No. 790,230. PATENTED MAY 16. 1905.

O. A. STEMPEL.

METHOD OF PROTECTING PILES OR THE LIKE.

APPLICATION FILED JUNE 9, 1904.

Fig. 3.

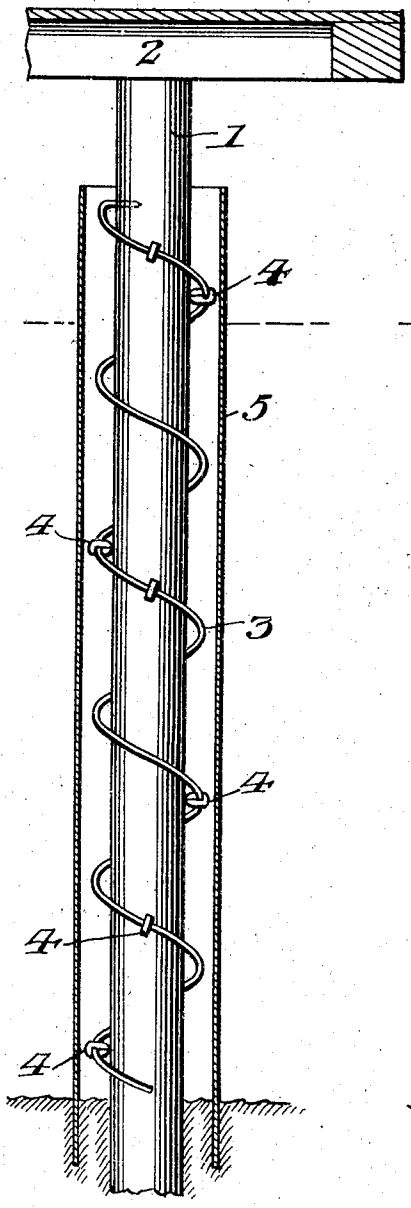


Fig. 1.

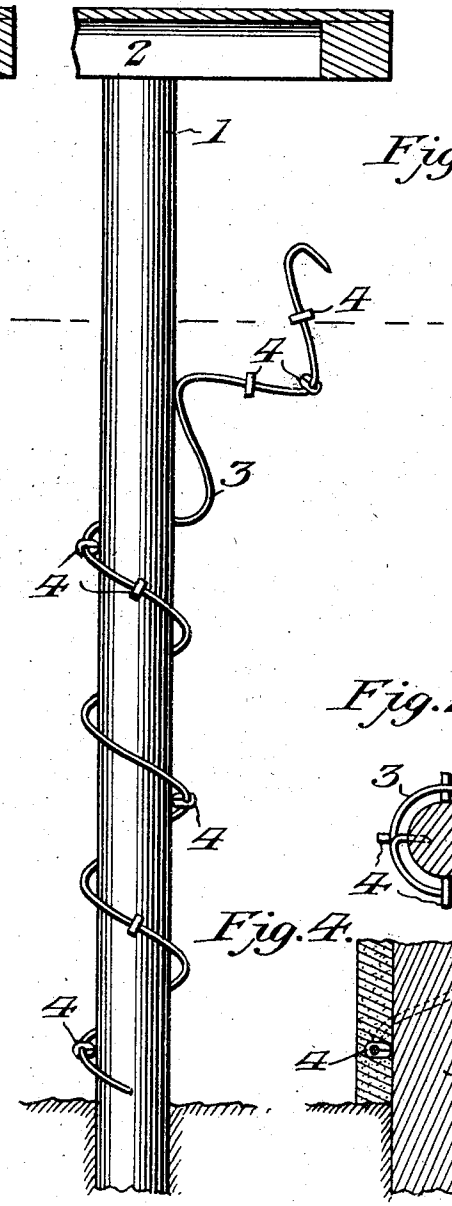
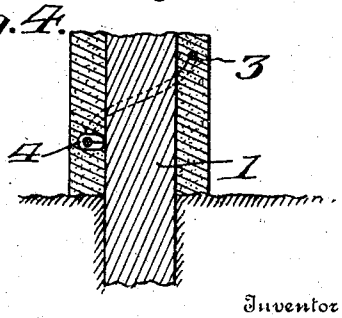


Fig. 2.

Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

OMAR A. STEMPEL, OF CLEARWATER, FLORIDA.

METHOD OF PROTECTING PILES OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 790,230, dated May 16, 1905.

Application filed June 9, 1904. Serial No. 211,719.

To all whom it may concern:

Be it known that I, OMAR A. STEMPEL, a citizen of the United States, residing at Clearwater, in the county of Hillsboro and State of Florida, have invented new and useful Improvements in Methods of and Means for Protecting Piles or the Like, of which the following is a specification.

This invention relates to a method of protecting wooden piles, posts, poles, and similar articles of wood which are driven, sunken, or buried in the ground either below water or on land.

The object of the invention is to provide a novel and improved method to protect piles from the destroying action of teredos, water-bugs, and other varieties of marine life, which are such a serious menace to all articles of wood exposed to salt water, in which these animals live, and to protect piles driven in fresh water, telegraph-poles, fence and gate posts, and all articles of wood partly buried in the ground from decay and other forms of destruction, and especially in the case of telegraph-poles to protect them from prairie and other fires originating at or near the ground. The desired end is accomplished by surrounding the wooden article with a shell of concrete formed, preferably, of sand and cement, in which is embedded a spirally-wound strip or wire provided with spacing-blocks to retain the strip or wire substantially in the center of said concrete shell.

In the accompanying drawings, Figure 1 is an elevation of one of a number of piles for supporting a pier partly surrounded by a binding or holding strip of wire or analogous material. Fig. 2 is a cross-section through the post, showing the binding-strip in place thereon. Fig. 3 is a view similar to Fig. 1, but with the binding or fastening strip in place and surrounded by a mold to receive and shape the concrete jacket by which the post will be surrounded. Fig. 4 is a view in section, showing a portion of a completed pile.

Similar numerals of reference indicate corresponding parts throughout the several views.

The numeral 1 indicates a pile supporting a portion of a pier 2. 3 indicates the binding or fastening strip or wire wound spirally about the pile, as represented in Fig. 3. At suitable places on the wire are fastened lugs or spacing-blocks 4. These may be placed in groups of three or four at the bottom, top, and intermediate points of the binding or fastening strip, their number and position depending upon the length of the pile and other circumstances not necessary to mention. In practice it has been found that a hard-drawn iron wire of, say, one-eighth inch diameter and having some degree of elasticity to be quite suitable for the purpose of forming the spiral strip. After applying the spiral strip 3 in a manner to be hereinafter described a mold 5 is placed around the whole, said mold being of any desired construction that will enable it to be applied to and separated or opened for the purpose of removal after the protecting coating or jacket of concrete has set or hardened.

In carrying out the several steps of this invention a strip of metal or wire having sufficient elasticity to retain its shape is first wound about a mold or form of approximately the diameter of the pile to which it is to be applied. The wire or other material may be of the length required to extend from the ground to a suitable distance above the highest tide to which the pile is exposed, or the wire may be wound in indefinite lengths and a length sufficient for the purpose cut therefrom. The spacing-blocks are now to be applied to the wire, which is quickly done by bending around the said wire at each designated place a strip or piece of metal the folded length of which will be somewhat less than the thickness of the coating or jacket of concrete to incase the pile. The strip thus prepared is wound spirally about the pile from the surface of the water until the lower end reaches the ground or bottom of the river, bay, or wherever the pile may be placed. The upper ends extend above the water-surface, as before stated, a short distance above high tide, where it is bent inwardly and driven into the pile to hold it in place. From an inspection of the drawings, and especially Figs. 2 and 3, it will be seen that the wire is held away from the surface of the pile by means

of the spacing-blocks 4, which blocks extend outward a distance beyond the strip. The flexible spiral strip being now in position and held in place, the mold 5 is opened, placed around the strip 3, and closed, so that it will be water-tight, its inner surface contacting with or being slightly separated from the spacing-blocks 4. The mold 5 is now to be driven into the ground a distance of six inches, more or less, as the nature of the soil demands, and the water contained therein pumped out. Concrete consisting, for example, of a mixture of sand and cement is now emptied or poured into the mold 5, and, if found necessary, a little dry cement is first placed in the mold to absorb the moisture or any slight amount of water that may seep in below the end of the mold. The filling is continued until the concrete reaches the top of the mold, which latter is removed after the concrete has set or hardened.

Piles covered with a jacket or coating in the manner above described afford a sure protection against the destructive action of teredos, water-bugs, and other forms of animal life which bore into and honeycomb piles or articles of wood which remain for a short time in salt water. When applied to piles driven in fresh water, this protection will prevent piles from decaying.

It is known that piles have been covered or coated with cement; but it is believed that this coating has been applied before the piles were driven. This method, however, is objectionable from the fact that the force required to drive the pile and the jar to which it is subjected cracks and breaks off portions of the coating to such an extent that the entire coating will in a short time fall off and render the pile accessible to the attacks of the destructive teredos. By the use of this invention piles that have been driven and then covered by a pier, as shown in the drawings, may be coated with cement as easily as when uncovered or before being driven in the ground. The strip 3, passing spirally through the concrete coating or jacket, strengthens it enormously and binds the concrete so firmly together that it will not separate from the pile when cracked or broken by blows from vessels striking against it.

In using this invention in connection with telegraph-poles the earth is removed from the base of the poles for about eight or ten inches below the surface and the strip 3 wound about the pole below from the bottom of the excavation upwardly some twelve or eighteen inches above the surface of the ground. A suitable mold 5 is then placed around the strip and cement filled therein, as previously described. By thus protecting the base or lower ends of telegraph-poles with cement their longevity is increased, as they are protected from decay and the attack of insects at the surface of the ground and from prairie and other low fires which are so prevalent in certain sections of the country. Fence and gate posts may also be covered by first winding the strip 3 around them and applying a suitable mold and filling it with concrete and then removing the mold.

It is to be understood that while the description of this invention has referred to piles, posts, and other articles of wood it may be used with equal facility and success in connection with metal piles, poles, &c.

Having thus described the invention, what is claimed is—

1. The herein-described method of protecting piles and the like, consisting in placing a spirally-wound binder-strip around the pile and out of contact therewith, and then applying a plastic coating to the pile so as to cover the surface of the pile and embed the binder-strip.

2. The herein-described method of protecting piles and the like, consisting in applying a spiral binder-strip around the pile, then placing a mold around the binder-strip, then filling the mold with a plastic composition, and finally removing the mold after the composition has hardened.

3. The herein-described method of protecting piles and the like, consisting in applying a spiral binder-strip, having spacing-blocks around the pile, and then applying a plastic coating to the pile so as to cover the surface of the pile and embed the binder-strip and spacing-blocks.

4. The herein-described method of protecting piles and the like, consisting in applying around the pile a spiral binder-strip provided at intervals with spacing-blocks, then placing an imperforate mold around the pile and binder-strip, then removing the water from the mold, then filling the mold with a plastic composition, and finally removing the mold after the composition has hardened.

In testimony whereof I affix my signature in presence of two witnesses.

OMAR A. STEMPEL.

Witnesses:
S. P. HOLLINGSWORTH,
GEORGE M. BOND.