UNITED STATES PATENT OFFICE.

ROBERT E. PRINCE, OF MADISON, WISCONSIN, DEDICATED, BY MESNE ASSIGNMENTS, TO THE GOVERNMENT OF THE UNITED STATES AND TO THE PEOPLE OF THE UNITED STATES.

PROCESS OF FIREPROOFING FIBROUS MATERIALS.

1,216,729. Specification of Letters Patent. **Patented Feb. 20, 1917.**

No Drawing. Application filed November 25, 1916. Serial No. 133,475.

(DEDICATED TO THE PUBLIC.)

To all whom it may concern:

Be it known that I, ROBERT E. PRINCE, a citizen of the United States of America, residing at Madison, in the county of Dane, State of Wisconsin, whose post-office address is Madison, Wisconsin, have invented a new and useful Process of Fireproofing Fibrous Materials.

This application is made under the act of March 3, 1883, chapter 143 (22 Stat. 625), and the invention herein described and claimed, may be used by the Government of the United States or any of its officers or employees, in the prosecution of work for the Government, or any person in the United States, without payment to me of any royalty thereon.

My invention relates to a process for treating wood and other fibrous materials, whereby the inflammability of the fibrous materials is materially decreased. The object of my invention is to provide a simple process for treating fibrous materials so as to render them immune to any leaching action which might destroy the fireproofing treatment.

In practising my invention the fibrous materials to be treated are hermetically sealed in a retort and surrounded by the treating solution at or above atmospheric pressure, or they may be placed in open vats or tanks and covered with the treating solution at atmospheric pressure. My invention consists largely in injecting into the fibrous material two different substances, hereinafter specified, at different times. It is important that the charge be thoroughly dried between injections. The treating solution, in one case, will be either a solution of boric acid or any soluble borate, biborate, or perborate. The treating solution, in the second case, will be of any soluble salt of zinc, lead, aluminum, or copper, the object being to precipitate into the wood an insoluble borate, biborate, or perborate of either zinc, lead, aluminum, or copper, as the case may be.

The advantages derived in fireproofing wood with the described materials are: (1) that the substance precipitated in the wood is of an insoluble nature and will not be washed or leached from the wood; and (2) that the substance precipitated in the wood is a fusible compound, and when the wood containing this fusible compound is subjected to temperatures high enough to cause distillation of the wood the compound contained in the wood fuses and causes a coating on the wood fiber which protects it and renders it resistant to fire.

The strength of the solutions used varies with the character of wood treated. Some species, like pine, which are easily treated, permit of the use of more dilute solutions than certain other species, such as red oak, which are difficult to treat. The strength of the second solution used should be just sufficient to produce complete chemical change, thus leaving no unchanged zinc chlorid or sodium borate in the wood. If it is desired to preserve the wood against decay, as well as to render it fire retardent, an excess of zinc chlorid solution may be used.

Having thus described my invention, I claim:

A process of fire-proofing fibrous material consisting in saturating the fibrous material with a solution of a soluble compound of boric oxid, then drying the material, and then subjecting the dried material to a second saturation with a soluble salt of lead.

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

ROBERT E. PRINCE.

Witnesses:
WM. J. BYRNE,
I. E. JURS.