J. BURNS.

PROCESS FOR SINKING REINFORCED CONCRETE PILES.

APPLICATION FILED JULY 15, 1918.

1,293,693. Patented Feb. 11, 1919.

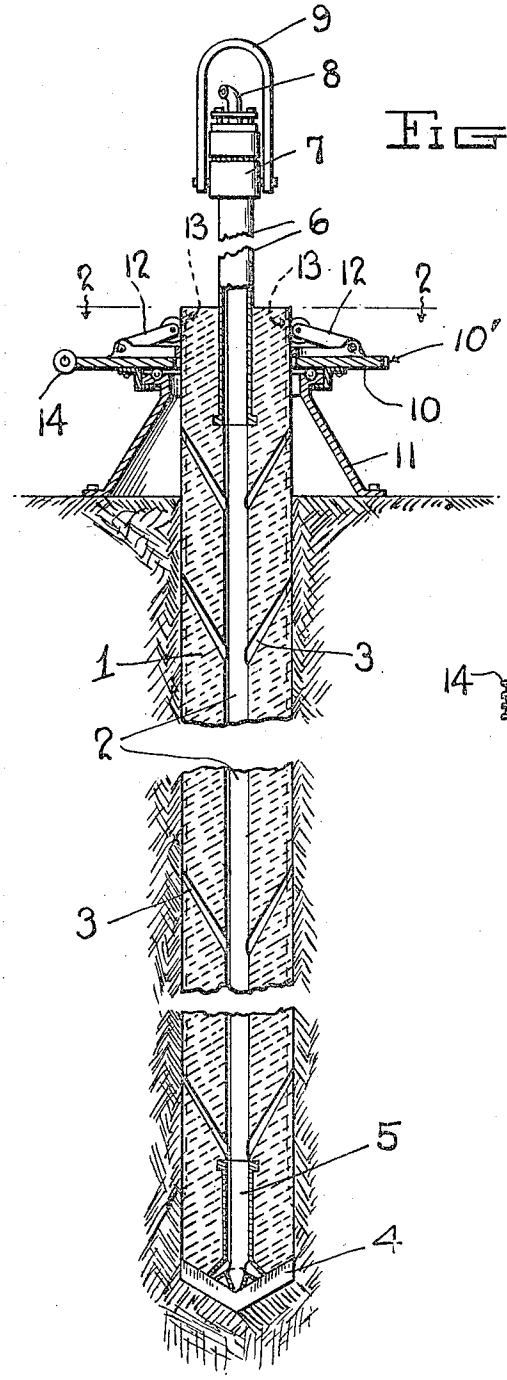
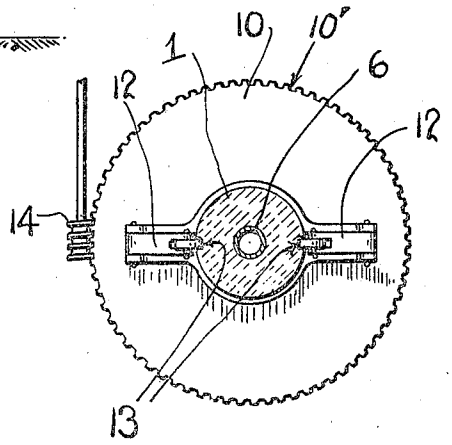


Fig. 1.

Fig. 2.



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PROCESS FOR SINKING REINFORCED-CONCRETE PILES.

1,293,693. Specification of Letters Patent. Patented Feb. 11, 1919.

Application filed July 15, 1918. Serial No. 245,031.

To all whom it may concern:

Be it known that I, JOSEPH BURNS, a citizen of the United States, residing at Pocatello, in the county of Bannock, State of Idaho, have discovered new and useful Improvements in Processes for Sinking Reinforced-Concrete Piles, and of which the following is a specification.

This invention or discovery relates to the process of sinking concrete piles by means of rapid rotation of the pile and the use of hydraulic pressure and has for its object the development of a process much more effective and expeditious and considerably cheaper than those now in use.

In sinking concrete piles the means now ordinarily employed are driving or the use of hydraulic jets whereby water at high pressure is forced through the hollow center of the pile for the purpose of washing away the sand or other formation below the bottom end. In the use of such methods the striking of shale or hard pan presents an insurmountable obstacle to further progress while by the use of my process such difficulties are overcome and concrete piles can be rapidly and inexpensively sunk not only in ordinary formations such as quicksand and where wooden piles cannot now be sunk to the required depth but also in shale and other hard formations where it is now impossible to sink concrete piles.

Instead of depending upon processes now in use I employ the principle of rapid rotary action of the pile, to the bottom of which is affixed a cutter head or bit. Hydraulic pressure is also employed for the purpose of forcing water through the hollow body of the pile and through a nozzle which distributes the water over and around the cutter head or bit. The water is also forced through apertures extending upwardly and placed at intervals in the walls of the pile, the purpose being to lubricate and soften the material through which the pile is being forced and to force upwardly and out of the hole made by the cutter head or bit which extends beyond the body of the pile.

One way of carrying out the invention is shown in the accompanying drawing, in which:—

Figure 1 is a longitudinal sectional view, and,

Fig. 2 is a section on line 2—2 of Fig. 1.

In these views, the pile is shown at 1, and this pile is formed with the central bore 2, which passes longitudinally therethrough. The pile is also formed with the tapering ports 3, which extend upwardly from the bore to the outer sides of the pile. These ports are arranged at intervals throughout the length of the pile. A bit or cutter head 4 is suitably connected with the lower end of the pile, in such a manner that when the pile is rotated said bit will form a hole in advance of the end of the pile. A pipe 5 is inserted in this end of the pile and forms an extension of the bore. The lower end of this pipe is enlarged to direct the water to the different parts of the bit. A second pipe 6 is connected with the upper end of the pile and this pipe has secured thereon the swivel head 7, which receives the hose connection 8 and the shackle 9. The means for rotating the pile consists of a gear wheel 10 rotatably supported on the base 11 and having teeth 10', and carrying the dogs 12, which are adapted to engage the slots 13 formed in the pile. In this way, when the wheel is rotated by the worm shaft 14, driven from any suitable source of power, the dogs will cause the pile to rotate, though said dogs will permit the pile to move longitudinally by gravity or by any suitable driving means.

Having thus described my process what I claim is:

The herein described process of sinking piles consisting in providing the same with a cutting head at its lower end, rotating the pile to cause the head to form a hole in advance of the pile, introducing a stream of water at the cutting head and providing jets of water around the body of the pile at intervals throughout its length.

JOSEPH BURNS.

Witnesses:

ALEXANDER CUMMINGS,

H. P. PINKNEY.