

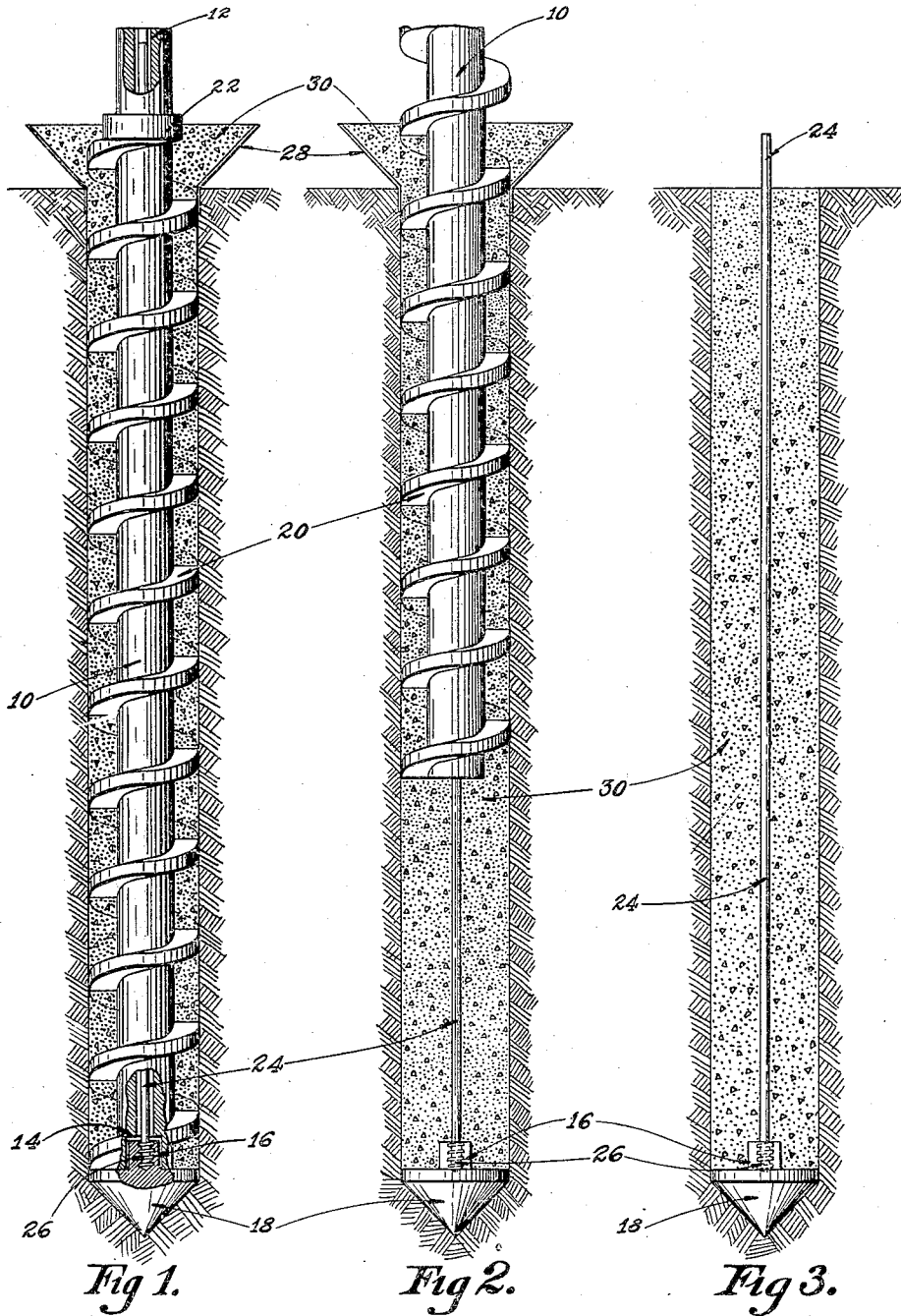
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SCREW CONVEYER PILE

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SCREW CONVEYER PILE

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This invention pertains to the making of concrete piles in situ.

One method of making such piles consists in providing a screw conveyer with a shoe on its lower end and then driving the conveyer into the ground through a hopper of freshly mixed concrete.

As the conveyer travels into the ground it forms a cylindrical hole which is filled again, as rapidly as it is made, with the concrete carried downwardly by the helical wings of the conveyer.

After the conveyer has been driven to the required depth it is removed by unscrewing it, leaving the driving cap at the bottom of the hole, and the hole itself filled with concrete which will ultimately harden to form the pile. The conveyer is provided with an axial shaft to which the screw is fastened.

This central shaft and the screw itself occupy some space, so it is impossible for the conveyer, when driven, to carry into the ground a sufficient volume of concrete to completely fill the hole after the conveyer is withdrawn.

Therefore, during the withdrawing operation the conveyer is rotated out of the concrete a few revolutions, then driven down again to consolidate the concrete below it, then is unscrewed a few more revolutions and driven again, the unscrewing and driving operations being alternated and additional concrete being supplied in the supply hopper, so that by the time the conveyer is fully withdrawn the hole in the ground is filled with closely compacted concrete.

The object of my invention is to provide a method of reinforcing a concrete pile formed as above, by making the conveyer or shaft hollow, and then inserting a reinforcing bar or bars through the hollow shaft after the conveyer has been driven to its full depth and before the withdrawing operation is begun.

Preferably, but not necessarily, the reinforcing bars are screwed into threaded sockets in the driving shoe.

Referring now to the drawings, which disclose the preferred form of the invention:

Fig. 1 shows a cross section of the pile in the ground after the conveyer has been driven

to its full depth and a reinforcing bar inserted.

Fig. 2 shows a cross section of the pile after the conveyer has been partly withdrawn and driven again. The portion of the pile below the conveyer is in its finished state.

Fig. 3 shows a cross section of the completed pile with the driving shoe at the bottom and a reinforcing rod through the center of the pile from top to bottom.

In the drawings the conveyer shaft is designated 10. Through the shaft from end to end is provided the axial hole or bore 12. At the lower end of the shaft the hole 12 is enlarged, by counter-boring, to form the enlarged bore 14 which, during the driving operation, fits over and around the hub 16 extending upwardly from driving shoe 18 as shown in Fig. 1.

The helical portion 20 of the conveyer surrounds shaft 10 and is securely fastened thereto.

Shaft 10 is fitted near its upper end with a shoulder or collar 22 to cooperate with the driving and screwing devices, which may be of any suitable type, not shown.

24 is a reinforcing rod shown screwed at 26 into a threaded socket in shoe 18.

The supply hopper 28 is kept filled with concrete 30 during the driving and withdrawing operations.

At the beginning of the driving operation shoe 18 rests on the ground, with the conveyer resting upright upon it, counter-bore 14 surrounding hub 16. Surrounding shoe 18 and the lower end of the conveyer is hopper 28; containing freshly mixed concrete. As the conveyer is driven into the ground by hammer or jack, shoe 18 forms the hole in the ground and the helical conveyer wings draw concrete from hopper 28 to fill the hole in the ground with concrete as fast as the hole is formed.

When shoe 18 reaches the required depth, reinforcing rod 24 is inserted through bore 12 and screwed into hub 16 at 26. The conveyer is then withdrawn as previously described, with successive rotating and driving operations until finally the completed rein-

forced pile is left in the ground as shown in Fig. 3.

I have illustrated and described only the preferred form of my invention, but the invention may be embodied in modifications which vary in detail from the structure or method shown herein without departing from the spirit of the invention. For instance, the reinforcing rod may be fastened at the bottom to the driving shoe, or it may be fastened otherwise than by a screw thread, or it may simply drop into a socket in the shoe, or the central bore through the conveyer shaft may be enlarged and a plurality of reinforcing rods may be inserted instead of only one.

I claim:

1. The method of forming a reinforced concrete pile in situ which comprises driving a screw conveyer with a hollow shaft, into position through a supply of freshly mixed concrete, inserting a reinforcing rod through the hollow conveyer shaft and finally withdrawing the conveyer, leaving the reinforcing rod in position in the finished pile.

2. The method of forming a reinforced concrete pile in situ which comprises driving a vertical hollow shaft fitted on its outer surface with a projecting helical screw surface, and fitted on its lower end with a detachable driving shoe having a threaded socket on its upper surface within the hollow bore of the shaft into position through a mass of freshly mixed concrete whereby the latter is carried into the hole as the same is formed, inserting a threaded reinforcing rod through the hollow shaft and screwing it into the socket in the driving shoe, and withdrawing said shaft and screw, leaving the driving shoe and reinforcing rod in position.

3. The method of forming a reinforced pile in situ which comprises driving a screw conveyer with a hollow shaft and a detachable driving shoe into position, filling with concrete the bore formed by the conveyer, inserting a reinforcing rod through the hollow shaft into engagement with the driving shoe, and finally withdrawing the conveyer, leaving the rod and shoe in position, the shoe forming the bottom, and the rod passing vertically through the completed pile.

4. The method of forming a concrete pile in situ which comprises driving a screw conveyer having a bore lengthwise through it into position, filling the hole formed thereby with concrete, inserting a reinforcing rod through the bore of the conveyer, and finally withdrawing the conveyer, leaving the reinforcing rod in position in the finished pile.

In testimony whereof I hereto affix my signature.

JOHN W. TAUSSIG.