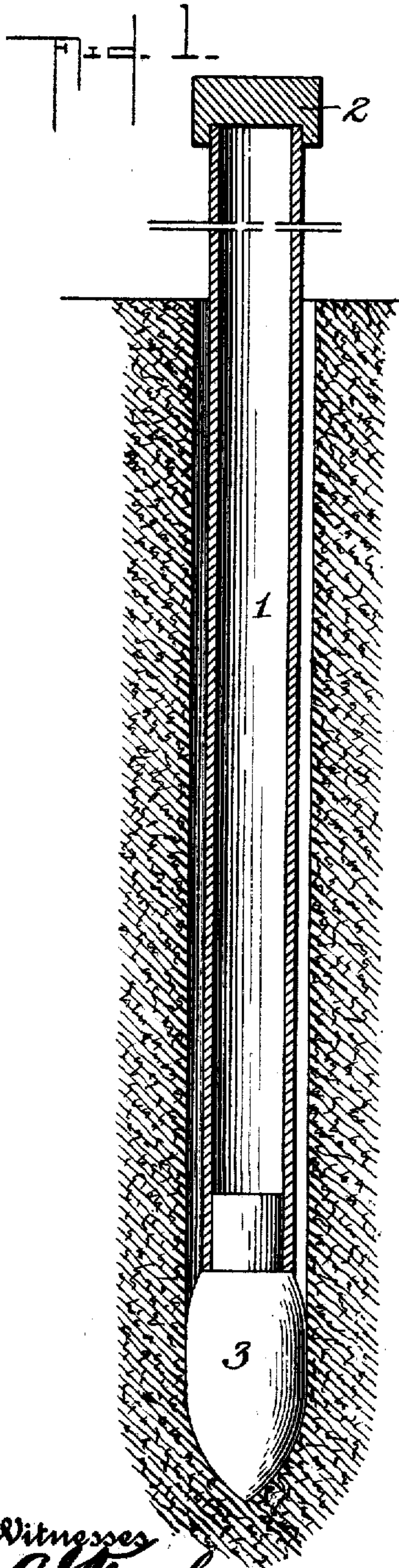


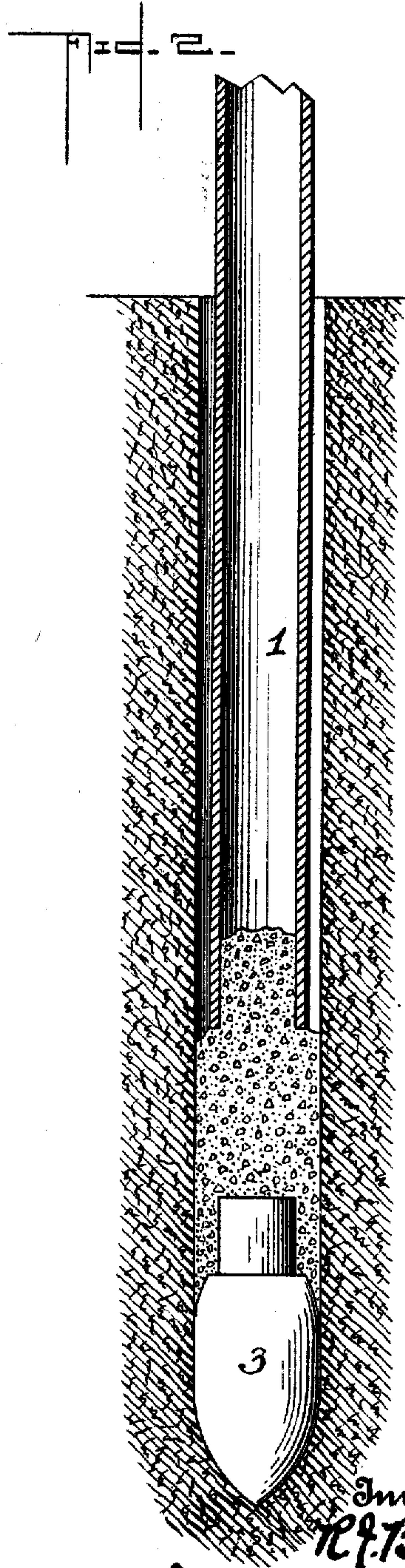
R. J. BEALL, JR.
METHOD OF FORMING CONCRETE PILES.
APPLICATION FILED APR. 28, 1904.

999,431.

Patented Aug. 1, 1911.



Witnesses
A. Bengla
R. J. Beall



Inventor
R. J. Beall, Jr.
by John Thomas Co.
Attorneys

UNITED STATES PATENT OFFICE.

RICHARD J. BEALL, JR., OF WASHINGTON, DISTRICT OF COLUMBIA.

METHOD OF FORMING CONCRETE PILES.

999,431.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed April 28, 1904. Serial No. 205,399.

To all whom it may concern:

Be it known that I, RICHARD J. BEALL, Jr., a citizen of the United States, residing at Washington, in the District of Columbia, have invented an Improved Method of Forming Concrete Piles, of which the following is a specification.

My invention relates to that method of forming piles of concrete or cement which consists in first driving a preparatory pile into the ground and then withdrawing said preparatory pile and filling the opening formed thereby with concrete or cement in fluid or plastic form which when it becomes set will form the permanent pile.

The object of my invention is to fill the openings with concrete or cement in a more acceptable manner than heretofore, thereby producing a better pile.

In the accompanying drawing: Figure 1 is a view illustrating the method of forming the opening in the ground by means of the preparatory pile in accordance with my invention. Fig. 2 is a view illustrating the method of forming the permanent pile in accordance with my invention.

The preparatory pile 1 is in the form of a metal tube, and is provided at the top with a suitable driving-head 2, and at the bottom with a point 3, which is detachable from the pile 1, and in the present instance of so much greater diameter than the pile 1 that there is no likelihood of the latter coming in contact to any material extent with the walls of the opening formed by driving the pile. Hence the pile can be driven without that excessive friction which results from the contact of the earth with the sides of the pile when the latter is of cylindrical form or tapers inwardly from the top to the bottom, the improved pile being also capable of easy withdrawal, owing to the fact that the point 3 is permitted to remain at the bottom of the opening and the pile 1 is free from any material contact with the walls of the opening above said point.

After the hollow pile has been driven to the proper depth the concrete is poured into the same, and when a sufficient quantity has accumulated at the bottom of the pile above the point said pile is withdrawn either slowly and continuously or intermittently, a little at a time, and during such withdrawal the supply of concrete to the interior of the pile is continued, so that the concrete will escape into the opening above

the point, as shown in Fig. 2, until by the time the pile is completely withdrawn the opening will be filled with concrete.

The concrete is introduced into the hollow pile at such a rate as always to maintain a head of concrete at the bottom of the same, so that in case the opening is formed in wet ground or beneath the water-level the water cannot gain access to the interior of the hollow pile, or will be displaced upwardly as the concrete escapes from the lower end of the pile and into the opening. By this means caving in of the walls of the opening when the latter is formed in unstable ground is effectually prevented and the concrete pile when it becomes set is a homogeneous structure possessing all needed strength.

The point can be made of any suitable shape, and of wood, cast or wrought iron, steel, glass, asphaltum, concrete, or combinations of the same, or, in fact, of any material which will withstand the shock of driving, preference being given to a point of concrete, which may if desired be sheathed with sheet-metal, except at the top, or internally reinforced to strengthen it, as the plastic concrete of which the pile is composed will take a better hold upon such concrete point than upon a metal or other point not affording so good a holding surface.

This method of forming the concrete pile may be adopted in connection with the use of any hollow preparatory pile open at the bottom for the escape of concrete therefrom as the preparatory pile is withdrawn, said hollow pile being introduced by driving, sinking, or any other available manner.

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

1. A method of forming concrete piles in the ground, consisting in driving in the ground a tube having an unobstructed longitudinal bore and an enlarged point closing the lower end of the tube and detachable therefrom forming an opening of greater diameter than the tube, withdrawing the tube without the shoe, and filling the opening above said shoe with concrete deposited in the tube during the withdrawal of the same.

2. The method of forming concrete piles, which consists in providing a hollow pile with an enlarged and detachable point, sinking said pile into the ground to form a hole

larger than the pile-stem, then slowly or intermittently withdrawing the pile, without its point, and filling the hole above said point, with concrete during such withdrawal of the pile, and then permitting the concrete to set, substantially as specified.

3. The method of forming concrete piles, which consists in providing a hollow pile with a detachable point composed of concrete, sinking said pile into the ground to form a hole, then slowly or intermittently withdrawing the pile, without the point, and filling the hole above said point, with concrete during such withdrawal, and then permitting the concrete to set, substantially as specified.

4. The method of forming concrete piles,

which consists in providing a hollow pile with an enlarged and detachable concrete point, sinking said pile into the ground to form a hole larger than the pile-stem, then slowly or intermittently withdrawing the pile, without the point, and filling the hole above said point with concrete during such withdrawal, and then permitting the concrete to set, substantially as specified.

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

RICHARD J. BEALL, JR.

Witnesses:

EMORY H. BOGLEY,
H. L. BEALL.