

# UNITED STATES PATENT OFFICE.

JOHN F. WALTER, JR., OF BROOKLYN, NEW YORK.

## PROCESS OF DRYING AND SEASONING LUMBER.

SPECIFICATION forming part of Letters Patent No. 287,351, dated October 23, 1883.

Application filed April 30, 1883. (No specimens.)

*To all whom it may concern:*

Be it known that I, JOHN F. WALTER, Jr., a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Process of Seasoning and Drying Lum-

ber, of which the following is a specification. The object of my invention is to dry or season lumber by extracting or evaporating the sap therefrom in a more expeditious and perfect manner than by the methods at present used, in order to render the lumber more suitable to the various uses to which such material is put.

It has been common heretofore to expose the lumber directly to the action of the atmosphere, thus causing the gradual evaporation of the sap and other fluids which it contains; but the great length of time required to perfectly season the lumber in this manner has resulted in placing the lumber on the market, and its consequent consumption, before it is in proper condition for use. The subsequent shrinkage by reason of its continued exposure to the atmosphere proves a serious objection, especially when the lumber is used for interior finishings, and in other instances where perfectly-tight joints are necessary. To provide against this difficulty lumber is sometimes dried in kilns or ovens, where it is subjected to a moderate degree of heat. It has also been placed in steam boxes or chambers for the purpose of volatilizing and expelling the sap, and afterward dried. In both of these last-named processes, however, and especially in that of drying the lumber by the application of heat alone, the album-forming a part of the sap contained in the wood coagulates or hardens upon its surface before all of the sap has been extracted, thus practically sealing the cells and preventing the escape of the remaining sap. This has been a serious hinderance to the complete drying or seasoning of the wood, and unless great care is exercised the wood cracks or splits by reason of its uneven expansion. I have discovered that by surrounding or inclosing the wood (preferably when fresh cut and before it has become dry at its surface) with common salt (chloride of sodium) the surface of the wood is kept moist, and the cells kept open, while the sap is permitted to escape

freely and is readily absorbed by the salt. The peculiar properties of salt prevent the hardening or coagulation of the sap upon the surface of the wood, while acting to preserve the surface in a slightly-moist condition during the entire process. By applying heat to the salt and wood during the process of extracting the sap, beginning at a low temperature and gradually increasing to about 250° Fahrenheit, the wood may be more quickly dried, although the application of heat is not necessary to the perfect carrying out of the process. The heat may be applied at any time and by any suitable means during the process of drying, and may be continued for any desirable length of time, its sole purpose being to expedite the drying of the wood.

In carrying out my invention I have found that the most desirable method is to pile the lumber one piece above another, with a layer of salt intervening between each piece. The vertical spaces between the pieces are also preferably filled in with salt. Should it be desired to apply heat to the lumber, the pile may be formed above or below a system of steam-heating pipes. By these means the heat from the steam-pipes may be made to penetrate the entire mass of lumber and salt, and greatly accelerate the seasoning or drying of the lumber. I have found that the best effect is produced by having the steam-pipes or other source of heat above the piles of lumber and salt.

While the length of time required for the perfect drying or seasoning of the wood by my process depends to a great extent upon the character of the wood to which it is applied, yet I find that the drying of average wood under ordinary conditions, and without the application of heat, will occupy from fifteen to twenty days; but by the application of heat, as hereinbefore described, the perfect drying of the wood may be effected in a much shorter time—generally from ten to twenty-four hours.

As the wood dried by my process has all the sap and other liquids withdrawn from it through the peculiar action of the salt, as above described, it is much more suitable for all those purposes where perfectly-dried lumber is required than wood which has been dried by other methods.

I claim as my invention—

The herein-described process of drying lumber, which consists in subjecting the same to the absorbent action of a bath of dry chloride  
5 of sodium, or common salt, whereby the sap is prevented from coagulating or hardening upon the surface of the material before all or nearly all the fluids contained therein have escaped, as set forth.

In testimony whereof I have hereunto subscribed my name this 28th day of April, A. D. 1883.

JOHN F. WALTER, JR.

Witnesses:

DANIEL W. EDGECOMB,  
CHARLES A. TERRY.