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3,448,585

POLE AND PILE PROTECTOR

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FIG. 1

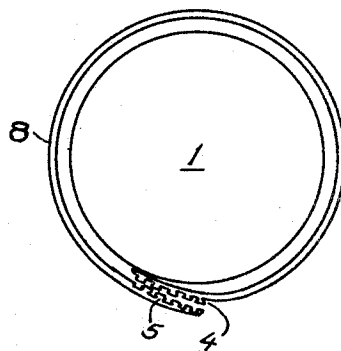
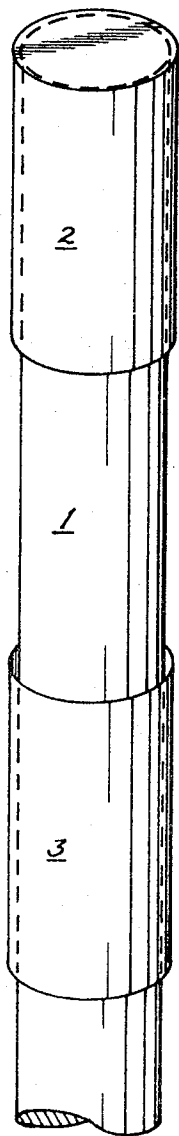
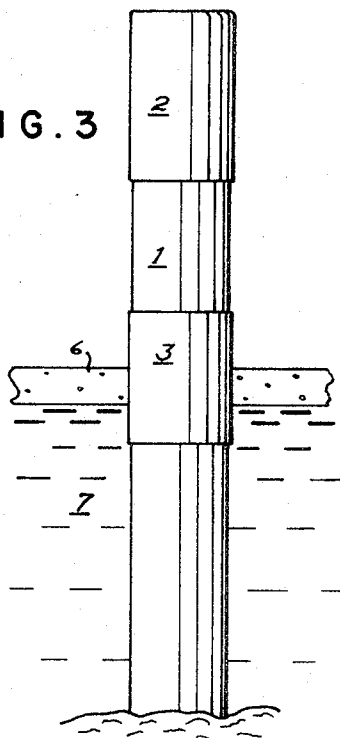


FIG. 2

FIG. 3



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## POLE AND PILE PROTECTOR

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5 Claims

### ABSTRACT OF THE DISCLOSURE

A protective shield for pilings and other such poles formed from a sleeve-like element of heat-shrinkable plastic material encircling such piling along a desired portion of its length and heat-shrunk into tight encircling engagement about the piling at a desired position thereupon.

This invention relates to the protection of structural poles or piles from rot, rust, erosion, corrosion, insect or mechanical damage.

The object of this invention is to provide a rapid and secure means of applying a plastic protective shield about such post structures that may require long life service whether beneath water or ground levels or above same where such environments are deleterious to such post structures.

Of definite and particular value in colder climates, this protective device precludes ice damage or "jacking" of piles by mechanically de-coupling ice formations from the pile structures. As little gripping capability of surrounding ice to such pile structure is permitted, the raising action of the ice will not pull driven piles from their initial position. Further a decorative or color coding advantage may be had by various color additions to those protective shield devices to suit such purchasers or marine dock operators.

Although many different ways of applying protective devices or shields to wooden pole or pile structure have been devised in the past, a heat shrinkable means appears to be the only mechanically sound or secure way of affixing same to such irregular cylindrical objects. Various plastic materials may be irradiated to give the heat shrinkable characteristic in a single plane of the sheet material, thus if said material were formed into a cylindrical tube with the shrinkable plane now being the circumference, and thence placed over a cylindrical structure, said plastic could be made to tightly shrink-fit the said structure. Because of the relative inertness of some plastic materials, such a shrink-fit protective shield about such cylindrical structural post will provide ample protection from many different types of damage. Depending on the nature of protection desired, particular types of plastic materials could be applied in this shrinkable manner.

As power and telephone poles require replacement and/or maintenance at intervals, such application of the present plastic protective shield could extend greatly the life service of these said pole structures. Either initial application on new poles would preclude such nuisance maintenance, or "in field" application of these protective shields would further extend the useful service of existing poles.

Entire pole lengths may be covered to protect such structural poles from the environment of deleterious effects such as dry-rot, insect infestation or even woodpecker damage above the ground while moisture damage is precluded below ground levels. As the protective shield is puncturable, sharply pointed spurs or climbing cleats may yet be employed by service personnel to climb such poles as have been equipped with these plastic protective shields.

Whether the cylindrical structure be tapered, pitted or

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in any way irregular on its surface, a particular size of sleeve or tube of irradiated plastic could be fabricated to shrink-fit to the entire contour, thereby creating a virtually gas-tight seal. Such seal would preclude further damage to older poles or piles, in particular if subsequent to an application of preservative. When such pile structures are already below the surface of the water, an electric heating blanket could be employed to heat-shrink the plastic.

When applications of the protective shields are required on incorporated structures where slippage of an integral tube over the protected area is impractical, a snap-fit serration may be employed to fasten the edges of a sheet of irradiated plastic about such object for subsequent heat shrinkage.

Other objects and advantages will become apparent from the following description when taken in conjunction with the appended drawings wherein:

FIGURE 1 shows a pole or pile with sleeves surrounding certain areas to be protected.

FIGURE 2 shows an end view of a pole or pile with a type of snap-coupling plastic sheet.

FIGURE 3 shows the mechanical de-coupling of a pile from ice by the protective application of a plastic shield.

In FIGURE 1, pole or pile 1 has sleeve 3 and cap 2 applied ready for heat application to shrink same to form fit. As cap 2 is irradiated in two planes, the cover portion will equally shrink in all directions to permit an even and neat close fit, thus providing for both optimum protection and appearance. Such application of a cap to either pole or pile precludes weather checking from moisture entrance into end-grain and if colored, adds a decorative or color coding feature to marina areas.

In FIGURE 2, irradiated plastic sheet 8 has self-gripping serrations 4 and 5 which when pressed together create a firm integral fastening which will not pull apart upon subsequent shrink fitting of said plastic shield 8 about pole or pile 1.

In FIGURE 3, a typical marine pile 1 in water 7 is protected from ice 6 by a shield 3 which has been shrunk-fit upon said pile 1. Subsequent rising and lowering of the water with such formed ice will not disturb the pile, since the ice is mechanically decoupled from pile 1, thus permitting said pile to remain in its initial driven position. Cap 2 will protect the end grain of such wooden piles from moisture entrance, and if colored will give a decorative appearance. Either shield 3 or 2 may be extended to prevent abrasion damage to either the pile or such marine craft as may be moored thereby.

I claim:

1. A protected marine piling or other such structural post assembly, comprising: a post-like piling element; and a protective sleeve means encircling said piling element and extending along at least a portion thereof; said sleeve means including a tubular sleeve formed substantially entirely of heat-shrinkable material shrunk into tight encircling engagement about said piling element to securely mount said sleeve means thereupon; said sleeve having an outer surface characteristic of sufficient lubricity to mechanically decouple ice from about its periphery, such that ice forming thereabout is prevented from raising said piling from its desired position.

2. The assembly of claim 1, wherein said tubular sleeve further includes a cap structure closing one end thereof, said cap structure also being of heat-shrinkable material and having a shrinkage characteristic such that it is reduced in diameter by an amount comparable to the reduction in diameter undergone by the tubular sleeve when heat is applied to both the tubular sleeve and its cap structure to secure the same to such piling element.

3. The assembly of claim 1, wherein said tubular sleeve is open at both ends and has a wall structure defining a

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reclosable opening extending through the tubular wall and from one of the open ends thereof to the other.

4. A protected marine piling or other such structural post assembly, comprising: a post-like piling element; and a protective sleeve means encircling said piling element and extending along at least a portion thereof; said sleeve means including a tubular sleeve of continuous and endless wall construction formed substantially entirely of heat-shrinkable material shrunk into tight encircling engagement about said piling element to securely mount said sleeve means thereupon.

5. The assembly of claim 4, wherein said tubular sleeve further includes a cap structure closing one end thereof; said cap structure also being of heat-shrinkable material and having a shrinkage characteristic such that it is reduced in diameter by an amount comparable to the reduction in diameter undergone by the tubular sleeve when

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heat is applied to both to secure them to the piling element.

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JACOB SHAPIRO, *Primary Examiner.*

U.S. Cl. X.R.

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