W. N. STEVENS.

INCASED CONCRETE PILING.

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1,087,334.

Patented Feb. 17, 1914.

Fig. 1.

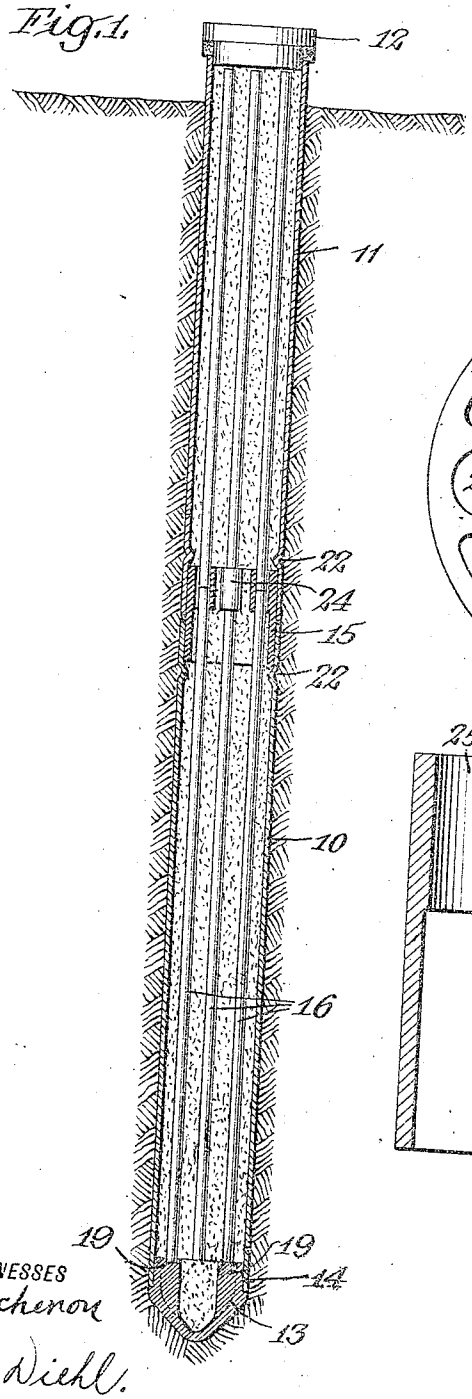


Fig. 2.

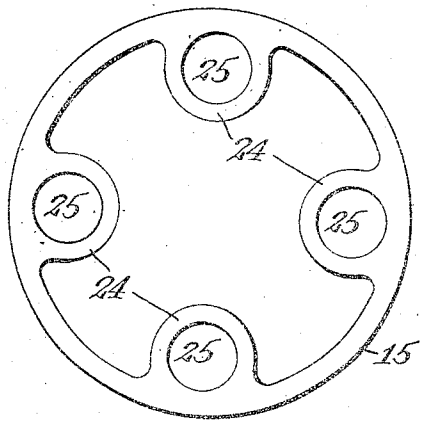
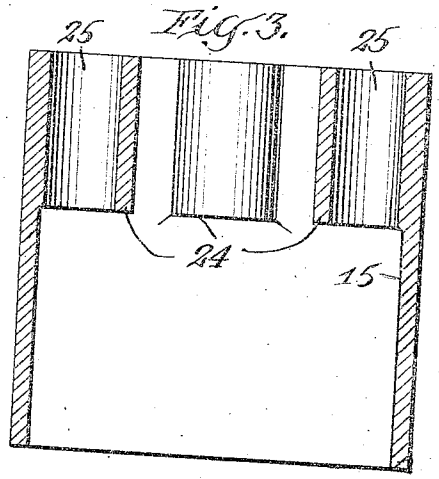


Fig. 3.



WITNESSES

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INCASED-CONCRETE PILING.

1,087,334. Specification of Letters Patent. Patented Feb. 17, 1914.

Application filed February 4, 1913. Serial No. 746,104.

To all whom it may concern:

Be it known that I, WILLIAM NORTON STEVENS, M.E., a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented a new and useful Improvement in Incased-Concrete Piling, of which the following is a specification.

My invention relates to certain improvements in the construction of reinforced incased concrete piling, in which superposed tubular sections of iron or steel held in alinement at their abutting ends by internal sleeves, are driven or sunken into the ground, a cluster of iron or steel reinforcing rods placed therein, and the pile casing then filled with cement or concrete so as to unite the casing sections, alining sleeves and reinforcing rods together and to the concrete filling to make the complete pile.

My invention consists primarily in combining the section-alining sleeve, with the spaced guides for holding the reinforcing rods in place, substantially as hereinafter described.

My invention also consists in making the reinforcing rods of superposed sections whose ends are adjusted to abut within their respective spaced guides, so as to form in effect continuous reinforcing rods, which being held in alinement by the guides and being supported from the foot of the pile will coact with the pile casing and with the concrete filling when hardened therein, in taking up and supporting the vertical thrust upon the completed pile.

My invention also consists in forming the driving shoe, when used, with spaced guides in alinement with the respective rod guides on the casing sleeves, to receive and support the lower ends of the reinforcing rods in their proper position.

In order that my invention may be fully understood I shall first describe in detail the mode in which I carry my invention into practice and then distinctly claim the invention.

Reference is to be had to the accompanying drawings forming part of this specification, in which like parts are designated by the same numbers in all the figures.

Figure 1 is a sectional side elevation of a reinforced concrete pile embodying my invention. Fig. 2 is an enlarged plan view of the combined alining sleeve and reinforcing rod holder shown in Fig. 1. Fig. 3 is a sectional view of said combined alining sleeve and rod holder.

Referring to the drawings, 10, 11 are two tubular metallic sections, forming the casing of the pile; 12 is a driving cap preferably used for receiving the blows of the pile driver; 13 is a driving shoe formed with a neck 14 to fit tightly within the lower end of the pile casing; 15 is one of the metallic internal sleeves for holding the abutting ends of the casing sections in alinement, and 16 are reinforcing rods, placed and held vertically apart within the pile casing.

The concrete or cement filling is poured into the pile casing, after the casing is driven home and the reinforcing rods properly placed therein as hereinafter described to bind and unite the casing sections, alining sleeves, driving shoe, if used, and reinforcing rods together to form the complete pile.

Efficiently, conveniently and economically to receive and support the lower ends of the vertical reinforcing rods 16 in position apart, I preferably form in the upper side of the driving shoe 13, vertical sockets or guides 19 properly spaced around the axis of the shoe to receive loosely the lower ends of the lower rod sections. I also, by preference, cast the alining sleeve 15 with inwardly and radially projecting bosses 24 formed with vertical tubular guides 25, spaced peripherally around the sleeve 15 as the vertical reinforcing rods 16 are to be spaced, to guide and hold said rods in alinement and in their proper relative positions within the casing.

To hold the alining sleeve 15 in position in the abutting end portions of the casing sections 10, 11, I may use any suitable means, such as indentations 22 in the casing sections above and below the alining sleeve 15, as shown and claimed in United States Letters Patent, dated May 31, 1910, No. 959,546.

After one or more sections 10, 11 of the pile casing are driven or sunken into the ground, and the alining sleeve with its, preferably, integral rod guides 25, fitted in place, with the guides 25 in alinement with the rod guides 19 in the shoe 13, if used, the lower sections of the reinforcing rods 16 are dropped through the sleeve guides 25 so that their lower ends will bear on the shoe 13, or the foot of the pile. The lower sections of the rods 16 are preferably so proportioned

in length that their upper ends will terminate within the sleeve guides 25, as shown. The next sections of the rods 16 are then dropped in the casing so that their ends will be received and held in position by the respective sleeve guides 25, and will abut and bear on the upper ends of the lower sections of the rods 16; and so on, until the full length of the pile is completed. The superposed sections of the reinforcing rods will thus be held in alinement by the sleeve guides 25, and will form in effect continuous vertical reinforcing rods, which being supported from the foot of the pile, will effectively coact with the pile casing and with the concrete filling when hardened therein, in supporting the vertical thrust upon the pile, and will thus greatly strengthen and stiffen the complete pile.

The preferred integral formation of the alining sleeve with the interior rod-holding bosses 24 forms an extremely simple, economical, effective and convenient means for guiding and holding the sections of the reinforcing rods in position and alinement, and the rod-holding bosses 24 in addition cooperate effectively with the concrete filling, tubular sections, sleeves and reinforcing rods to bind the whole composite pile together and form a pile of great strength and durability.

It is evident that the rod-holding bosses 24 or the sleeves may be shorter or longer, or lower with respect to the length of the sleeve 15, and the guides 25 may be semi-tubular, square, or of any other appropriate form, without departing from the scope of my invention.

Having thus described my invention and the mode in which I carry the same into practice, I claim:

1. As a new article of manufacture, a tubular alining sleeve to be fitted within the abutting ends of metallic casing sections, said sleeve being formed interiorly at one end thereof with longitudinal tubes for holding vertical reinforcing rods.

2. As a new article of manufacture, an alining tubular sleeve for joining the abutting ends of metallic casing sections together, said sleeve having formed at one end thereof interiorly-arranged elongated guiding and confining tubes for the varying meeting ends of vertical reinforcing rods, substantially as described.

3. In reinforced incased concrete piling, the combination with two abutting metallic casing sections, of a tubular metallic alining sleeve fitted within the abutting ends of said metallic casing sections, said sleeves being formed interiorly with longitudinal tubes, vertical reinforcing rods held in and by said interior tubes apart from the sectional metallic casing, and a filling of concrete or cement within said casing and sleeve and between the reinforcing rods and the casing.

WILLIAM NORTON STEVENS.

In presence of—
CHARLES A. LEBETT,
WILLIAM CUNNINGHAM.