UNITED STATES PATENT OFFICE.

MATHIAS ROBLING, OF SCRANTON, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO PETER ROBLING, OF SAME PLACE.

IMPROVEMENT IN PROCESSES OF TREATING WOOD.

Specification forming part of Letters Patent No. **172,501**, dated January 18, 1876; application filed October 29, 1875.

To all whom it may concern:

Be it known that I, MATHIAS ROBLING, of Scranton, in the county of Luzerne and State of Pennsylvania, have invented a new and useful Process for Preparing Wood for Use in the Manufacture of Soles for Boots and Shoes, and for other purposes. The following is a specification of my said invention:

The process consists in saturating the wood with moisture, preferably by steaming, and, while thus softened, subjecting it to repeated rolling, by which it is reduced in thickness and greatly extended in length, further moisture being supplied by drips of hot water or other means, to take the place of that which is squeezed out by the rolls. On the completion of the process the wood acquires great ductility and flexibility, and a general consistency approaching to that of leather.

Willow-wood is found to be well adapted to the purposes of my invention. Cotton-wood also answers well, and, in view of its great abundance, will be found preferable in some parts of the country. Various other kinds of wood may be used with good effect.

In carrying out my invention I prepare the wood in strips of any convenient width and length, and three quarters of an inch (more or less) in thickness. It is subjected to steaming in chambers, such as are usually employed for steaming wood, as a preliminary to bending or cutting the same, and when completely saturated and permeated by the steam, it is pressed between iron rolls, such as are commonly employed for rolling leather.

In order to keep the wood in a moist and saturated condition during the rolling process, I employ jets or drips of hot water, which are so arranged as to fall on the parts of the wood which are about to enter the rolls.

For some purposes it is found desirable to roll the wood at intervals, leaving intervening portions unrolled, and thus preserving their original strength and rigidity. Thus, for example, wood prepared for the manufacture of shoe-soles may be rendered flexible in places where the sole is required to bend, and may retain in other parts its full strength, stiffness, durability, and capacity for holding nails, &c.

In cases where the wood is to be rolled throughout it is found best to pass it through the rolls in a direction diagonal to the grain. This causes less violence to the transverse cohesiveness of the wood than if it be passed through crosswise of the grain. The effect in either case is to compress the wood and extend it greatly in length in a direction transverse to the grain. In this way I have successfully rolled out a strip three-quarters of an inch thick to sixteen times its original length, without separating it or destroying its tenacity. It thus acquires great flexibility, and is an excellent material for the manufacture of insoles for boots and shoes, and for many other purposes. Among other uses, I may mention, for example, that it constitutes a good material for window-curtains, being well adapted for rolling. It is also a good material for carpets. It may be combined with leather or woven fabrics in any manner, to impart greater strength or to give any desired surface. It may be strengthened by stitching, either with or without the addition of leather or a woven fabric, for any required purpose.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent—

The process herein described of treating wood by the combined agency of moisture and rolling, to increase its flexibility.

M. ROBLING.

Witnesses:
OCTAVIUS KNIGHT,
WALTER ALLEN.