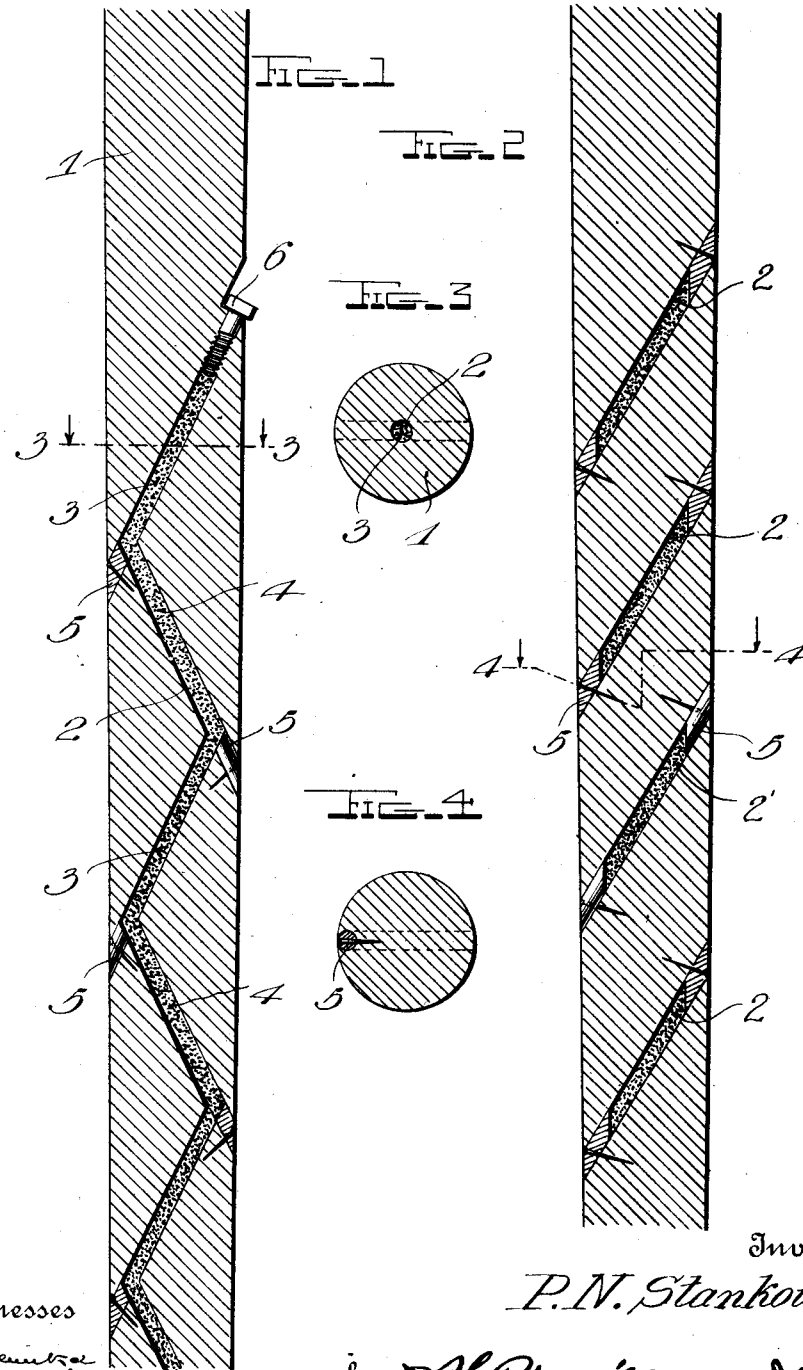


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TEREDOPROOF PILE.
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Patented Oct. 21, 1913.



Witnesses

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TEREDOPROOF PILE.

1,076,248.

Specification of Letters Patent.

Patented Oct. 21, 1913.

Application filed May 9, 1912. Serial No. 696,269.

To all whom it may concern:

Be it known that I, PETAR N. STANKOVITCH, a citizen of the United States, residing at Everett, in the county of Snohomish and State of Washington, have invented certain new and useful Improvements in Tere-

5 and State of Washington, have invented certain new and useful Improvements in Tere-

10 doproof Piles; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it apper-

15 tains to make and use the same.

This invention relates to teredoproof piles and a simple and effective method of rendering piles and other submerged timbers

15 proof against the ravages of teredoes.

One object of the invention is to provide a pile or other timber with bores so arranged as to cross cut every grain in the timber, and thereby facilitate the thorough

20 and quick penetration of the impregnating solution throughout the timber, the solution passing with the grain of the timber.

Another object is to so form the bore in the timber that it will permit the free passage of the solution and yet not weaken the

25 timber at all.

Another object is to provide a method of so treating a pile or other timber which is so simple that an unskilled workman can

30 readily carry it out.

Another object of the invention is to employ a cheap timber impregnating chemical which may be simply and cheaply applied, and which will remain in the timber

35 for an indefinite period and render it teredoproof and insect proof, and which will prevent corrosion and decay.

With these and other objects in view, the invention consists of certain novel features

40 of construction, combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings—Figure 1 represents a longitudinal vertical section of a pile to which this invention is applied;

45 and Fig. 2 is a similar view showing a slightly modified form of the invention. Fig. 3 is a horizontal section on line 3—3

of Fig. 1. Fig. 4 is a similar view on line 4—4 of Fig. 2.

In Fig. 1 of the drawings, a pile 1 is shown in which is formed a zig-zag bore or passage 2, extending from a point near the point reached by the water at high tide to the lower end of the pile. For instance,

55 when the pile is to be driven where there is about twenty feet of water at low tide, the length of the pile is measured for twenty-one feet from the point of the pile, after allowing twelve or fifteen feet for penetra-

60 tion into the earth. From this point twenty feet are measured upward, adding one foot for penetration and half of a high tide, approximately four or five feet. This will total about twenty-six feet to be bored, and

65 boring must begin at a point from one-half of a high tide and then continue downward for a length of twenty-six feet or more if desired, the boring to be performed in a zig-zag style at an angle of sixty-five to sev-

70 enty degrees, as is shown in Fig. 1, according to the thickness of the timber.

To form the zig-zag bore 2, boring is begun from a point one-half of a high tide at an angle of sixty-five to seventy de-

75 grees, which forms a passage 3 extending obliquely through the pile from one side to the other. After this passage 3 is bored through the pile is turned over on the other side and a passage 4 pointing toward the

80 first passage 3 is bored at an angle of sixty-five to seventy degrees being so arranged that it will connect with the first passage 3 inside of the pile at a point from about three to four inches from the external sur-

85 face of the pile. A plurality of these passages or bores are formed in the pile in this manner until the required number of feet have been bored, according to the depth of water at low tide. Care must be

90 taken in forming these obliquely arranged passages that every passage has a clean cut bore and connection, and that all the chips and drillings are removed. After all of the passages have been completed, the lower end

95 of the first passage 3 is plugged with a

wooden plug 5, three or four inches long, which is spiked down with copper or brass nails and which fits the passage tightly. Cupric sulfate or blue vitriol is then inserted in the passage 3 in a powdered or crystal form, and the upper end of the passage 3 is closed with a brass lag screw or threaded bolt 6. The pile is then turned again and the passage 4 below is filled with cupric sulfate in the same manner as described above, and the outer end of this passage 4 is then closed with a wooden plug 5, which is nailed down with brass or copper nails in the same manner as the plug on the inner end of the passage 3. This process is continued until every passage is filled with the cupric sulfate, and the outer ends of each passage have been closed with plugs 5. The piles may be green, dry, or wet, and they may have the bark removed or used with the bark on them, as is desired. When timber or piles are used, from which the bark has not been removed, it is necessary to remove the bark from around the place where the passage is to be bored and, if desired, the passage may be begun by notching the pile for half an inch or so before beginning to bore. After the plugs 5 have been inserted, the outer ends thereof must be trimmed off evenly flush with the outer surface of the pile.

The oblique passages, which extend from side to side of the pile and form the continuous zig-zag bore 2, are preferably formed by boring upwardly in the pile, and they may be effected by hand power with a common auger, or by motive power, as may be desired. In inserting the plugs 5 in these passages, care must be taken not to plug the connection between the adjacent ends of said passages to insure a free circulation from one passage to the other, and iron nails should never be used as they will precipitate copper and destroy the effect of the cupric sulfate on the pile. The wooden plugs permit the cupric sulfate solution which is formed in the passage to ooze out around them and run out down the outer faces of the pile, which protects the pile or timber from teredo attack until the pile becomes thoroughly saturated with the cupric sulfate solution from the inside to the outside, although these plugs are sufficiently tight to prevent the cupric sulfate from flowing out of the passage.

After the passages in the piles have been filled with cupric sulfate in powdered form and the piles have been driven in their places in the water and capped, the lag screw from the upper hole in each pile is removed, and water poured into the hole or passage 3, and the screw replaced tightly. This water will pass down through the pas-

sage 2 and dissolve the cupric sulfate already charged into said passages, and the solution so formed will continue downward through the bores of the timber and penetrate the pile through every portion thereof. After the piles become thoroughly saturated with cupric sulfate solution, which will usually take place within the course of from three to six months, the cupric sulfate remaining in the piles will become insoluble from the effect of salt water, and will thus retain its deadly effect on insects and prevent the attack of the piles by teredoes or barnacles. The solution will also prevent the piles from corroding. When the piles have become thoroughly saturated with the cupric sulfate solution, they turn a greenish blue color.

The upper passage 3, having been formed at one-half of a high tide, permits the piles to be renlled at any time with cupric sulfate, by removing the lag screw from said upper passage, which may be easily accomplished at low tide by a man in a row boat, from six to eight ounces of cupric sulfate being required for charging each pile which is bored to the extent of about twenty-six feet.

It will also be obvious that by boring the passages 2 in zig-zag shape or across the timber at an angle of sixty-five to seventy degrees, more or less, according to the thickness of the pile, and extending these passages for the length of the pile which is to be submerged in water, the piles may be readily creosoted or treated with tarry oils if desired, as the oil will penetrate the wood much more easily when passing with the grain of the wood instead of across it.

When piles treated as above described are to be used in building a dock or bridge to which boats will be anchored, the said piles should be so arranged as to position the openings or passages in one pile facing those in the other, so as to present an unbroken surface for contact with the boat.

The zig-zag formation of the passages 2 in the piles also prevents all danger of the piles splitting when being driven by heavy drop hammers, such as are ordinarily used for this purpose. When the bores are formed in straight longitudinal lines upwardly with the grain of the pile, they render them very easily split.

In the form shown in Fig. 2 the bores 2' instead of being arranged zigzag extend obliquely through the pile at intervals and the ends thereof are closed with plugs 5 similar to those shown in Fig. 1 and are secured in position by nails or other fastening elements after the bores have been filled with cupric sulfate, as above described.

I claim as my invention:

1. A method of forming a teredoproof pile which consists in boring oblique pas-

sages through a pile in opposite directions to cross cut the grain thereof, the ends of said passages being connected to form a continuous bore, and charging a preserving substance into said bore.

2. A teredoproof pile comprising a timber having oblique passages extending there-through in opposite directions to cross cut the grain thereof, the ends of said passages
10 being connected to form a continuous bore

and said bore being filled with a timber preserving substance.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

PETAR N. STANKOVITCH.

Witnesses:

F. E. ANDERSON,
JOS. COLEMAN.