

May 14, 1940.

E. D. WATT

2,200,524

H-BEAM COMPOSITE PILE

Filed July 14, 1937

2 Sheets-Sheet 1

FIG. 1.

FIG. 2.

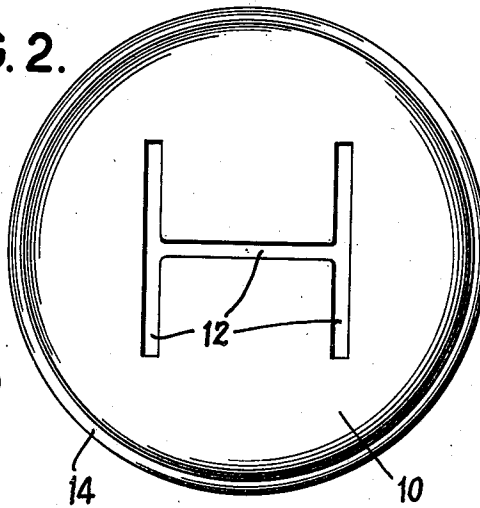
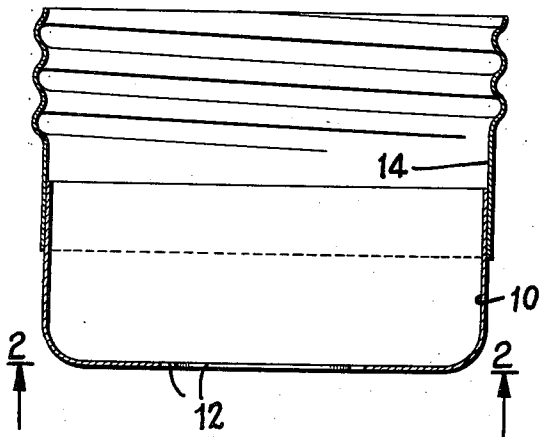
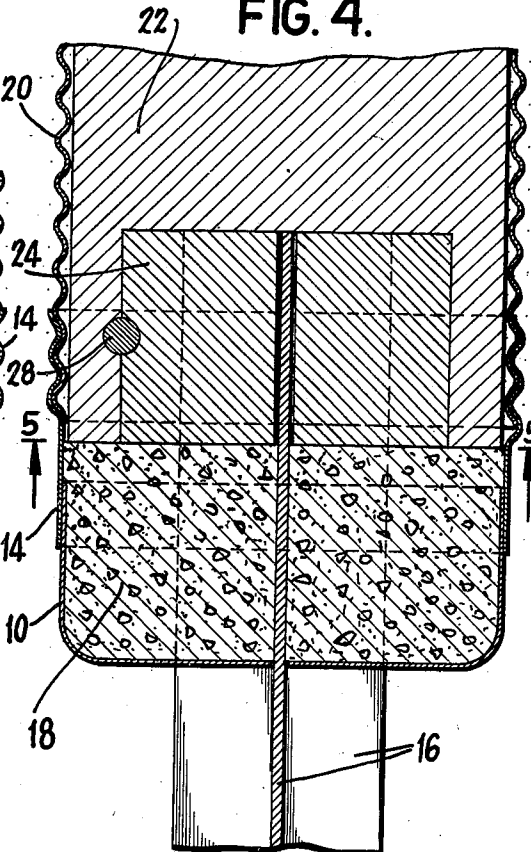
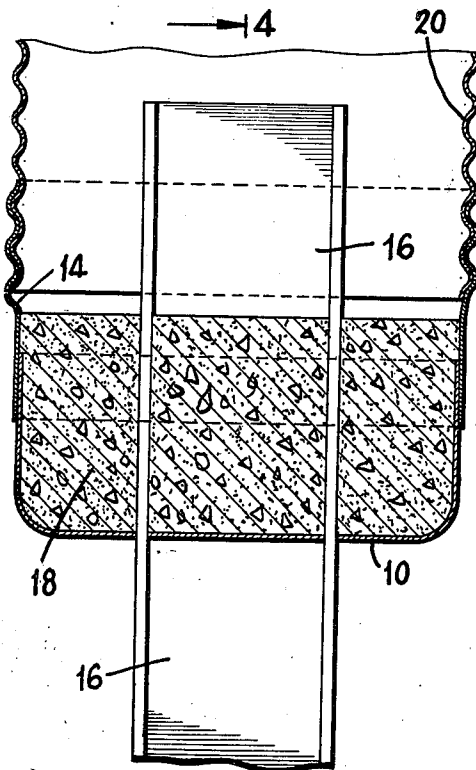


FIG. 3.

FIG. 4.



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FIG. 5.

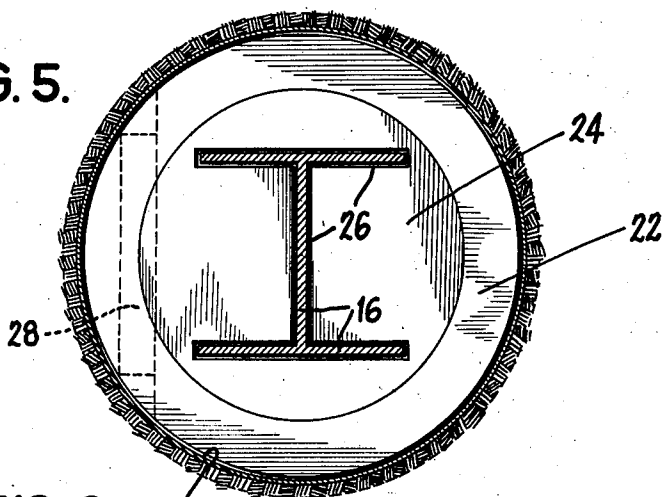


FIG. 6.

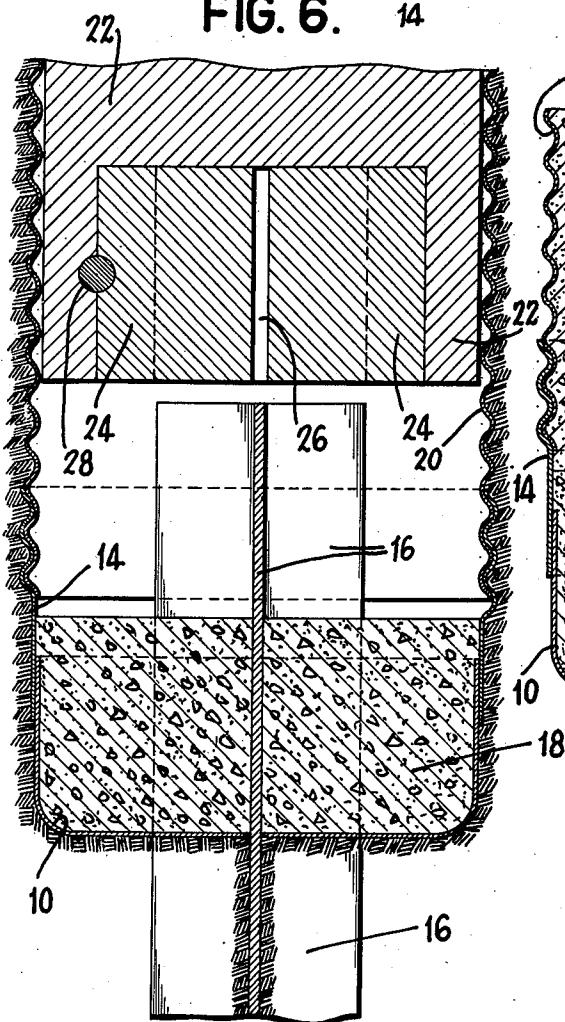
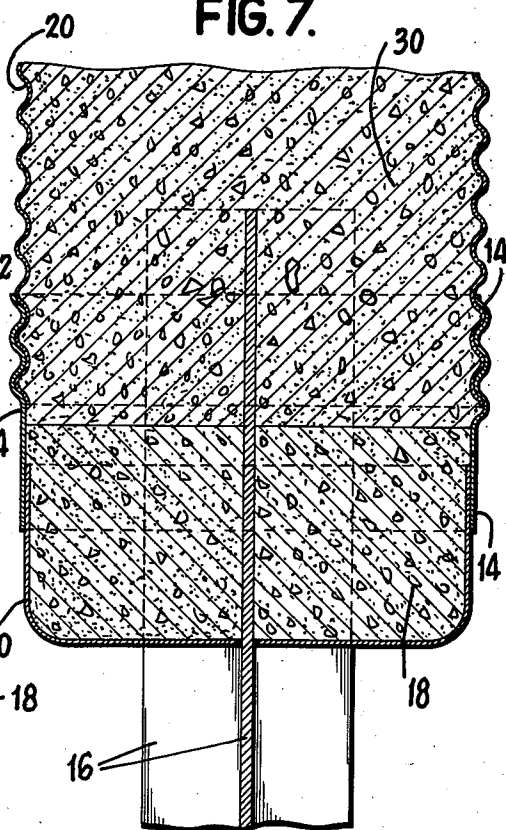


FIG. 7.



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H-BEAM COMPOSITE PILE

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Application July 14, 1937, Serial No. 153,471

3 Claims. (Cl. 61—53)

This invention pertains to the manufacture of composite piles having an H-beam lower section and a concrete upper section, as set forth in the copending application of Maxwell M. Upson, Serial No. 143,911, filed May 21, 1937, now Patent No. 2,168,459, granted August 8, 1939. One of the problems in the driving of such piles is the provision of a seal sufficiently tight to completely prevent entrance of ground water past the H-beam into the shell, and an object of this invention is to disclose such a seal.

Further and other objects and advantages will be apparent from the specification and claims, and from the accompanying drawings which illustrate what is now considered the preferred embodiment of the invention.

Fig. 1 is a cross-section of a drive boot with shell coupler attached.

Fig. 2 is a view on line 2—2 of Fig. 1 showing the bottom surface of the boot slotted to pass over the H-beam.

Fig. 3 shows the boot in driving position around the upper part of the H-beam, the boot being filled with concrete, and the lowest shell section being attached ready to receive the drive core.

Fig. 4 is a view similar to Fig. 3 after the drive core is in position, the view of boot and H-beam being on line 4—4 of Fig. 3.

Fig. 5 is a view on line 5—5 of Fig. 4.

Fig. 6 is a view (similar to Fig. 4), of the drive core being removed after the H-beam and shell have been driven.

Fig. 7 is a view of Fig. 6 after removal of the core and filling of the shell with concrete.

In the practice of the invention, a sheet metal boot 10 is provided (Figs. 1 and 2) slotted on its bottom surface as at 12 in order to slip over the H-beam 16 which is to form the lower section of the composite pile. A screw-threaded corrugated shell coupling member 14 is usually welded to the upper rim of the boot. The boot is slipped over the upper end of the H-beam and is then filled with concrete 18 to a depth which will leave a sufficient portion of the H-beam above concrete 18 to enter a recess in the lower end of the drive core for maintaining beam and core in alignment during driving. Fig. 3 shows this stage of the operation, with the lowest shell section 20 screwed tightly into coupling 14. It will be clear that no water can enter shell 20 around the H-beam and through the boot, especially if the driving occurs while the concrete is plastic and in a compressible condition.

Next, the drive core 22 is lowered through shell

20 (Fig. 4) to driving position. During the driving operation it is desired to have the drive core rest on the top of the H-beam and also on the entire upper surface of concrete 18. To permit this condition an H-shaped recess is provided in the bottom of the core similar in cross-section to H-slot 12 in Fig. 1. Since it would be a very expensive operation to cut such a slotted recess in the core itself, the same result is accomplished by boring a cylindrical recess in the bottom of the core and then inserting in that cylindrical recess a plug, usually a casting, having a cylindrical outer surface and a cored central recess to fit the H-beam. Such an arrangement is shown in Figs. 4 and 5, 22 being the drive core, 15 and 24 being the plug slotted as at 26. The plug may be keyed to the core as by a pin 28.

After driving, core 22 and plug 24 are removed as indicated in Fig. 6 and then the shell is filled with concrete 30, as in Fig. 7, to form the finished structure.

It is to be understood that the invention is not limited to the specific embodiment herein illustrated and described, but may be used in other ways without departure from its spirit as defined by the following claims.

I claim:

1. In the method of forming a composite pile having a lower section comprising a beam and an upper section comprising a shell filled with concrete, the steps of placing the lower end of said shell around the upper end of said beam, placing a seal of concrete between said shell and said beam to prevent entrance of ground water into said shell during the sinking operation, sinking said shell and said beam into the ground simultaneously by force which subjects the seal to a compression action to effectively maintain said seal during the sinking operation, and filling the shell with concrete.

2. In a composite pile, a preformed lower pile section, an upper pile shell attached to said lower section, and a compressible concrete seal between the lower pile section and said shell for preventing entrance of ground water into said shell during the sinking operation.

3. In a composite pile, a preformed lower pile section, a boot around the upper end of said lower section, an upper pile shell attached to said boot and extending upwardly therefrom, and a compressible concrete seal in said boot around said lower pile section for preventing entrance of ground water into said shell.

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