Feb. 26, 1957 J. H. FOX 2,782,606

COMPOSITE WOOD AND CONCRETE PILE

Filed Oct. 2, 1953

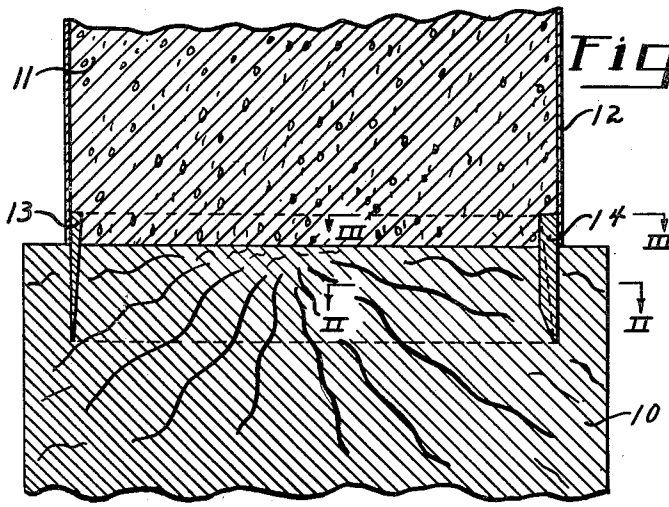


Fig. 1

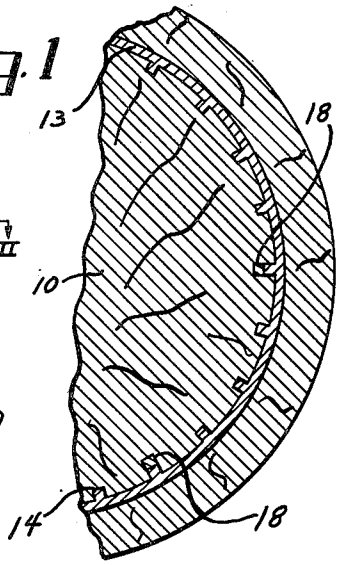


Fig. 2

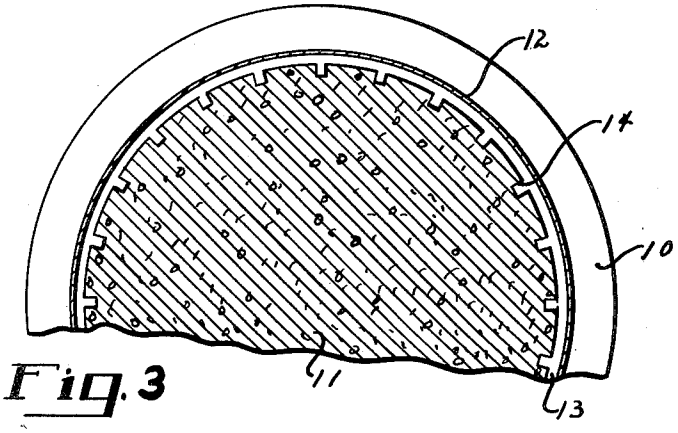


Fig. 3

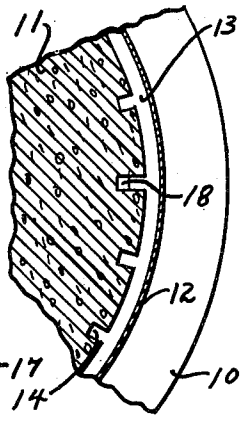


Fig. 7

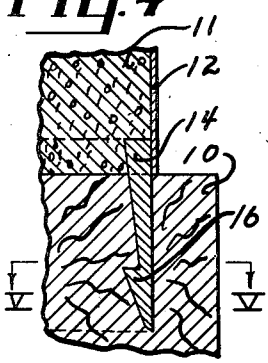


Fig. 4

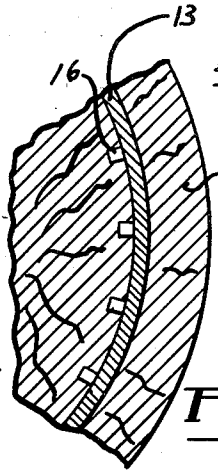


Fig. 5

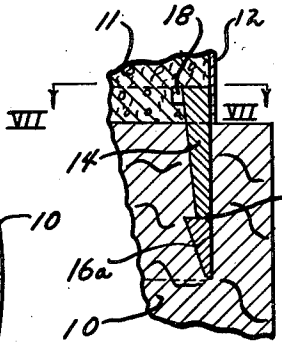


Fig. 6

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COMPOSITE WOOD AND CONCRETE PILE

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2 Claims. (Cl. 61—53)

This invention relates to a composite wood and concrete pile, and particularly to a pile for supporting structures in ground where the water line is near the surface and has for an object the provision of a pile of the character designated which shall include improved means for anchoring the concrete portion to the wood portion of the pile.

A further object of my invention is to provide a composite wood and concrete pile which shall include means for anchoring the concrete section to the wood section in a manner to provide a water-tight joint between the concrete section and the wood section.

As is well known in the art to which my invention relates, where wooden piles are employed to support structures in ground where the water level is near the surface, it is customary to cut off each pile at or below the water level and to provide a concrete upper section for the pile, above the water level. It is the principal purpose of my invention to provide improved means for connecting the concrete section to the wooden section of the pile.

In accordance with my invention I provide a sheet metal shell of a diameter slightly less than the pile, into which the concrete is to be poured and anchor the shell to the wooden pile by means of a cast steel wedge ring which is surrounded by, and welded to, the lower end of the shell. After the pile has been cut off, the wedge ring and shell are driven into the pile and the assembly is driven further into the ground until the wood section is below the water level. The concrete is then poured into the shell to the required elevation. The wedge ring is provided with a plurality of individual wedge members or ribs projecting radially inwardly and which serve further to hold the ring against displacement and aid in compressing the wood in the upper end of the pile and rendering it impervious to water. In addition, I may provide barbs, or shoulders, on the lower ends of the ribs which serve to anchor the ring more firmly in the pile.

In the accompanying drawing, forming a part of this application, I show by way of example piling embodying features of my invention, and in which:

Fig. 1 is a vertical sectional view of a pile constructed in accordance with my invention;

Fig. 2 is a sectional view taken along the line II—II of Fig. 1;

Fig. 3 is a sectional view taken along the line III—III of Fig. 1;

Fig. 4 is a fragmentary sectional view similar to Fig. 1 showing a modified form of my invention;

Fig. 5 is a sectional view taken along the line V—V of Fig. 4;

Fig. 6 is a sectional view showing a still further modified form of my invention; and,

Fig. 7 is a sectional view taken along the line VII—VII of Fig. 6.

Referring to the drawing for a better understanding of my invention, I show a composite pile including a wooden section **10** and a concrete section **11**, it being understood that the wooden section **10** is positioned below the water level in the ground in which it is driven. In order to hold the concrete section in place, I provide a sheet metal, or metal plate shell **12** into which the concrete is to be poured and anchor the shell **12** by means of a cast steel

wedge ring **13** which fits snugly within the shell **12** and is welded in the lower end thereof.

As shown in Figs. 1 and 2, the wedge ring **13** is wedge shaped in cross section, being thinner around the bottom than it is at the top. It is driven into the wooden section **10** and compresses the wood radially inward and anchors the ring firmly in the wooden section. The wedge ring is in the form of a rough steel casting and thereby provides additional gripping surface with the wood. I also provide, on the inner surface of the ring, inwardly, radially projecting ribs **14** which are spaced at regular intervals around the ring **13** and which are wedge shaped in cross section. These individual wedge members provide additional surface area for gripping the wood and more frictional contact with the wood, thereby providing better anchorage for the concrete section.

As shown in Figs. 1, 4 and 6, the wedge ring **13** projects into the shell **12** above the surface of wooden portion of the pile. This feature is important in resisting shearing forces acting laterally against the pile.

In addition to the individual wedge members **14**, I may provide, on the lower ends thereof, as shown in Fig. 4, barbs **16** which engage with the wood and resist outward displacement. The barbs **16** may be formed integrally with the ribs **14**, as shown in Fig. 4, or they may be formed separately as shown in Fig. 6 where the barbs **16*a*** are secured to the ribs **14** as by welding, as shown at **17**.

In order to aid in centering the driving head, or tool (not shown) when the wedge ring is driven into the pile, I may provide a plurality of centering lugs **18** about the ring **13**, as shown in Figs. 2 and 7.

From the foregoing it will be apparent that I have devised an improved composite wood and concrete structure-supporting pile which is simple of design, easily constructed, and one in which the concrete section is firmly anchored to the wooden section.

While I have shown my invention in several forms, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various other changes and modifications without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are specifically set forth in the appended claims.

What I claim is:

1. In a composite structure-supporting pile including a lower wooden portion and an upper concrete portion, a metal shell for the concrete mounted on top of the wooden portion, a ring wedge shape in cross section fitting snugly within and welded to the lower end of the shell and extending downwardly therefrom into the wooden portion for anchoring the shell within the wooden portion, and wedge shaped anchoring ribs formed on the inner surface of the ring and projecting radially inwardly therefrom into said wooden portion.

2. In a composite structure-supporting pile including a lower wooden portion and an upper concrete portion, a metal shell for the concrete portion mounted on top of the wooden portion, a wedge ring fitting snugly within and welded to the lower end of the shell and projecting downwardly therefrom into the wooden portion for anchoring the shell to the wooden portion, anchoring ribs on the ring, and barbs formed on the lower ends of the ribs for resisting upward displacement of the ring.

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