

May 26, 1964

J. R. BAITTINGER
COMPOSITE PILE FIXTURE

3,134,236

Filed March 14, 1962

2 Sheets-Sheet 1

Fig. 1

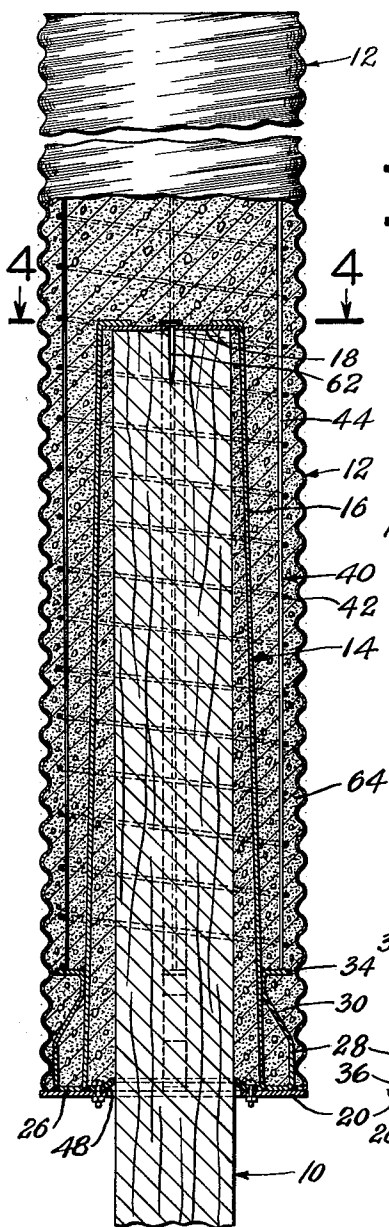


Fig. 2

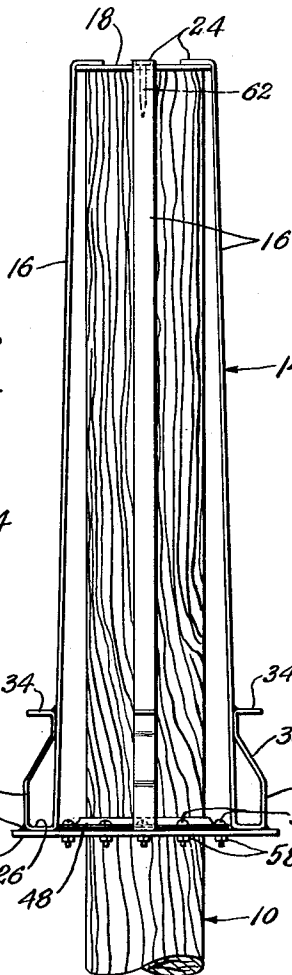
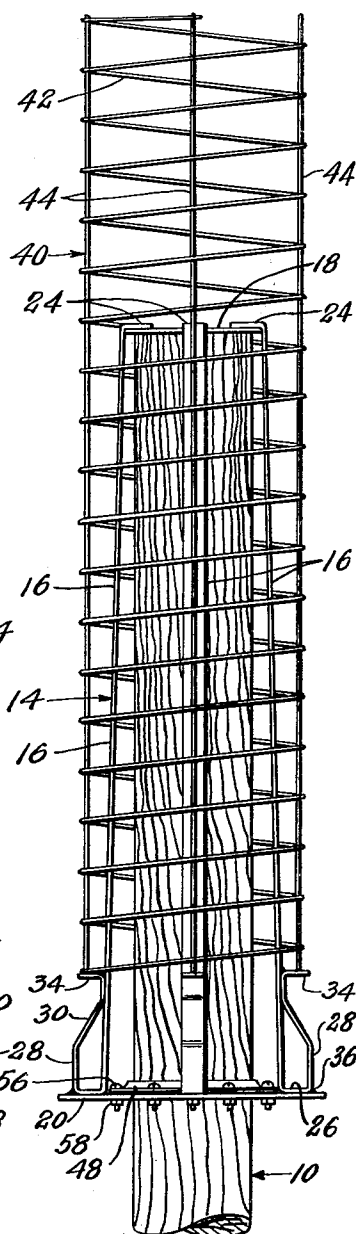


Fig. 3



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2 Sheets-Sheet 2

Fig. 4

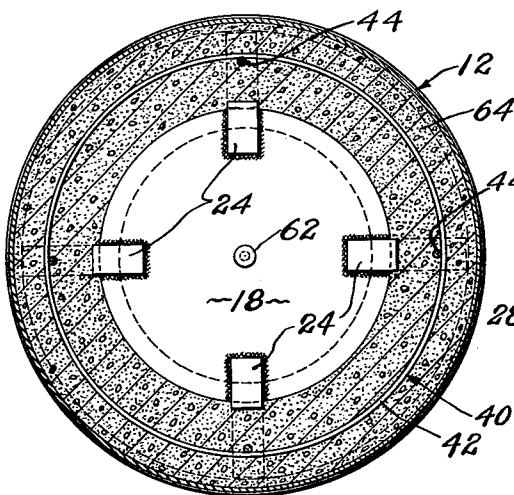


Fig. 5

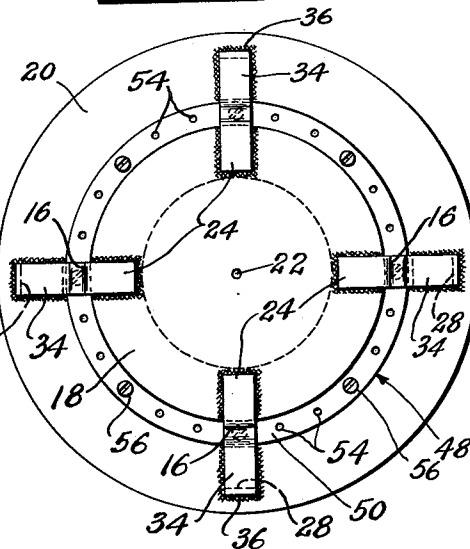


Fig. 6

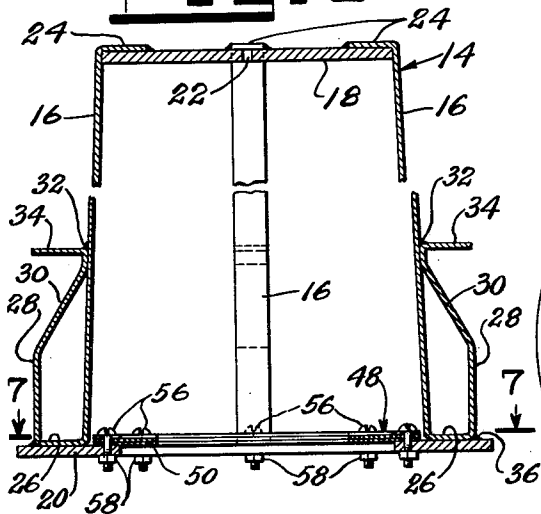


Fig. 7

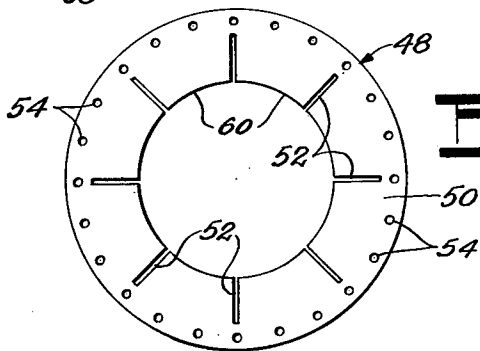
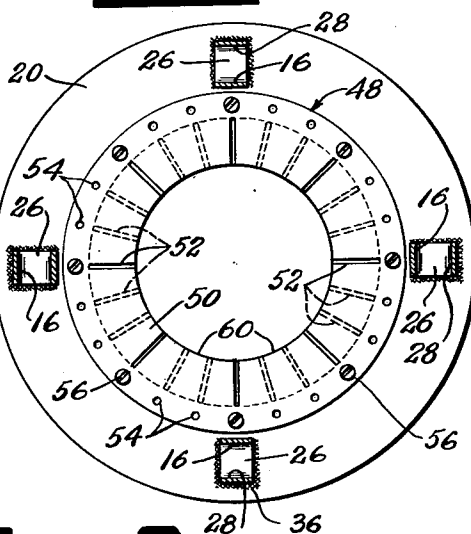


Fig. 8

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COMPOSITE PILE FIXTURE

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3 Claims. (Cl. 61—53)

This invention relates generally to piling and more particularly to a fixture for a fire resistant composite pile.

Piles are used to support or to form foundations for structures such as buildings, piers, bridges, tanks, conduits, wharves and the like by inserting the piles into or through the yielding surface strata far enough to obtain a solid support for the principal structure. A composite wooden-concrete pile structure is ordinarily used for this purpose.

A principal object of the present invention is to provide a fixture for a composite pile that serves to support the component parts of the concrete section of the composite pile. Another object of the invention is to provide a fire resistant composite pile having a lower wooden section and an upper section constituted by a shell, concrete filling and shell and a metal cage embedded in the concrete reinforcing the concrete and a fixture interposed between the wooden section and concrete supporting the components of the upper section.

For further comprehension of the objects and advantages of the invention, reference will be had to the accompanying drawings and to the appended claims.

In the drawings, forming a material part of this disclosure:

FIG. 1 is a vertical sectional view of a composite pile embodying my invention, parts being shown broken away.

FIG. 2 is a vertical sectional view of the butt end of the wooden section, with the improved fixture applied thereto.

FIG. 3 is a view similar to FIG. 2 showing the reinforcing cage in position on the fixture.

FIG. 4 is an enlarged cross-sectional view taken on the line 4—4 of FIG. 1.

FIG. 5 is a top plan view of the fixture.

FIG. 6 is a vertical sectional view taken through the center of the fixture, parts being broken away.

FIG. 7 is a cross-sectional view taken on the line 7—7 of FIG. 6.

FIG. 8 is a top plan detail view of a sealing element.

Referring to the drawings in detail and more particularly to FIG. 1, a composite pile made in accordance with the present invention is shown, comprising two principal parts, a wooden lower section or timber pile 10 and an upper concrete-filled section or casing formed of a corrugated sheet metal shell 12. The wooden section 10 ordinarily will be circular in cross-section, such as a section of log.

In accordance with the invention, a unitary fixture in the form of a steel frame 14 is sleeved around the butt end of the wooden section 10. This fixture or frame comprises a plurality of spaced elongated rectangular-shaped plates or arms 16, four of such arms being shown, disposed between a solid circular thin top end plate 18 and a flat metal bottom ring 20 as viewed in FIG. 2. Plate 18 is formed with a central hole 22. One end of the arms 16 is bent over the rim of the top plate 18 as indicated at 24 and is secured thereto by welding. The other end of each arm 16 is bent at right angles to the plane of the arm as indicated at 26 and then continues upwardly parallel to the body of the arm as indicated at 28, then slants inwardly as indicated at 30 to the body of the arm where it continues upwardly a short distance, contacting

2

the arm and welded thereto as indicated at 32 and terminates in an outwardly extending flange forming a seat 34. The angular portion 26 is welded or otherwise fastened to the ring 20 as indicated at 36.

A wire cage 40 for reinforcing the concrete is sleeved around the fixture or frame 14 and consists of a continuous wire coil 42, the convolutions of which are fastened together by spaced rods 44 welded thereto. The bottom ends of the rods and the bottom convolution seat on the flanges or seats 34 of the fixture or frame and are secured thereto by welding or the like. The cage when in seated position extends above the end of the wooden section as shown in FIG. 3.

Sealing means is provided around the inner periphery of the ring 20. This means includes a number of superimposed annular elements or rings 48 best shown in FIG. 8, three of such elements being shown. The elements 48 may be made of suitable flexible material such as rubber, plastic or the like. Each element has a flat body 50 formed with a number of spaced slots 52 intersecting the inner periphery thereof. The slots extend inwardly beyond the longitudinal center of the body. A series of holes 54 are formed in the body adjacent the outer periphery thereof. The bodies of the annular elements are fastened to the inner periphery of the ring 20 by means of bolt and nut assemblies, each assembly including a bolt 56 extending through aligned holes 54 and a nut 58.

In assembling the composite pile, the fixture or frame 14 is first slipped over the top end of the wooden section 10 as viewed in FIG. 2. The inner periphery of the superimposed annular sealing elements 48 is of slightly smaller diameter than the diameter of the wooden section 10 so that the sections 60 defined by the slots 52 flex slightly upwardly and grip the outer surface of the wooden section thereby forming a seal thereat as shown in FIG. 1. The flexibility of the section 60 provide for fitting the fixture over and sealing the bottom ring 20 to wooden sections having butt ends of varying dimensions and diameters. The top plate 18 is fastened to the flat top end of the butt end of the wooden section by means of a nail 62 extending through the hole 22. When in this fastened position the plates or arms 16 taper slightly downward and outward leaving spaces between the arms and the wooden section as seen in FIG. 2. Cage 40 is next placed in position around the fixture or frame and welded to the seats 34. Shell 12 is next placed around the fixture and its bottom welded to the ring 20. The concrete 64 is then poured into the shell around the cage and fixture.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not limit myself to the precise construction herein disclosed but desire to be limited only by the state of the prior art and the appended claims.

I claim:

1. A composite pile comprising a lower wooden section, an upper substantially cylindrical section constituted by a metal tubular shell, a filling of concrete in the shell around the top end of the wooden section, a metal cage embedded in said concrete, a metal fixture interposed between the wooden section and concrete including a top circular plate, a bottom ring, and elongated vertically disposed spaced arms connecting the plate and ring in spaced relationship, said connection including top ends of the arms bent over the rim of the circular plate and welded thereto, the bottom ends of said arms being bent laterally and upwardly parallel to the body of the arms then inwardly toward the body of the arms, upwardly along the arms terminating in outwardly extending flanges, said bottom ring providing a support for the shell

and concrete, said flanges providing a support for the cage, said top circular plate having a central hole and a nail extending through said hole into the wooden section for fastening the fixture to the wooden section.

2. A composite pile as defined in claim 1, characterized by means for sealing the bottom ring to the wooden section.

3. A composite pile as defined in claim 1 characterized by an annular member fastened to the inner periphery of the ring, the inner periphery of the annular mem-

ber being slitted and contacting the wooden section thereby sealing the ring to the wooden section.

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