UNITED STATES PATENT OFFICE.

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PROCESS OF TREATING WOOD FOR PENCILS.

997,275. Specification of Letters Patent. Patented July 11, 1911.

No Drawing. Application filed January 26, 1909. Serial No. 474,351.

To all whom it may concern:

Be it known that I, SAMUEL HENRY CROCKER, a subject of the King of Great Britain and Ireland, residing at 9 St. James Walk, in the county of London, England, have invented a certain new and useful Process of Treating Wood for Pencils, of which the following is a specification.

This invention relates to the class of pencils of that class in which the leads are surrounded by wooden holders which are cut away from time to time to expose fresh portions of the leads to replace those which have been worn off by use, and the object of this invention is to provide wood for lead pencils of this particular class which may be easily cut or sharpened.

The principal features of the invention consist in the chemical preparation or treatment of the wood for the wooden holders of pencil leads by partial decomposition of the wood by liquid either in a closed vessel or contained by a vessel open to the atmosphere, and depositing a pore filling material in the wood; and combining the wooden holders made from the wood so treated with pencil leads, and the object of my invention is to obtain by the treatment of comparatively cheap and common wood the easy cutting quality and color required for a pencil wood which may be used as a substitute for the red cedar now almost universally used for lead pencils.

In carrying out my invention in one convenient manner a suitable wood, such as for example alder or bass wood, is cut up into pencil "slats" and placed in a suitable vessel. A decomposing liquid consisting of water containing about one per cent. of commercial sulfuric acid is then poured into the vessel to cover the slats and heat is applied and the slats are boiled for about one half hour or until a reddish tint or cedar color is produced; when the liquid is withdrawn without removing the slats and the vessel is refilled with paraffin wax preferably in a molten state. Heat is again applied to raise the temperature of the wax to a little over the boiling point of water and preferably to about 214° Fah. at which temperature it is maintained until sufficient water has been removed from the slats by evaporation to allow the wood to absorb a certain quantity of wax. The vessel containing the slats and the liquid is provided with a liquid gage and the gradual descent of the wax level in the gage indicates the quantity of wax going into the slats as the water evaporates. Thus the amount of wax entering the wood can be regulated and controlled which is an essential feature of my invention as complete saturation of the wood with wax renders the slats unsuitable for gluing and consequently unsuitable for pencil making. When the required quantity of wax has been absorbed by the slats the liquid wax is withdrawn from the vessel. The slats are then dried in a temperature higher than the melting point of the wax which enables the wax to diffuse evenly through the entire substance of the slats as the remaining water is evaporated. The slats are afterward grooved, leaded, glued together and worked up into lead pencils in the usual well known manner.

Although I have referred to bass wood and alder as suitable woods for treatment in accordance with my invention I may use other woods such as birch, cedar sapwood, lime, maple, sycamore and willow, these being some of the woods which develop a reddish color when boiled in dilute sulfuric acid. There are some woods which do not develop the required color when so treated, as chestnut and some pine woods and I do not employ these, but I do not restrict myself to the woods before named nor to the use of paraffin wax as I may use any equivalent pore filling material which improves the cutting qualities of the wood.

It is evident that modifications may be made within the scope of the invention. For example the slats may be treated in a closed vessel and the treatment carried out under pressure.

The slats from which ordinary pencils are mostly made and which it is intended to treat by this process average in size about 7 inches long by $2\frac{1}{4}$ inches wide by $\frac{5}{16}$ths of an inch thick as it will be understood that these slats vary in length, width and thickness in accordance with the size of the pencil to be manufactured and they may be very much smaller and again very much larger. Different woods will absorb varying amounts of paraffin wax or other pore filling material before reaching saturation and various pencils may require different degrees of hardness or softness in the texture of the wood according as a hard lead or a soft lead may

be embedded in the wood and to obtain this result a greater or less proportion of the pore filling material is absorbed by the wood.

I claim:

1. A process for treating wood for holders of lead pencils consisting in immersing it in hot dilute sulfuric acid until a reddish tint is produced and afterward impregnating the same with a regulated quantity of waxy material which shall improve the cutting qualities of the wood, substantially as described.

2. A process for treating wood for use in pencils, consisting in immersing it in a solution of about one per cent. sulfuric acid, boiling until a reddish tint is produced and then impregnating the wood with a regulated quantity of waxy material which shall improve the cutting qualities of the wood, substantially as described.

3. A process for treating wood for use in pencils, consisting in immersing it in a bath of an acid which is capable of producing a reddish tint in the wood after boiling, conducting such boiling until said reddish tint is produced, and then impregnating the wood with a regulated quantity of waxy material which shall improve the cutting qualities of the wood.

4. A process for treating wood for use in pencils, consisting in immersing it in a solution of sulfuric acid, boiling until a reddish tint is produced, impregnating the wood with a regulated quantity of waxy material at a temperature slightly above the boiling point of water, and withdrawing the remainder of the said material.

5. A process for treating wood for use in pencils, consisting in immersing it in a solution of sulfuric acid, boiling until a reddish tint is produced, impregnating the wood with a regulated quantity of waxy material at a temperature slightly above the boiling point of water, withdrawing the remainder of the said material, and drying the wood at a temperature above the melting point of the said material.

6. A process for treating wood for use in pencils, consisting in immersing it in hot dilute sulfuric acid until a reddish tint is produced and afterward impregnating the same with a regulated quantity of liquid paraffin, substantially as described.

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

SAMUEL HY. CROCKER.

Witnesses:
JNO. H. RYAN,
FRANK W. PATTISON.