No. 729,362. Patented May 26, 1903.

UNITED STATES PATENT OFFICE.

GEORG FRIEDRICH LEBIODA, OF BOULOGNE-SUR-SEINE, FRANCE.

PROCESS OF OBTAINING IMPREGNATED WOOD.

SPECIFICATION forming part of Letters Patent No. 729,362, dated May 26, 1903.

Application filed December 9, 1901. Serial No. 85,287. (No specimens.)

To all whom it may concern:

Be it known that I, GEORG FRIEDRICH LEBIODA, a subject of the King of Prussia, German Emperor, residing at Boulogne-sur-Seine, France, have invented certain new and useful Improvements in Processes of Obtaining Impregnated Wood; and I do hereby declare that the following is a full, clear, and exact description.

The present invention relates to a process for obtaining impregnated wood which after the drying contains a proportion of solid insoluble formic aldehyde exactly corresponding to the purpose for which it is to be applied.

The new process consists in impregnating the wood with an aqueous solution of a mixture of gelatin and formic aldehyde by means of an injector, about four times as much formic aldehyde being used as that which is present in the wood after drying, and then drying the impregnated wood at a temperature of 100° to 120° Celsius.

According to the present invention a mixture is made which contains from about 0.5 to five per cent. of aqueous solution of gelatin and 0.5 to five per cent. of aqueous solution of formic aldehyde, and the wood is impregnated with this mixture. After drying at a temperature of about 100° to 120° there results a wood permeated with formic aldehyde gelatin, with almost twenty-five per cent. of the formic aldehyde employed in polymeric form. This formic aldehyde is firmly combined and does not escape even if the wood is still further heated.

In an experiment made the mixture of an aqueous solution of two per cent. of gelatin and an aqueous solution of 0.5 per cent. of formic aldehyde was employed. After drying the wood impregnated with the mixture at a temperature of 100° to 120° it resulted that the gelatinous formic aldehyde in the wood contained 5.6 per cent. of solid formic aldehyde. By using one, two, three, and four per cent. of formic aldehyde and corresponding quantities of gelatin there resulted eleven per cent., 20.2 per cent., twenty-seven per cent., and 33.6 per cent. of solid formic aldehyde. These figures show that almost exactly twenty-five per cent. of the formic aldehyde employed always remains in the insoluble gelatin bodies in polymeric form. If the gelatin and formic aldehyde are taken in other proportions, or if a lower temperature is used in drying, or if the drying should take place in the air, a different percentage of solid formic aldehyde will be obtained. Every drying temperature and every proportion of the solution of gelatin and formic aldehyde, however, corresponds to a fixed percentage of formic aldehyde. It is possible, therefore, to determine, according to the present invention, the quantity of the formic aldehyde which remains in the wood after drying, according to the purpose to which the wood which is to be protected from rot or other destruction by parasites is to be applied. As according to the present process seventy-five per cent. of the excess of formic aldehyde escapes during the drying of the impregnated wood, care must be taken that this formic aldehyde is collected during the drying. This can be effected by allowing water to absorb the steam evolved during the drying of the wood. The formic aldehyde escaping can in this manner always be utilized again. The new process is therefore scarcely more expensive than former methods of impregnation which have been proposed, although it is possible to predetermine exactly the percentage of solid formic aldehyde in the impregnated wood.

Having now described my invention and in what manner the same is to be performed, what I claim, and desire to secure by Letters Patent, is—

An improved process for obtaining impregnated wood, consisting in impregnating the wood with an aqueous solution of gelatin and formic aldehyde which contains four times the quantity of formic aldehyde which the wood is required to contain after drying, then drying the impregnated wood at a temperature of 100° to 120° Celsius and during the drying collecting the surplus formic aldehyde driven off for reuse, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

GEORG FRIEDRICH LEBIODA.

Witnesses:

EDWARD P. MACLEAN,

GEORGE E. LIGHT.