

No. 819,282.

PATENTED MAY 1, 1906.

A. M. HUNT.  
MEANS FOR PROTECTING PILES.  
APPLICATION FILED AUG. 16, 1904.

Fig. 1.

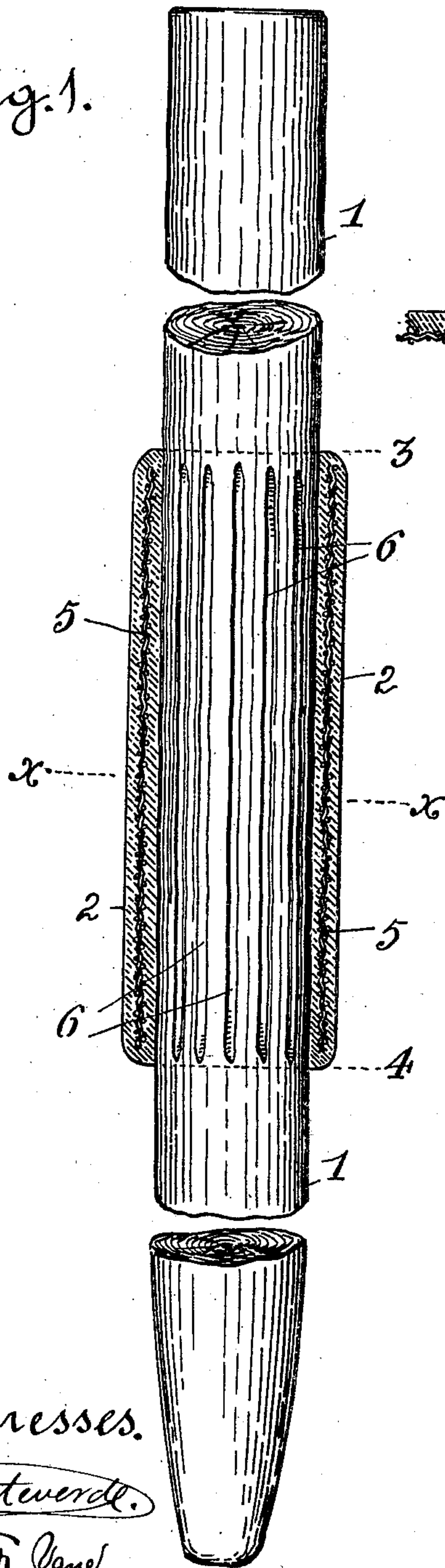


Fig. 2.

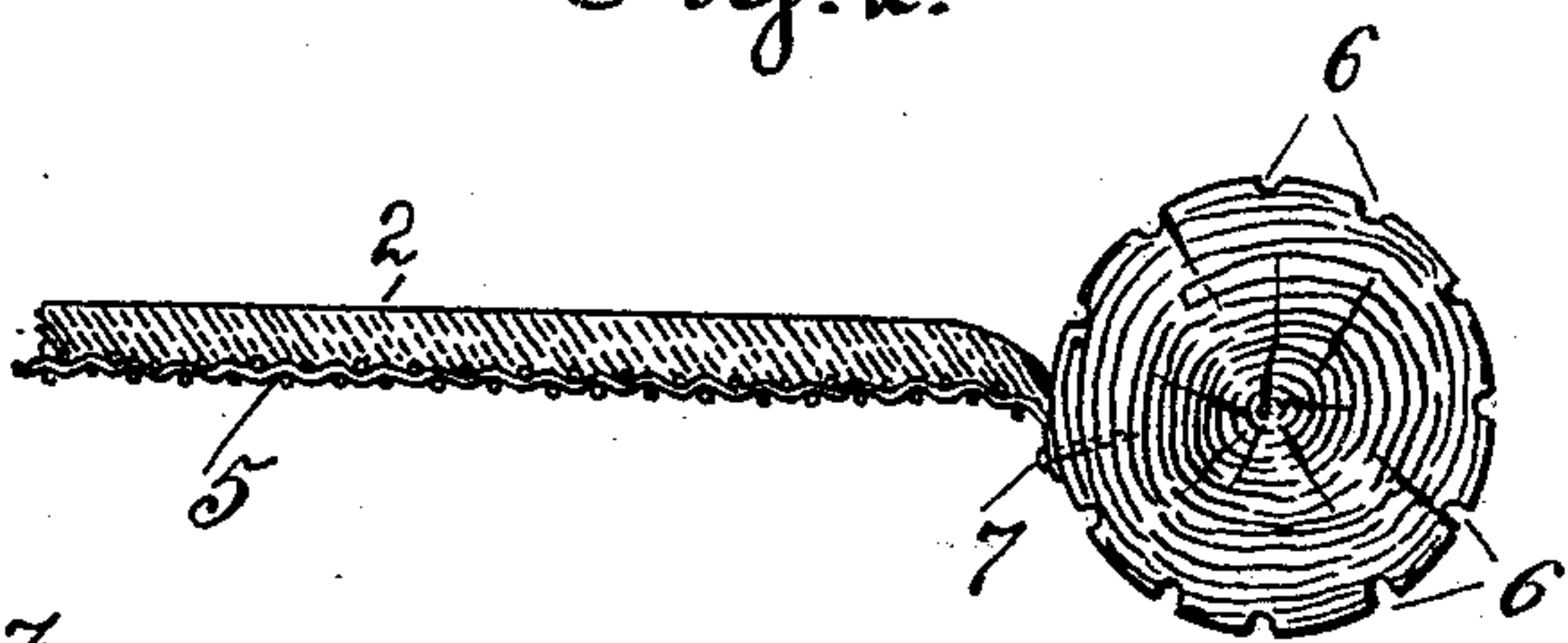
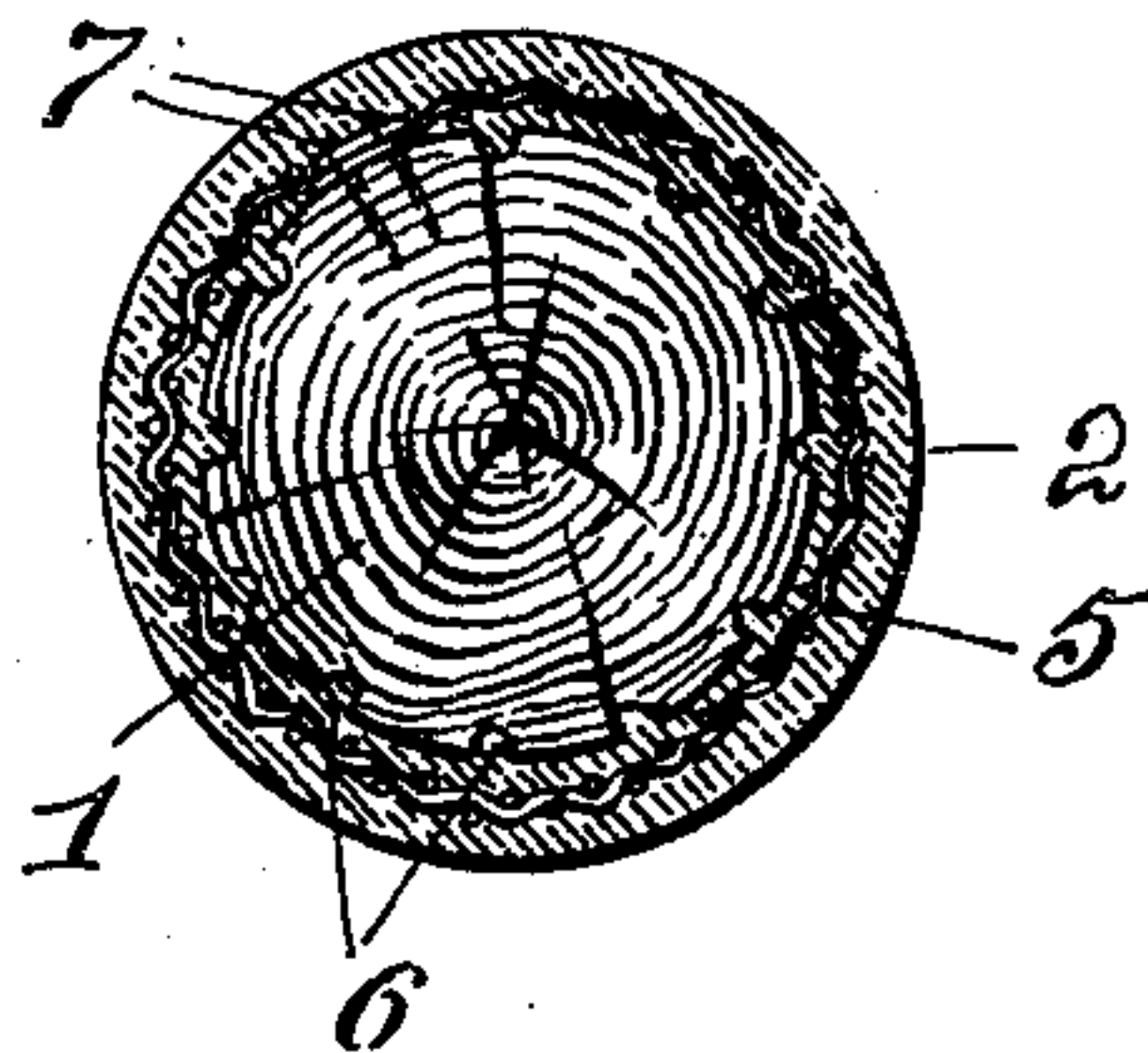


Fig. 3.



Witnesses.

*H. J. Fontwerde.*  
*Walter F. Lane.*

Inventor.  
*A. M. Hunt*  
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his atty.



# UNITED STATES PATENT OFFICE.

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## MEANS FOR PROTECTING PILES.

No. 819,282.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed August 16, 1904. Serial No. 220,948.

*To all whom it may concern:*

Be it known that I, ANDREW M. HUNT, a citizen of the United States, residing at Berkeley, Alameda county, State of California, have invented certain new and useful Improvements in Means for Protecting Piles; and I do hereby declare the following to be a full, clear, and exact description of the same.

The object of the present invention is to protect the wooden piles against the action of marine worms, such as the teredo, and bugs, such as the limnoria, or marine animals or insects which eat or bore into the fiber of the wood to such an extent as to thoroughly perforate the same within a comparatively short time, and thus render the same useless for the required work.

It is well known that marine worms, bugs, animals, or insects only act upon that portion of the exposed wooden pile which exists between approximately the mud-line and high-water mark. Hence to attain the desired object it is required that the pile for a portion of its length extending from a short distance above high-water mark to a point slightly below the mud-line be provided with an artificial hardened outer surface, covering, or casing composed of such material as will successfully resist the attack of the worm, bugs, insects, or animals which are known to be destructive to the wooden piles.

Referring to the accompanying drawings, forming a portion of this application, Figure 1 is a view, partly broken, of a wooden pile protected by the improved casing, the casing being shown in longitudinal section. Fig. 2 is a cross-sectional top plan view of the pile with the interstitial metallic web attached thereto and covered with the plastic material to be wound onto the pile; and Fig. 3 is a cross-sectional plan view taken on line *x x*, Fig. 1, of the drawings.

In the drawings the numeral 1 is used to indicate an ordinary wooden pile, and 2 an outer hardened artificial surface, covering, or casing applied thereto between the points 3 4, which embraces a section of the pile extending from point 3 a short distance above high-water mark to point 4 a slight distance below the mud-line of the pile. This covering consists of a mortar or cement, composed of approximately one part magnesium oxid and one part an inert filler, as sawdust, which is thoroughly mixed after being moistened throughout with magnesium chlorid. Pref-

erably there is embedded within the outer casing, surface, or coating a metallic reinforcement 5, which may consist of expanded metal, wire-netting, or other mesh material, which will serve as a bond for the holding of the artificial covering to the pile. The said metallic reinforcement may be secured to the pile by staples, nails, or other fastenings 7, the same serving to retain the concrete artificial casing or covering-section 2 in place during the hardening thereof and during the handling or driving of the pile, said metallic reinforcement adding greatly to the strength thereof.

To obtain a better bonding between the material constituting the artificial casing or covering 2 and the outer surface of the wooden pile, the outer face of the section of the pile to be protected should be roughened or grooves 6 cut therein.

In carrying out the invention, where a metallic reinforcement is employed, the interstitial reinforcing-web 5, of expanded metal or mesh material, is attached intermediate two of the grooves 6 at one edge by suitable fastening means 7 and the inner surface thereof given a coating of the concrete, which is to form the outer covering or casing 2 for the section of the pile to be treated. The web or layer 5 is then wound around the pile one or more times, its overlapping edge being then secured by being stapled to the pile 1. As the reinforcing-layer 5 is wound around the section of the pile the concrete or cement, which is to form the outer hardened casing, is forced into intimate contact with the roughened surface thereof, at the same time a portion of the plastic cement being squeezed through the openings or interstices of the metallic reinforcement 5. The cement, mortar, or concrete thus squeezed out is then troweled down, so as to embed the metallic layer or reinforcement thoroughly within the artificial casing and to give a smooth outer surface to the said artificial covering or casing.

The pile thus protected is rendered impregnable to the action of the marine worms, bugs, insects, or animals, inasmuch as the stone-like casing thus given to the section of the pile between high-water mark and the mud-line cannot be effected thereby. Hence the life and durability of the pile are materially prolonged.

Having thus described the invention, what



is claimed as new, and desired to be protected by Letters Patent, is—

1. The means of protecting wooden piles to render the same proof against the action of marine worms, bugs, insects or animals, which consists in inclosing the section of the pile to be protected within an outer casing of cement, mortar or concrete composed of magnesium oxid and an inert filler impregnated with magnesium chlorid.

2. The means of protecting wooden piles to render the same proof against the action of marine worms, bugs, insects or animals, which consists in inclosing the section of the pile to be protected within an outer casing of cement, mortar or concrete composed of magnesium oxid and an inert filler impregnated with magnesium chlorid, there being embedded within the outer artificial casing a metallic bond of interstitial or mesh material.

3. The means of protecting wooden piles to render the same proof against the action

of marine worms, bugs, insects or animals, which consists in inclosing the section of the pile to be protected, within an outer casing of cement, mortar or concrete composed of magnesium oxid and sawdust impregnated with magnesium chlorid.

4. The means of protecting wooden piles to render the same proof against the action of marine worms, bugs, insects or animals, which consists in inclosing the section of the pile to be protected, within an outer casing of cement, mortar or concrete composed of approximately one part sawdust moistened throughout with magnesium chlorid and then thoroughly mixed with approximately one part magnesium oxid.

In witness whereof I have hereunto set my hand.

ANDREW M. HUNT.

Witnesses:

N. A. ACKER,

D. B. RICHARDS.