March 25, 1930. R. L. SMITH 1,751,607

METHOD OF CONSTRUCTING FOUNDATIONS

Filed June 3, 1926

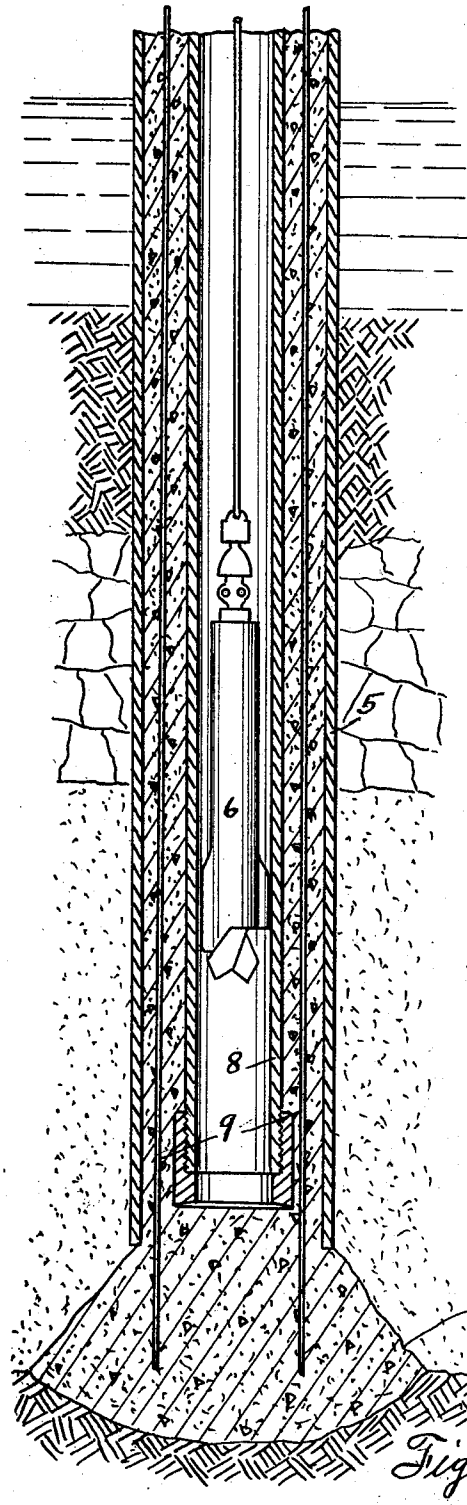


Fig. 1.

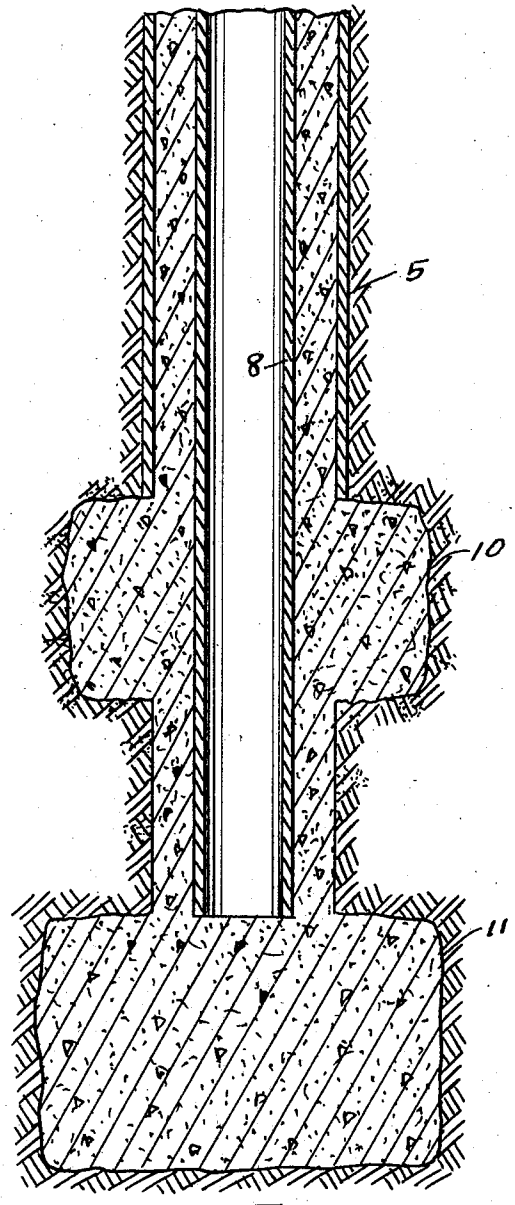


Fig. 2.

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UNITED STATES PATENT OFFICE

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METHOD OF CONSTRUCTING FOUNDATIONS

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This invention relates to new and useful improvements in a method of constructing foundations and particularly the method of anchoring piling forming the support of bridges and similar structures.

One object of the invention is to provide a method of anchoring and supporting the piling, forming the foundation or support of bridges, across streams, or other similar structures, required to be erected on sandy or shifting foundation.

It often happens that the beds of streams to be bridged are of sandy or shifting formation making it very difficult, if not impossible to find secure anchorage and support for piling designed to support the superstructure. The method herein described has been devised particularly for the purpose of providing such anchorage when shifting or sandy formations are encountered.

With the above and other objects in view this invention has particular relation to a novel method which will be more particularly described in this specification and which is illustrated in the accompanying drawings, wherein:—

Figure 1 shows a vertical sectional view of one form of piling anchorage, and

Figure 2 shows a vertical sectional view of another type thereof.

In case the bed of the stream, or other formation on which the structure is to be supported is formed of strata, some of which are of a stable nature, such as clay or the like, and others of which are of a shifting nature, such as sand, quicksand, or the like and, a hole may be drilled, or excavated, to the required depth and stopped in a shifting stratum and a casing, as 5, let down into this bore and an underreamer, as 6, may be used, if desired to form an enlarged cavity, as 7 underneath the casing 5, said underreamer working through an inside casing, as 8, let down through the casing 5. Cementitious or concretious material is then poured, or pumped down through the casing 5, around the casing 8 and fills the cavity 7, and the space between said casings 5 and 8 to the desired height and when this material hardens, or sets, the casings 5 and 8 will be securely anchored and may be used as the supporting piling.

If desired reinforcing rods, as 9, may be located between said casings 5 and 8 to strengthen the concrete anchor.

If desired enlarged cavities as 10, 11, may be formed in the various sandy strata pierced and when the concretious material is poured down through the casing 5 it will fill said cavities and a very secure anchor thus formed for the inner casing 8 as well as a substantial support for the outer casing 5; or the concretious material, while in plastic state, may be poured down through the pipe 5 and out into the walls of the bore as illustrated in Figure 1 and said pipe 8 may also be filled with said material for additional strength.

What I claim is:—

1. The method of forming a foundation consisting of drilling a bore into the earth and lowering a single outside tubular piling into said bore, then forming a plurality of cavities one above the other in the earth adjacent the lower end of said piling then lowering an inside tubular piling into the bore and filling said cavities and the space between said pilings with concretious material which forms a support for the piling when the material hardens.

2. The method for forming a foundation consisting of drilling a bore into the earth and lowering a single outside tubular piling into said bore, forming a plurality of cavities one above the other in the bore beneath the lower end of said piling then lowering a tubular inside piling into the outside piling and filling said cavities and the lower part of the bore between said pilings with plastic

concretious material introduced through the outside piling.

3. The method of forming a foundation consisting of drilling a bore into the earth and lowering a single outer tubing into said bore, then inserting another tubing within said outer tubing and forming cavities in the earth beneath the lower ends of said tubings in different strata and introducing concretious material in plastic state down between said tubings and into said cavities so as to fill the cavities and the lower part of the space between said tubings.

In testimony whereof I have signed my name to this specification.

ROBERT L. SMITH.