

# UNITED STATES PATENT OFFICE.

ANDREAS KOLOSSVÁRY AND SAMUEL HALTENBERGER, OF BUDAPEST, AND ERNST BERDENICH, OF PÜSPÖK LADÁNY, AUSTRIA-HUNGARY; SAID KÖLOSSVÁRY ASSIGNOR TO SAID HALTENBERGER AND BERDENICH.

PROCESS OF PRESERVING POLES, &c.

1,018,624.

Specification of Letters Patent.

Patented Feb. 27, 1912.

No Drawing. Original application filed November 1, 1910, Serial No. 590,099. Divided and this application filed November 18, 1911. Serial No. 661,164.

*To all whom it may concern:*

Be it known that we, ANDREAS KOLOSSVÁRY, SAMUEL HALTENBERGER, and ERNST BERDENICH, subjects of the King of Hungary, residing KOLOSSVÁRY and HALTENBERGER at Budapest and BERDENICH at Püspök Ladány, in the Empire of Austria-Hungary, have invented a new and useful Improvement in Economical Processes of Impregnating Timber; and we do hereby declare the following to be a full, clear, and exact description of the same:

The present application is a division of our application, Serial Number 590,099, for Letters Patent of the United States of America, filed November 1, 1910.

In most impregnating processes the impregnating liquid is forced in through the outer longitudinal surface of the timber. The penetration of the liquid takes place in that case only through the radial bundles of cells or the so-called medullary rays. In the interior of the wood, the distribution of the liquid takes place considerably more quickly through the axial bundles of vessels. In that way the quality and the cost of impregnation are dependent on the structure of the timber to be impregnated, and more particularly on the number, size and distribution of the medullary cells. It will be obvious that the impregnation of a compact kind of wood which has few medullary cells, would require considerably greater expenditure of pressure, time and money, than that of a kind of wood with numerous medullary cells.

This invention consists in increasing the number of the medullary rays which render possible the penetration of liquid, by means of small openings or pricks leading from the surface into the interior of the wood, artificially produced in any desired manner and acting as artificial medullary rays and facilitating the penetration of the liquid to a greater or less extent which can be determined beforehand by the number, size, depth and distribution of the said openings. These artificial medullary rays must be, however, produced in such manner, that they should form only so to say intermediate spaces between the cells, that is to say, the tool producing the pricks must as far as possible only push aside the cells, without

removing considerable quantities of the wood material. Holes produced by removing material, for instance by drilling, owing to the destruction of the fibers of the place treated, reduce to a great extent the strength of the stem, while pricks produced as far as possible without destruction of the fibers, only by pushing aside or shifting the fibers, do not affect the strength at all, as the fibers are not broken, but only shifted.

It is already known to make incisions or to bore holes in wood before impregnation, but all these openings were effected by severing or removing the wood fibers, while according to the present invention the "pricks" are expressly made by pricking with sharp needles, so that here the fibers are only displaced, but neither severed nor removed. The pricks are best produced by rotating steel needles approximately the size and shape of sewing machine needles, and for ordinary telegraph poles the pricks need only be about one inch deep. The pricks produced in this manner close completely after the impregnation, since due to their elasticity, the merely displaced fibers return during the impregnation to their original position, consequently the wood is not weakened in the least by these pricks.

Artificial medullary rays facilitate and accelerate the penetration of the liquid, and on the other hand enable tougher impregnating solutions to be used, and impregnation to be carried down to any desired depth. As, however, the degree of impregnation depends on the number and depth of the artificial medullary rays, it is possible, according to this invention, to impregnate to a different extent the portions of one and the same stem exposed in a different degree to rotting. As it is well known, the exposed upper portion, and the bottom portion of electric poles embedded in the earth rot very slowly, while the portions adjoining the surface of the ground (both above and below the surface) owing to the changing moisture and to the mushroom or fungi growth, rot exceedingly quickly. According to old processes, it was necessary to impregnate the whole of the pole strongly in order to render the above mentioned sensitive zone capable of resisting rotting for a long time. As, however, the said zone

could not be impregnated to a greater extent than the other portions of the same pole, the upper and bottom portions which are less sensitive, were impregnated to a wasteful and unnecessary degree. According to this invention, the more sensitive portions of the longitudinal timber to be impregnated, are provided with deeper artificial medullary rays, while the other portions are treated only to a smaller extent or not at all, so that during the impregnation the liquid will penetrate into the more sensitive portions to a greater depth and in a larger quantity, while the other portions will take up only as much liquid as required for their slight protection. By suitable distribution of artificial medullary rays, it is therefore possible to impregnate the dangerous zone to a greater depth, and nevertheless to effect a considerable saving, as the portions which are exposed to less danger are impregnated only in accordance with the actual requirements, independently of the depth of impregnation of the dangerous portion.

The holes constituting artificial medullary rays can be produced either by means of suitable hand tools or by machines. The additional expenditure of labor is amply compensated by the fact that (a) the impregnation is completed much more quickly, so that the installation is utilized to a better

advantage; (b) the hitherto unattained high impregnation of the dangerous portion increases to an extraordinary degree the durability and consequently the value of the whole article; (c) in spite of the deep impregnation of the dangerous portions, a considerable saving, up to 75% of impregnating liquid is effected, as the zones exposed to a smaller danger are impregnated only to a depth corresponding to the actual requirements.

What we claim is:

An economical process for impregnating timber, such as poles for aerial lines and the like, such process consisting in piercing small radial pricks in the wood, by merely displacing the fibers thereof, said pricks being made deeper, where the wood is more exposed to decomposition, and impregnating this pricked timber with a preserving fluid, by pressure.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ANDREAS KOLOSSVÁRY.  
SAMUEL HALTENBERGER.  
ERNST BERDENICH.

Witnesses:

HUGH KEMÉNY,  
JOHN J. RENTO.