

UNITED STATES PATENT OFFICE.

RANDOLPH LEEDOM, OF CLIFTON, NEW JERSEY, ASSIGNOR TO THE WESTERN UNION TELEGRAPH COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PROCESS OF PRESERVING WOOD.

No Drawing.

Application filed June 4, 1923. Serial No. 643,427.

To all whom it may concern:

Be it known that I, RANDOLPH LEEDOM, a citizen of the United States, residing at Clifton, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Processes of Preserving Wood, of which the following is a specification.

My invention relates to the preservation of wood, particularly telephone and telegraph poles and the like, from the ravages of boring organisms and decay fungi which cause rapid destruction of wood, and has for its object the provision of an expedient and economical method of causing a deeper and more uniform penetration of the preserving medium, such as coal or wood tar derivatives, for example, coal tar creosote, into the surface layer of the wood and into any season checks or cracks.

Of the known methods of applying liquid preservatives to wood, the process known as the superficial treatment, in which the preservative medium is merely applied to the wood in a hot state by means of a brush or spray, would appear as now practiced to be the most economical considered from a standpoint of commercial application since the large and costly installations necessary in the other known methods are not required in this process, but considered from the standpoint of actual results based upon a comparison of wood treated with preservative by this method and other known methods it was found that wood impregnated with preservative by the superficial treatment exhibited the serious drawback or disadvantage of offering little, if any, resistance to the boring organisms and fungi that cause wood decay, due to the slight and uneven penetration of the preserving medium into the surface of the wood and almost negligible absorption of the preservative by the cells present therein. This method offers the additional disadvantage as regards the initial condition of the wood prior to its treatment with the preserving medium, in that if the wood is green, or if the surface is wet or cold, the preservative either runs off or coagulates before it can enter the cells during the step of heating or drying the wood, causing this procedure to be extremely inefficacious. I have now found that by giving the wood a preliminary con-

ditioning or charring treatment by means of heat, and then immediately applying the preservative medium while the wood surface is still hot, the difficulties above noted are obviated, and I obtain a deeper, more uniform, and more thorough surface penetration of the preservative medium into the wood with a resultant greater absorption of the liquid in the wood per unit area of surface treated. The charring process also opens up season checks and cracks to a degree approximating ultimate seasoning and thoroughly sterilizes the wood.

My improved process may be carried out by either bringing an intensely hot flame into intimate contact with the surface of the wood to be treated, or by allowing or directing a flame to impinge or play upon the surface of the wood, maintaining the flame in contact therewith until the wood becomes hot and all the moisture is driven off, at least from the surface layer, and then while the wood is still hot applying the preservative medium, such as coal tar creosote, in a heated state either by means of a brush or a spray or other suitable method. In my preferred embodiment a flame is allowed to play upon the surface of a pole either lying on the ground or standing in a line until the desired degree of charring has been attained, and while the charred pole is still hot treating it with a spray of heated coal tar creosote, induced by forcing the heated liquid by means of a pump through a nozzle. The desired degree of charring is determined, as is well known by two factors, namely: (1) by increasing or decreasing the length of the flame, and (2) by the duration of the flame's contact with the wood. As a result of having the surface of the wood carrying a coating of dry char and the preserving medium being hot at the moment of application thereto, there is produced a deeper penetration of the creosote oil into the wood with an attendant greater absorption of the said liquid. Although this is my preferred manner of applying the preservative, other ways, such as by brushing, dipping, and the like, are applicable, and I do not desire to be limited to either one of these procedures of applying the liquid thereto, as any would suffice to attain the same result.

The conditioning or charring treatment

expels or liberates the water retained within the cell walls of the wood without rupturing or injuring its cellular structure, and simultaneously causes the formation of a thin outer coating of charred wood on or about the surface of the wood treated, the depth of which being dependent upon the intensity of the flame and time of its contact with the wood. This thin outer shell being highly porous and being in a hot dry condition at the moment the heated preservative is sprayed thereon, results in a more rapid, uniform, and deeper penetration of the preservative medium into the surface of the wood, and consequently a greater absorption of the liquid than that ordinarily obtained with the old superficial treatment. The hot charred condition of the wood at the time the preservative is applied results in maintaining the preserving medium in a thoroughly fluid state for a longer period of time than if the timber were unheated, thus causing deeper penetration. The charred surface, because of its porous nature absorbs and holds the oil, and acts as a reservoir, thus maintaining a quantity of oil adjacent to the uncharred timber, and allowing the penetration to continue for a long period of time. This latter action is not possible when charring is not employed as the hot oil is

not held in contact with the pole but runs off.

Preheating of the timber by charring, expands the cells and the contained air to a considerable depth, and as the oil is applied while the wood is in a heated state, it is drawn into the timber as the cells and contained air contract with cooling, resulting in greater penetration and absorption than with other superficial treatments.

What I claim as my invention and desire to secure by Letters Patent is:

1. The process of preserving wood which comprises charring the surface of the wood to produce a hot dry char and applying a hot preserving medium to said hot surface.

2. The process of preserving wood which comprises charring the surface of the wood to produce a hot dry char and applying hot creosote to said hot surface.

3. The process of preserving wood which comprises charring the surface of the wood by applying a flame to produce a hot dry char and to open up season checks and cracks, and applying a preserving medium to the wood while it is still hot, whereby the preserving medium will penetrate deeply into the checks and cracks.

In testimony whereof I affix my signature.
RANDOLPH LEEDOM.