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PROTECTING SUBMERGED SUPPORTING COLUMNS.

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947,237.

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Fig. 1.

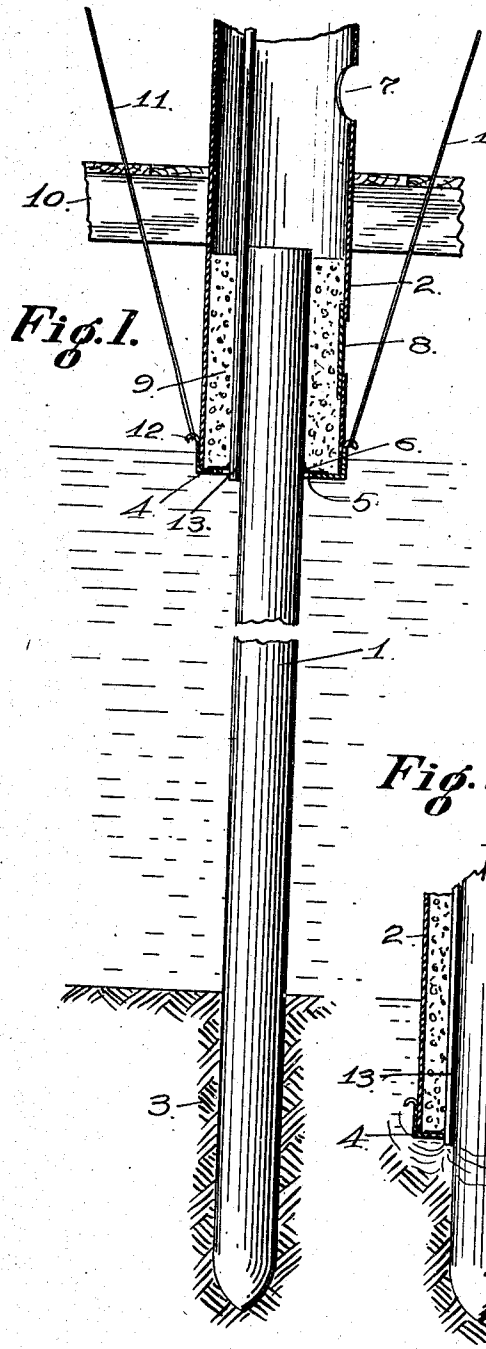

Fig. 3.

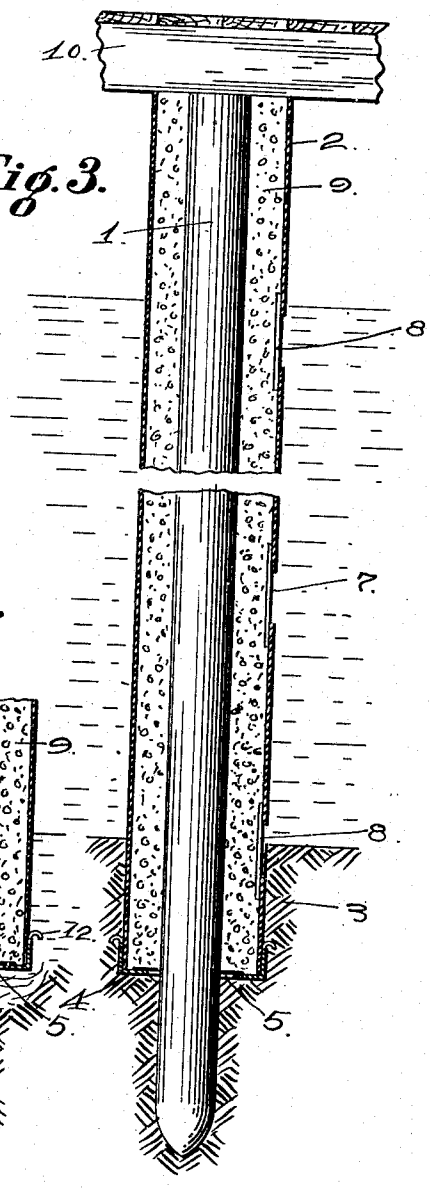

Fig. 2.

WITNESSES.

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PROTECTING SUBMERGED SUPPORTING-COLUMNS.

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Application filed February 13, 1909. Serial No. 477,650.

To all whom it may concern:

Be it known that I, STETSON G. HINDES, a citizen of the United States, residing at the city and county of San Francisco and State of California, have invented certain new and useful Improvements in Protecting Submerged Supporting-Columns, of which the following is a specification.

The present invention relates to the protecting of submerged piles or supporting columns used in connection with the construction of wharves, landings or structures generally exposed to the action of water; the object being to reinforce and protect the exposed surface of the submerged supporting pile, post or column by a composite covering wall or shell, such as concrete.

To comprehend the invention reference should be had to the accompanying sheet of drawings, wherein—

Figure 1 is a view in elevation of a driven pile with the outer shell or casing being applied thereto, the said shell being partly broken and sectioned to illustrate therein the composite covering for the pile, within the said casing being shown the pipe for delivering a jet of water under pressure to the soil within which the pile is embedded on the casing reaching the same so as to remove the surrounding soil to permit of the casing penetrating to a depth below the bed. Fig. 2 is a broken detail sectional view illustrating the final position of the outer casing, relative to the lower end of the driven pile, the jet pipe being shown in position. Fig. 3 is a vertical sectional view of the casing and covering wall on the completion of the work.

In the drawings, the numeral 1 is used to indicate a supporting column, such as a wooden pile, driven into a bottom of hard material.

To successfully carry out the covering of the surface of the supporting column exposed to the action of the water to a point above high water line, there is provided a casing 2, preferably of a length slightly greater than the distance from the bottom 3 to the upper end of the column 1. The diameter of the casing is such as to leave an annular space between the inner wall thereof and the face of the column equal to the thickness of the protecting wall to be placed around the exposed surface of the said column.

The lower end of the casing 2 is partly closed by a bottom 4, the central opening 5 of which permits of the column 1 extending within the casing 2 as the same is lowered. The central opening in the bottom 4 is somewhat greater in diameter than that of the column, so as to adapt the same to receive columns of varying diameter within certain limits, which provision is necessary where driven wooden piles are to be coated, which piles are irregular as to size. However, in order that a close union may be made between the parts to provide against escape of the material delivered into the casing 2, there is provided a perforated gasket 6, which is secured to the inner face of the bottom 4 and held against the surface of the column 1 by the pressure of the material thereagainst.

In the face of the outer casing 2 is provided a vertical series of spaced feed or stoking openings 7, which are arranged at a distance of about ten feet apart, more or less. These openings are closed from the inside of the casing by means of the plates 8, which are held in position by the pressure of the body 9 of concrete or other material filling the casing 2.

In carrying out the coating of the surface of the driven pile or supporting column 1, the casing 2 is fitted over the exposed end thereof and permitted to slip downwardly until the first feed or lowermost stoking opening 7, is positioned relative to the wharf, platform or staging 10 to permit of the workmen feeding therethrough into the casing the concrete or material for forming the reinforcing body or covering 10 for the column to be protected, the casing gradually descending until the second feed or stoking opening is positioned to receive therethrough the reinforcing material, which material as fed or delivered into the casing 2 spreads out and packs itself around the column 1, which constitutes an inner core. The casing is held in position and prevented from moving downwardly too rapidly by means of the cables 11, which engage with the lugs 12 projecting from the lower end portion of the casing, Fig. 1 of the drawings.

As the first feed or stoking opening passes below the platform 10 on which the workmen are stationed, the same is closed by means of the plate 8, which may consist of a sheet of wire mesh or a thin sheet of metal, the same being slightly larger than the opening and held against the inner surface of the casing by the pressure of the material thereagainst. This manner of

closing the stoking openings is analogous to the common manner of closing manholes and the like in steam boilers, which is well known and requires no detailed description, each feed or stoking opening being closed as the same is carried beyond the feed station for the material to be delivered into the casing.

Within the outer casing is located a jet pipe 13, which descends with the downward movement of the said casing. The lower end of the pipe 13 projects slightly beyond the bottom 4 of the casing, the purpose of said pipe being to permit a jet of water under pressure to be applied to the ground surface of the bottom 3 surrounding the embedded end portion of the pile, after the casing has reached such bottom and its downword movement arrested. The water jet thus directed against the ground surface surrounding the embedded end portion of the driven column, cuts away the same and permits of the weighted casing penetrating the soil for a slight distance, so as to place the reinforcing wall or covering well into the bottom 3 and protecting the embedded portion of the supporting column below the ground surface of the said bottom, thus preventing exposure of the lower portion of the supporting column or core, which tends to subject it to corrosion or other deterioration. This penetration of the lower end of the casing and the reinforcing wall into the general line of the ground within which the driven pile or supporting column is embedded, is of importance where the supporting column is constructed of wood, inasmuch as it insures protection against the action of the teredo.

After liquifying the ground surface at the bottom of the casing to force away the sand or mud, by the jetting action of the jet stream delivered from the pipe 13, the weighted casing is allowed to slide down the supporting column a slight distance below the general line of the ground. If desired the said jet pipe may be removed, in which case the weight of the plastic material within the casing will close the opening which otherwise would be formed by the withdrawal of the jet pipe.

While the jet pipe is illustrated as being located within the casing 2, it will be understood that the positioning of the same is immaterial.

Having thus described the invention what is claimed as new and desired to be protected by Letters Patent is:—

1. The combination with a submerged pile or supporting column, of a continuous casing therefor of a length equal to the surface of the column to be protected, a series of spaced stoking openings formed in the casing for the delivering therein of a plastic filling, a partially closed bottom to the casing, a gasket secured to the bottom of the casing to form a close joint with the column over which the same is fitted, and plates for closing the stoking openings of the casing as the same is moved downward over the supporting column.

2. An outer casing for a reinforcing wall covering for submerged supporting columns, the same comprising a continuous section substantially the length of the exposed surface of the column to be protected, a series of stoking openings formed therein for the delivery of a plastic filling, and means for closing the stoking openings during the downward movement of the casing.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

STETSON G. HINDES.

Witnesses:
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