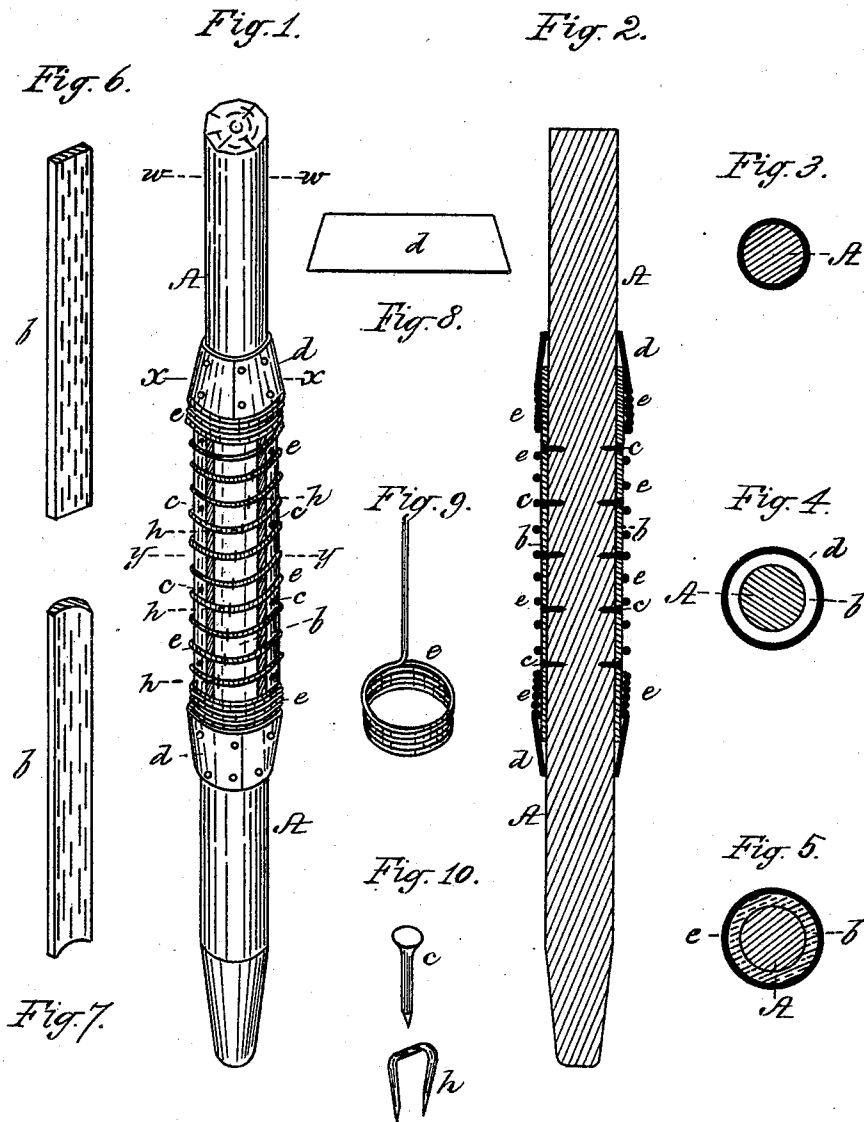


(No Model.)

C. W. KENNON.
PROTECTED FILE.

No. 587,077.

Patented July 27, 1897.



Witnesses,
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Inventor,
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Att'y,

UNITED STATES PATENT OFFICE.

CHARLES W. KENNON, OF TAMPA, FLORIDA.

PROTECTED PILE.

SPECIFICATION forming part of Letters Patent No. 587,077, dated July 27, 1897.

Application filed August 17, 1896. Serial No. 603,035. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. KENNON, of Tampa, Hillsborough county, Florida, have invented certain Improvements in Protected Piles and in the Manner of Rendering them Teredo-Proof, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a perspective view of a protected pile embodying my invention. Fig. 2 is a longitudinal vertical section through the center of the same. Fig. 3 is a transverse section on the line *ww* of Fig. 1. Fig. 4 is a transverse section on the line *xx* of Fig. 1. Fig. 5 is a transverse section on the line *yy* of Fig. 1. Fig. 6 represents a board or slab of palmetto of rectangular shape as sawed from the tree. Fig. 7 represents the palmetto board or slab after being passed through pressure-rolls and bent in its pliant state to approximate to the exterior surface of the pile around a portion of whose surface it is to be wrapped. Fig. 8 represents one of the copper strips which after being bent are to be applied to cover the top and bottom of the palmetto wrapping to guard it from injury. Fig. 9 represents a coil of copper wire which I employ to wind around the wrapping. Fig. 10 represents a copper nail and a copper staple used in fastening the wrapping, its covering-guards, and the copper wire to the pile.

Wood piling, as well as logs and other timber employed in the construction of wharves, piers, bridges, dams, shipping, &c., when submerged wholly or partially, either permanently or periodically, are exposed to the attacks of various wood-boring mollusca, among which the teredo is believed to be the most pernicious, resulting in great damage to and the final destruction of the structure where the submerged wood enters into its construction. Such wood has been subjected to various treatments—for instance, its immersion in solutions of corrosive sublimate and in other liquid chemical compositions—but the majority of them have only been experimental, and I am not aware that any reliably effectual means have been discovered which absolutely repel and preclude the entrance of the wood-borer thereto.

My present invention relates to that class of piling designated "protected piles;" and

it consists in the combination, with a pile, log, timber, or other piece of wood, of a wrapping or covering of palmetto applied to that portion of the wood to be submerged and a means of fastening the same thereto; and my invention also consists in a pile, log, timber, &c., treated with a wood-preservative solution, and a wrapping of palmetto also so treated and applied to that portion of the wood to be submerged, and a means of securing said wrapping thereto.

My invention also consists in said enumerated articles of wood, in combination with a palmetto wrapping, a means of securing them, and a certain wood-preservative paint or composition well known in commerce as "teredo-proof and wood-armor paint," for which a United States trade-mark, No. 28,244, was registered by me on the 12th day of May, 1896.

My invention furthermore consists in the manner of preparing and applying said palmetto wrapping to the piles, logs, or other timbers to be submerged, the same consisting, preferably, in first partially evaporating the moisture or sap from a palmetto log, then sawing it into boards of suitable length, width, and thickness, then passing the boards through pressure-rolls to weaken the cohesion or tenacity which normally exists between the long fiber and the woody pulp of the palmetto wood in order to render the boards pliant, then bending them to conform to the surface of the pile, &c., to be protected thereby, and finally securing thereto the palmetto covering so prepared by any suitable means of fastening.

In the said drawings, A represents a pile cut from yellow pine or other suitable wood of sufficient length for the requirements of the location where it is to be driven. For instance, where the depth of water from the bottom to high-water mark is fifteen feet it may be desirable to use a pile about forty feet in length, fifteen feet of its lower end being driven into the bed of the harbor or stream and the upper part of the pile for about ten feet being always out of the water, while the intermediate portion, which is to be wholly or partially submerged as the tide rises and falls, is about fifteen feet.

The bark being removed, the top is sawed off square and the bottom preferably pointed, and the resinous shell or enamel which is

found around the tree under the bark is removed by planing off the sides until the exterior surface of the pile has the appearance of a many-sided polygon in cross-section, Fig. 1.

5 Around the intermediate portion of fifteen feet to be submerged and for a short distance above and below I apply a wrapping or covering of palmetto *b*, which I have found by
10 long experience to be endowed with a peculiar property which is either repugnant to the wood-borer or does not contain its desired food. One way in which I obtain, prepare, and apply this wrapping is as follows: From
15 a log or the trunk (partially seasoned) of the cabbage palmetto-tree I saw boards about one-half-inch thick, ten or twelve inches wide, and, in the case referred to, about sixteen feet long. The boards, Fig. 6, are then passed
20 through pressure-rolls to partially destroy the tenacity which normally exists between the long fibers and the woody pulp, in which condition the board is pliant, so that it may be bent around the pile, Fig. 7.

As the width of a board may not be equal
25 to the circumference of the pile it may be necessary to use two or more boards, one lapping over the other, Fig. 1, in order to surround and cover this intermediate portion of the pile, or a thin sheet or veneering of palmetto may be wrapped in folds around the
30 same. After being carefully applied copper or galvanized-iron nails *c* or staples *h*, Fig. 10, are driven through the wrapping into the pile, thus securing the former thereto. Galvanized-iron or copper strips or plates *d*, Fig. 8, are now snugly fitted around the pile, so
35 as to extend or lap over the upper and lower ends of the palmetto wrapping, said strips being permanently secured by copper or galvanized-iron nails, screws, or staples in this
40 position and serve as shields or guards for protecting the ends of the palmetto strips from contact and injury from boats, boat-hooks, and flotsam generally. Next around
45 this palmetto wrapping is tightly wound (by any well-known mechanism) strong copper or galvanized-iron wire *e*, say about one-eighth-inch diameter, Figs. 1 and 9, the wire
50 immediately contiguous to the shields being disposed in a series of (about six) horizontal folds or coils, Figs. 1 and 2, and the interposed portion being wound by said wire in spiral coils, Fig. 1, preferably located about
55 two inches apart and retained in this position by copper staples *h*, Fig. 10, placed about eighteen inches apart. The shields, wire, nails, and staples are of ductile anticorrosive metal, preferably copper, because it insures the greatest strength compatible with
60 durability.

The wood-preservative composition to be used—for instance, that manufactured by me and known in the market as the “teredo-proof and wood-armor paint”—is placed in a
65 long vat and heated by steam passing through coils or otherwise.

The pile before being covered with its pal-

metto wrapping may be immersed in the hot preservative for about one-half an hour, which
70 period is sufficient for it to penetrate the pile about two inches and form an indestructible barrier to the entrance of the worm-borer. After removing the pile from the vat the wrapping may be applied, as herein described, and
75 the pile (so covered) again immersed within the heated composition, where it remains until it thoroughly penetrates and fills all of the pores of the palmetto wrapping. I may, however, cover and secure the wrapping to the
80 portion of the pile to be submerged and immerse the wrapped pile without first treating the pile only to the preservative composition, by which arrangement the time and labor involved in one operation are economized, it being
85 simply necessary to allow the wrapped pile to remain immersed for a slightly longer period of time than that required for the immersion of the pile alone.

I prefer to saturate both the pile and its palmetto wrapping with a teredo-proof and
90 wood-preservative composition or solution; but a good result may be derived by omitting to so treat either the pile or the wrapping, or both of them, for the valuable factor which preserves the pile from the ravages of the
95 teredo is the natural repellent property of the palmetto wood.

I am aware that palmetto trees or trunks have been employed for breakwaters, dams, &c., on account of their ability of resisting
100 the predatory attacks of this class of destructive mollusca. I am not, however, aware that a palmetto covering has ever been associated with or applied to the surface of a pile, &c.,
105 or that a wrapping consisting of sawed palmetto boards (with the long fiber and woody pulp partially disintegrated by their passage through pressure-rolls) have ever been applied as a covering directly to the exterior
110 surface of the submerged portion of a pile, &c., nor am I aware that a thin sheet or veneering of palmetto has ever been applied to said submerged portion.

In warm latitudes, especially in the tropics, the destruction of piles and other timber
115 permanently or periodically submerged, employed in the construction of wharves, bridges, &c., where no teredo-proof composition is used, is much greater than in the temperate
120 or cooler latitudes.

I claim—

1. The combination with a pile, log or other timber, of a palmetto wrapping applied directly to that portion of its surface which is
125 to be submerged, said wrapping consisting of boards which have been passed through pressure-rolls to partially destroy the cohesion normally existing between the long fiber and the woody pulp of the palmetto, and a means
130 of securing the wrapping to said pile, &c., substantially as set forth.

2. The within-described manner of protecting piles, logs &c., and rendering them teredo-proof, the same consisting in first partially

evaporating the moisture or sap from the trunk of the palmetto, then sawing it into boards of the required length and thickness while partially green, then passing the boards
5 through pressure-rolls to partially disintegrate or destroy the cohesion normally existing between the long fiber and the woody pulp of the palmetto, to render the boards pliant, then bending them to conform to the surface
10 of the exterior of the pile, &c. to be protected, and finally securing the palmetto covering so prepared, directly upon said surface, by any suitable fastening, substantially as described.

3. In combination, a pile, log &c., a palmetto wrapping for that portion of the same
15 to be submerged, shields for protecting the ends of said wrapping, wire coiled around its exterior between said shields and nails or staples for fastening the wrapping, the shields
20 and the wire to the pile &c., as set forth.

Witness my hand this 11th day of August, 1896.

C. W. KENNON.

In presence of—

N. W. STEARNS,
A. F. STEARNS.