

UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN PROCESSES OF PRESERVING WOOD AND OTHER VEGETABLE MATTER.

Specification forming part of Letters Patent No. **191,257**, dated May 29, 1877; application filed December 21, 1876.

To all whom it may concern:

Be it known that we, HENRI NICOLAS ROGÉ, EDOUARD PORET, PIERRE HIPPOLYTE BAFFOY, and PIERRE STANISLAS ELÉONORE DUPRÉ, all of Paris, France, have invented Improvements in Preserving Wood and other Vegetable Matters; and we do hereby declare the following to be a full, clear, and exact description of the same:

Our invention relates to the employment of soluble salts of lead for preserving wood or other vegetable matter, which becomes insoluble on coming in contact with the fiber of the wood or other vegetable matter.

Experience has shown that all plumbic preparations are not suitable for this purpose, and those which have been tried, some even on a large scale, have failed, owing either to an unwise choice of the product employed or to the defective method of application adopted.

We shall, therefore, in the present specification, endeavor more especially to specify clearly the methods or processes upon which the value of our invention depends, it being understood that we make no claim to any other method, whether based or not on the employment of plumbic compounds differing from those hereinafter specified. We have found that when wood is first impregnated with a soluble salt of lead, (such as acetate or nitrate of lead,) and then with a re-agent, (sulphate, carbonate, alkali, &c.,) capable of precipitating—that is to say, of rendering insoluble the salt of lead—this second solution is only with great difficulty made to penetrate the cellular structure of the wood except by driving out and taking the place of the first-mentioned solution, with which the pores of the wood are already filled, so that the result desired is not attained. Moreover, the precipitates formed at the free ends of the ligneous fibers at once obstruct the channels to the cells, thus preventing any further passage of the liquids.

In order that the action of a metallic salt may be efficacious, it is necessary that it should combine in an insoluble form with the substance of the wood itself, and more especially with its nitrogenous products, instead of being merely a foreign substance deposited in

the pores of the wood in an insoluble form, as would be the case could a lead precipitate be really produced in the wood by means of a chemical re-agent.

The action of these solutions is still more illusory when they are simply externally applied upon the wood, as it has been heretofore proposed.

In order that metallic solutions should have a real preservative action, it is further necessary that the combination which they form directly with the wood or other vegetable products should be effected as rapidly as possible. In using sulphate of copper, the slowness of the transformation (when it really takes place) is one of the many causes of the inferiority of the product.

Having in view these various considerations, we have based the method of our invention on the employment of a soluble salt of lead, which combines easily and rapidly with the extractive matter of wood in order to form therewith, and without the aid of any other chemical agent, an insoluble, imputrescible combination with the wood, and not a simple deposit in its pores.

The plumbic liquids we employ are, first, plumbates of lime, potash, or soda; second, double hyposulphites of lead and soda; third, ammonio-plumbic salts—that is to say, insoluble salts of lead retained in solution by the presence of ammoniacal products; fourth, basic acetates and pyrolignites of lead.

We proceed by injection, employing the same means as in using sulphate of copper. One liquid only being used, but one injection is required.

Among the products above recited we prefer to employ the basic pyrolignite of lead, by reason of the facility with which it is decomposed in presence of organic matters, and because it contains fuliginous or tarry matters, which add still more to the antiseptic properties of its base. This salt is obtained by completely saturating pyroligneous acid with protoxide of lead, and when the saturation is quite complete and the solution has become freely alkaline, the product is dried, or it may be diluted with water, in order to bring the solution to the degree of concentration proper

for injecting, viz., from one to three degrees Baumé. For diluting, water is used which has been deprived of its earthy salts by the ordinary re-agents, or the re-agents may be added to the salt of lead itself.

We do not, however, necessarily employ any special method of manufacture, but can adopt that in ordinary use in the manufacture of chemical products.

Our invention is also applicable to the application of salts of lead for preserving cloth or canvas used for awnings, tents, sails, wrappers, or coverings, and generally all kinds of fabrics exposed to the action of air or moisture, and liable to deterioration from these or other causes of a like nature; also, in their application for the preservation of cables,

ropes, cordage, string, twine, and all kinds of thread or yarns, &c. In preserving canvas and other fabrics we use, also, soluble salts of lead.

We claim as our invention—

The method herein described of preserving wood or other vegetable matter by saturating the same with a solution of a soluble salt of lead, which becomes insoluble on coming in contact with the fiber of the wood or other vegetable matter, substantially as specified.

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