July 6, 1926. 1,591,165

G. A. HESSE

PILING

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Fig. 1.

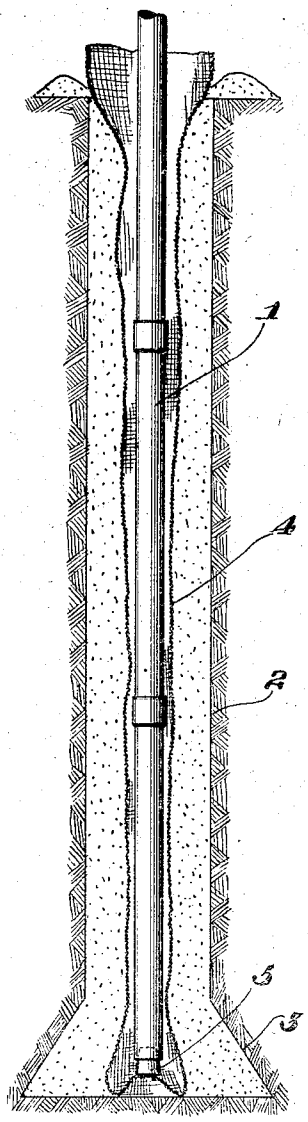
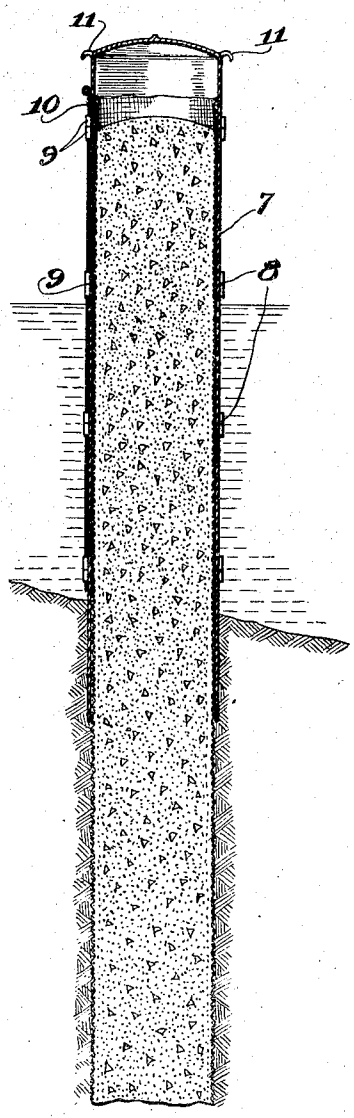


Fig. 2.



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PILING.

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This invention relates to pilings, and more particularly to an improved process or method of forming the same.

An object of the invention is to provide an improved process of forming a concrete piling in which the usual forms or moulds for preventing the walls of the hole from caving in before the concrete is poured therein in liquid form are dispensed with.

A further object of the invention is to provide a new and efficient process of constructing pilings whereby the said pilings may be set in place and constructed with a minimum of expense.

In the drawings which form a part of this application, Fig. 1 is a transverse sectional view showing the piling socket after having been drilled with the drill pipe and bag lining inserted within the same; and

Fig. 2 is a trasverse sectional view showing the method of constructing the piling when the ground to be worked in is submerged below water.

Like characters of reference are used throughout the following specification and the accompanying drawings to designate corresponding parts.

The process of constructing a piling to be embedded in land not covered with water will be first described. The drill pipe 1 having the usual form of cutter will be used to bore the piling socket 2 to the desired depth, and the base of the said socket may be enlarged as at 3 to provide for a suitable footing for the piling when in position.

It is customary when the holes for the pilings are drilled to place a casing about the interior thereof to prevent the walls of the holes from caving in. One of the main features of my invention is to dispense with the use of these casings and in lieu thereof to fill the socket or hole 2 with soft mud or clay as the hole is being drilled. The opening or socket being entirely filled with the soft mud or clay positively prevents any caving in of the walls.

When the desired depth for the opening is reached, the drill pipe 1 is withdrawn therefrom and a closely woven canvas bag or lining 4 is drawn over the said drill pipe as illustrated in Fig. 1 of the drawings. A plug 5 is secured to the lower end of the canvas bag or lining 4 in any suitable manner; then it is inserted within the open end of the drill pipe, after which the pipe and canvas lining are forced down through the mud or clay in the socket 2 to a point adjacent the bottom thereof. The canvas or lining 4 will have an approximately identical diameter as the diameter of the socket 2.

Concrete from which the piling is constructed will be poured or pumped in liquid form through the open end of the drill pipe 1, and the pressure of the concrete on the column of air in the pipe will force the plug 5 out of the lower end thereof. The concrete will be poured or pumped through the pipe 1 until the space 3 for the footing is completely filled. The air which was originally in the pipe 1 will then be forced upwardly as the concrete rises in the lining so that the lining will be forced away from the pipe 1 and in contact with the walls of the socket or opening 2. This action will force the soft mud or clay which was in the socket or opening out from the top thereof. The drill pipe 1 will be raised as the height of the concrete increases so that when the lower end of the pipe 1 reaches the surface of the ground, the canvas lining will have forced the mud from the opening and will form a protective casing for the soft concrete until it sets. The close mesh of the canvas or lining 4 will prevent any seepage of water or foreign material through the walls thereof into the soft concrete.

In the event that it is desired to set the concrete piling in land submerged under water the procedure will be slightly different and will now be described.

A suitable metal casing 7 will be slit lengthwise and will be secured together by means of the hinges 8 and will have cooperating eyes 9 on adjacent opposite halves of the casing so that when the said casing is in operative position the locking pin 10 may be inserted through alined eyes 9 to hold the casing in rigid position. Suitable projections or arms 11 may be secured to the upper end of the casing and afford a means whereby the casing may be withdrawn after the same has been used.

The casing 7 will be lowered down through the water and driven into the soil a sufficient distance to prevent seepage of the water through the bottom thereof. The drill pipe 1 will then be used in the same manner as if the land were not submerged under water, and the same procedure is followed; that is, soft mud or clay is allowed to fill the socket or hole as it is drilled, and the drill pipe and canvas lining or bag are

forced down through the mud, after which the concrete is poured or pumped therethrough until the hole is completely filled. The walls of the casing 7 provide a mould or casing for the portion of the piling extending from the surface of the land to the upper end of the said piling. After the concrete has firmly set, the hooks 11 may be engaged by any suitable means and the locking pin 10 withdrawn so that the casing 7 may be opened and readily withdrawn.

From the foregoing description it will be apparent that my process of forming pilings will entirely do away with the necessity of inserting the usual bracing casing in the holes to prevent caving in of the same as they are drilled, which feature alone makes a great saving in expense in the construction of the pilings.

Many minor changes in detail of construction may be resorted to without departure from the spirit of the invention.

What I claim is:

1. The process of forming concrete pilings consisting of boring a hole, filling the hole with soft mud or clay as the hole is being drilled, inserting a pipe and canvas bag to a point adjacent the bottom of the hole, forcing liquid cement through said pipe into said bag and forcing the soft mud from said hole as the same is filled with cement.

2. The process of forming concrete pilings in land submerged under water consisting of lowering a split casing through said water and forcing it into the ground therebelow, drilling a hole in said ground, filling said hole with soft mud or clay as the hole is being drilled, inserting a drill pipe surrounded by a canvas bag or lining through said mud to a point adjacent the lower end of said hole, and forcing concrete through said pipe into said bag, and retracting said pipe from said hole as the height of the concrete increases.

3. The method of constructing a concrete piling, consisting of digging a hole and at the same time filling the hole with viscous substance, inserting a bag through the viscous substance into said hole by means of a pipe placed within said bag, said viscous substance tending to press the bag or lining against the pipe, filling the bag from the bottom upwardly with concrete by pumping or pouring the same through said pipe, the confined air within the pipe serving to spread the bottom of the bag as the concrete is received within the same, the air forced out of the pipe tending to spread the walls of the bag away from the pipe as the bag continues to be filled.

4. The method of constructing a concrete piling consisting of digging a hole and at the same time filling the hole with viscous substance, placing a lining bag over a pipe, inserting a plug carried by said bag into the lower end of said pipe, inserting said bag and pipe through the viscous substance into said hole, said viscous substance tending to press the bag against the pipe, pumping or pouring concrete through said pipe so that said plug will be forced from the bottom thereof as the concrete passes through said pipe, filling the bag from the bottom upwardly with concrete, the confined air within the pipe serving to spread the bottom of the bag as the concrete is received within the same so that the bag will be spread away fram the pipe and contact with the wall of said hole as the bag continues to be filled.

In testimony whereof I affix my signature.

GEORGE A. HESSE.