Nov. 21, 1933. O. A. MECHLIN 1,936,540

CONCRETE PILE

Filed June 25, 1931

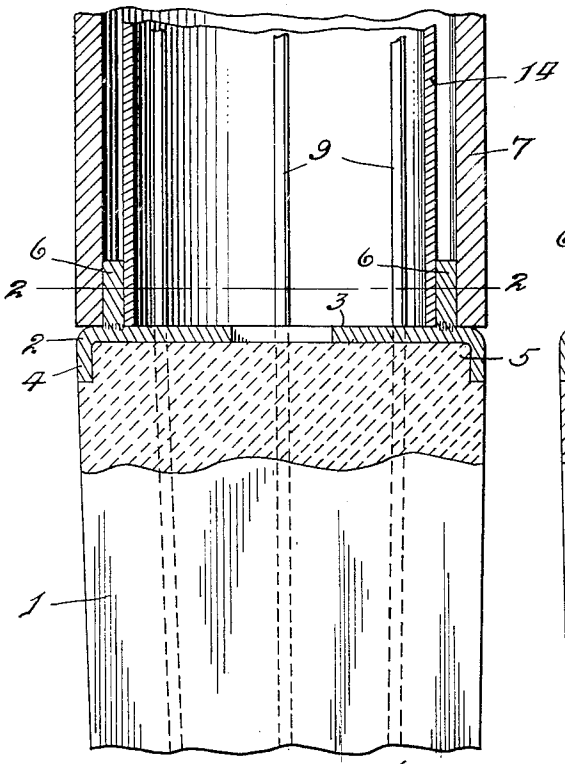


Fig. 1.

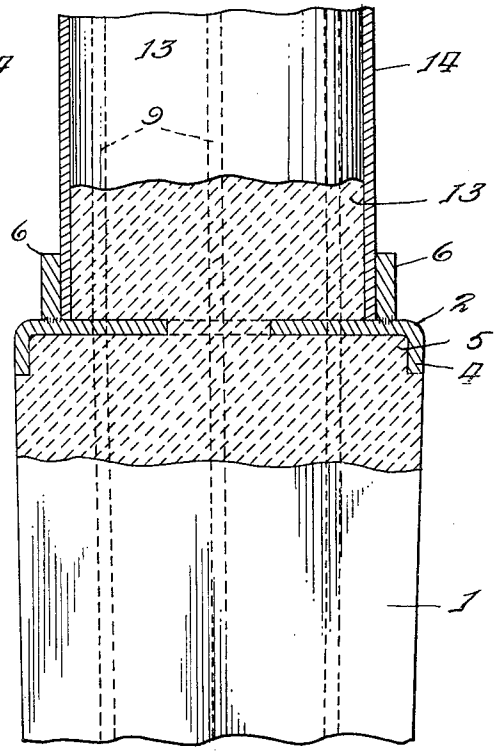


Fig. 3.

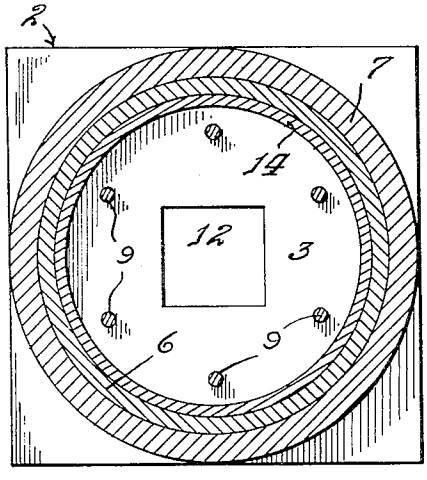


Fig. 2.

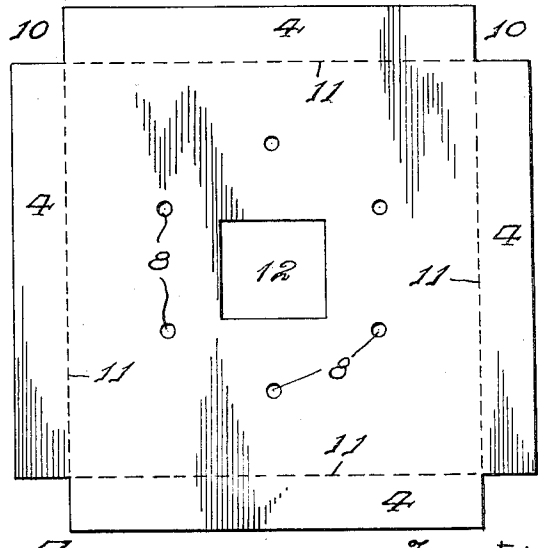


Fig. 4.

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CONCRETE PILE

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4 Claims. (Cl. 61—56)

The invention relates to a concrete pile and method of making the same.

The invention relates to a concrete pile, preferably of the precast type in which the disadvantages which have limited to a large extent the use of precast piles is avoided.

Before referring to a detailed description of my invention it might be advantageous to point out that in the use of precast piles the period of time required for the setting of the pile is roughly proportional to the length of the pile. The greater the length and diameter or cross-sectional area, the greater the length of time required for the pile to harden sufficiently to be either transported or driven.

Another difficulty with precast piles relates to the necessity for reinforcing the same in order that they may be both transported and driven. This reinforcement becomes exceedingly heavy when the pile is of great length and adds very materially to the cost of the piling.

In tests of foundations previous to undertaking piling work, it is often impossible to judge from such tests as to the necessary length of the piles and to avoid the difficulty of joining one or more sections in order to bring the head of the pile to its desired level, precast piles are often made longer than required, which results in a great waste of material, since the excess portion of the pile must be removed so as to bring the pile head or end to its desired elevation.

The above named disadvantages and objections are overcome by the invention herein set forth.

Referring now to the drawing,—

Figure 1 is a view, partially in elevation and partially in longitudinal section, of a pile showing the driving follower, driving pipe, inner shell and reinforcing members.

Figure 2 is a cross section on line 2—2 of Figure 1.

Figure 3 is a view similar to Figure 2 with the driving pipe omitted and illustrating the method of adding to the pile after the same has been driven to the desired depth.

Figure 4 is a top plan view of the follower showing it in its unformed state.

Throughout the drawing and specification like parts are designated by like reference characters.

In the drawing 1 indicates a precast pile having mounted on the upper end thereof a follower member 2 which is formed with a flat upper surface 3 and marginal flanges 4, it being of course understood that while the follower 2 in the present embodiment is shown rectangular in outline the shape of the follower will be such as to conform to the upper portion of the pile, the marginal flanges of the follower surrounding the reduced end or neck 5 of the pile.

Rigidly connected to the upper face 3 of the follower I provide a cylindrical ring 6 which may be and preferably is conveniently connected to the upper face of the follower by welding. The diameter of the ring 6 is less than the maximum width of the upper face of the follower 2 so as to leave a marginal portion against which the driving ring or pipe 7 is adapted to seat at its lower end. The ring 6 and the flanges 4 may be considered as oppositely directed flanged portions of the follower 2, the ring or collar 6 being of equal or greater height than the flanges 4, the said ring being adapted to form a centering means for the driving pipe 7 which is adapted to telescope over the outer surface of the ring 6.

The flat face of the follower 2 is provided with a plurality of openings 8 through which the reinforcing rods 9 are adapted to extend. The follower 2 may be formed from a blank substantially rectangular in shape, having corners cut as at 10 to provide marginal flange portions 4 which are then bent downwardly along the dotted lines 11 and the edges of the corner portions 10 welded or otherwise firmly united.

Preferably I provide an opening 12 in the upper face of the follower which permits a bond between the precast pile 1 and the filler portion 13 which will now be described. The pile 1 is precast with the reinforcing rods 9 extending above the upper face thereof a sufficient distance to form a rigid connection between the precast pile and the filler section 13. The follower 2 is then fitted over the end of the pile or the pile may be formed with the follower 2 located in situ and after the pile 1 has hardened sufficiently to permit its transportation and driving, the driving ring 7 is placed in position and the blows of the hammer delivered to the upper surface thereof until the pile has been driven to a sufficient or desired depth. A tube 14 is then inserted within the driving ring, the exterior diameter of the said tube being slightly less than the interior diameter of the collar 6, the driving ring then withdrawn and the inner tube filled with concrete to the desired height. If necessary or desirable additional reinforcing members may be connected to the reinforcing bars 9 and the pile is then completed and upon the hardening of the filler portion 13 there is formed a unit pile of the desired length and dimensions, the filler portion being rigidly united

to the precast portion so as to prevent any possibility of lateral slippage or separation of the two. The pipe or tube 14 may be made of light sheet metal which is easily cut so there is a minimum of wastage and a minimum of difficulty in completing the pile to the desired height.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. The combination with a precast concrete pile having longitudinal reinforcing rods embedded therein and projecting thereabove, of a combined driving cap and follower provided at its underside with a flange embracing the precast pile flush with the sides thereof and provided at its top with an upstanding flange, said combined cap and follower having openings for the passage of said reinforcing rods, and a driving pipe telescopically engaged with the second named flange.

2. The combination with a precast concrete pile having longitudinal reinforcing rods embedded therein and projecting thereabove, of a combined driving cap and follower provided at its underside with a flange embracing the precast pile flush with the sides thereof and provided at its top with an upstanding flange, said combined cap and follower having openings for the passage of said reinforcing rods, a shell telescopically engaged with the second named flange adapted to be filled with concrete, said combined cap and follower having a central opening enabling the concrete to unite onto the precast pile.

3. The combination with a precast concrete pile having longitudinal reinforcing rods embedded therein and projecting thereabove, of a combined driving cap and follower provided at its underside with a flange embracing the precast pile flush with the sides thereof and provided at its top with an upstanding flange, said combined cap and follower having openings for the passage of said reinforcing rods, a driving pipe telescopically engaged with the second named flange exteriorly thereof, and adapted to be removed after the precast pile is driven, and a shell telescopically engaged within the second named flange and adapted to be filled with concrete after the precast pile is driven.

4. The combination with a precast concrete pile of rectangular cross section, of a combined driving cap and follower of rectangular form having depending marginal flanges embracingly engaging and recessed into the sides of the upper end of the precast pile so as to be flush therewith, said cap and follower being provided at its top with an upstanding cylindrical flange spaced inwardly from the edges to define a flat seat between it and the edges, a driving pipe telescopically engaged upon the exterior of said cylindrical flange and abutting said seat, and a shell telescopically engaged within said second named flange and adapted to be subsequently filled with concrete to form a cast-in-place extension on the precast pile.

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