or apparatus of the usual form; into which a water solution of calcium cresate, for instance, is introduced; the said solution of calcium cresate may be forced into the wood by the employment of a suitable pressure. The solution may contain from 4 to 5 per cent. of calcium cresate, and to each cubic foot of wood about $1\frac{1}{2}$

gallons of the solution may be employed. When the wood has been impregnated with said solution the remainder of the latter is drawn off from the apparatus; a vacuum may then be established in the apparatus for a short period of time; whereupon the oil used according to the invention, which should be an oil either only slightly soluble or insoluble in water, for instance creosote oil, is forced into the wood in a manner similar to the application of the solution of calcium cresate. The quantity of oil may be varied at will, and only the outer layers of the wood need be impregnated therewith. When the wood thus impregnated is exposed to the action of the atmospheric air the phenols in the outer layers of the wood will be freed from their combinations with the alkali earths by the carbonic acid gas contained in the air. The layer of carbonate of lime formed by this reaction constitutes, together with the oil layer, an excellent protection against the washing out or decomposition of the calcium cresate contained in the inner portions of the wood.

I am aware that it has been proposed to use mixtures of an oil with one or more preserving substances such as sulfate of copper, slaked lime, and the like for preserving wood, and I therefore do not broadly claim the use of an oil in connection with another preserving substance, but

What I do claim is:—

1. The process of preserving wood, which consists in first impregnating the wood with solutions of combinations of phenols with alkali earths alone, and then impregnating the wood with an oil, substantially as and for the purpose set forth.

2. The process of preserving wood, which consists in first impregnating the wood with solutions of combinations of phenols with alkali earths alone, and then impregnating the outer layers of the wood with an oil, substantially as and for the purpose set forth.

3. The process of preserving wood, which consists in first impregnating the wood with solutions of combinations of phenols with alkali earths alone, and then impregnating the outer layers of the wood with creosote oil, substantially as and for the purpose set forth.

4. The process of preserving wood, which consists in first impregnating the wood with a water solution of calcium cresate alone,

and then impregnating the wood with an oil, substantially as and for the purpose set forth.

5 5. The process of preserving wood, which consists in first impregnating the wood with a water solution of calcium cresate alone, and then impregnating the outer layers of the wood with creosote oil, substantially as and for the purpose set forth.

10 6. The process of preserving wood, which consists in first impregnating the wood with solutions of combinations of phenols with alkali earths alone, and then impregnating the wood with an oil and subjecting the im-
15 pregnated wood to the influence of a gas mixture containing carbonic acid, substantially as and for the purpose set forth.

7. The process of preserving wood, which consists in first impregnating the wood with

a water solution of calcium cresate alone, 20 then impregnating the wood with an oil, and then subjecting the wood to the influence of atmospheric air, substantially as and for the purpose set forth.

8. The process of preserving wood, which 25 consists in first impregnating the wood with a water solution of calcium cresate alone, then impregnating the outer layers of the wood with creosote oil, and then subjecting the wood to the influence of atmospheric air, 30 substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

KARL LOUIS FELIX FRIEDEMANN.

Witnesses:

FELIX STERN,
C. HEYMANN.