O. D. WALLETT.

PILE CORE.

APPLICATION FILED OCT. 14, 1914.

1,164,435. Patented Dec. 14, 1915.

Fig. 1.

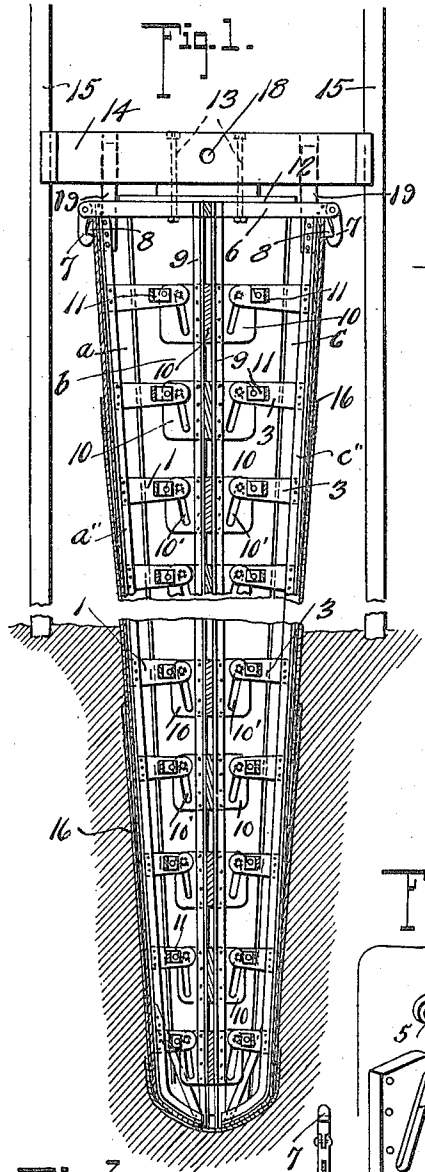


Fig. 2.

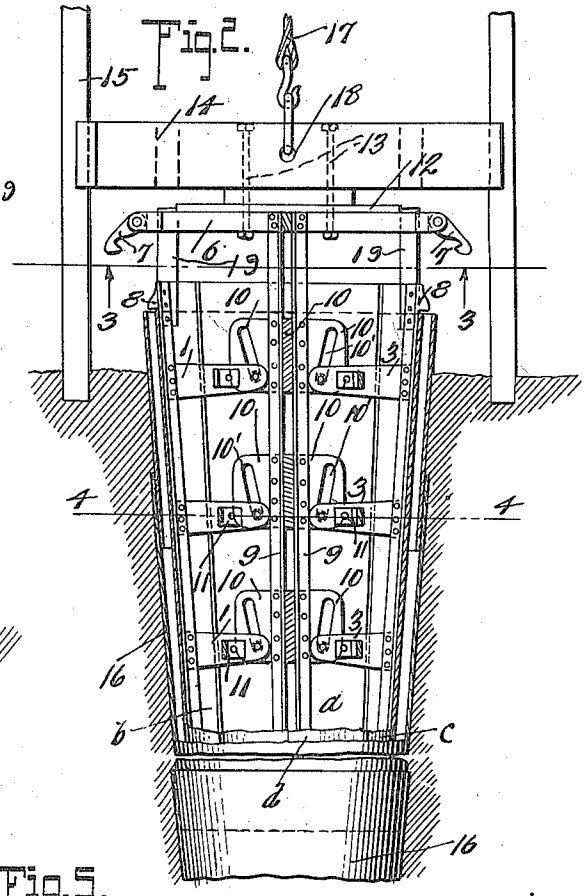


Fig. 5.

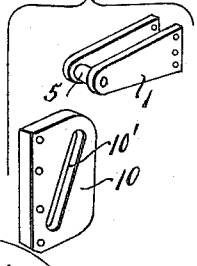


Fig. 4.

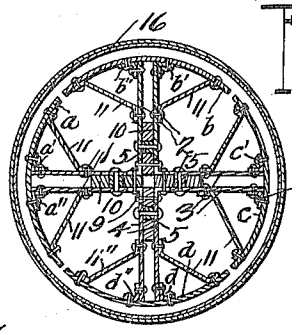
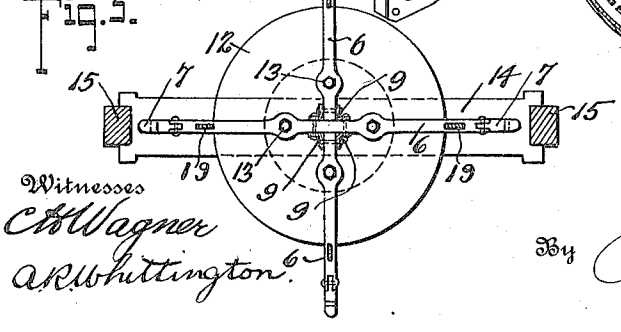


Fig. 3.



Witnesses

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PILE-CORE.

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To all whom it may concern:

Be it known that I, OLIVER D. WALLETT, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Pile-Cores, of which the following is a specification.

The present invention relates to improvements in expansive and contractive concrete pile cores, the object in view being to provide a device of this character of a most efficient type but yet of a simple construction for effectively performing the function of sinking pile shells.

In carrying out the invention, I provide a core embodying a plurality of radially movable sections each connected to common actuating means through the instrumentality of which the sections are given their relative expanding and contracting movements, the core being insertible in a pile shell during the driving action, locking means being employed for interlocking the driving member with the respective core sections to hold the latter in expanded condition during the driving operation.

This and such other objects as may hereinafter appear are attained by the novel construction, combination and arrangement of parts to be hereinafter specifically described and claimed.

Reference will now be had to the accompanying drawings forming a part of this specification, wherein:—

Figure 1 is a longitudinal sectional view through an apparatus constructed in accordance with my invention, showing the position of the parts during the operation of driving. Fig. 2 is an enlarged fragmentary sectional view, parts being broken away and shown in section and in the contracted position assumed during withdrawal from the pile shell. Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 2 looking in the direction of the arrows. Fig. 4 is a horizontal sectional view on the line 4—4 of Fig. 2; and Fig. 5 is a detail perspective view of the interlocking arm and cam elements used in the device for expanding and contracting the core sections.

Referring to the drawing, the apparatus forming the embodiment of my invention comprises a core of cylindrical form in cross section and consisting preferably, though not necessarily, of four radially movable sections *a*, *b*, *c*, *d*. Each of these sections has riveted or otherwise fastened thereto and extending longitudinally and centrally thereof a pair of spaced angle bars *a'*, *a''*; *b'*, *b''*; *c'*, *c''*; *d'*, *d''*; and at intervals throughout the length of these bars of each section are secured thereto sets of spaced arms 1, 2, 3 and 4, respectively. It may be stated at this point that the core may be of tapered conformation or straight, cylindrical shape, but in the former instance the section arms are given the proper reduction in length as they approach the bottom of the core so that their extremities will terminate in a corresponding vertical plane or line. The extremity of each pair of spaced arms carries an anti-friction roller 5.

The actuating means for expanding and contracting the core sections and which constitutes the driving member for the core consists of cross channel arms 6 arranged to extend over the upper extremities of the core sections and each of these arms, there being four as shown most clearly in Fig. 3 of the drawings, terminates in a hook or catch 7 adapted to engage the respective lug 8 provided exteriorly on the upper end of each core section. Depending from the radially extending arms 6 at their intersecting point are four angle irons 9 constituting a vertical support which extends downwardly into the core and throughout its length, the irons being spaced from each other and having secured thereto at points throughout their length corresponding to the location of the arms on the core sections, cross plates or webs 10, each element of the cross plate being formed with a slot 10' inclining downwardly and toward the center of the core. The webs or plates, it will be obvious, constitute cam members and in the slots thereof the corresponding rollers 5 of the section arms operate in a manner to be more clearly described hereinafter.

To provide for the most rigid construction, I employ braces 11 for the section arms, as most clearly shown in Fig. 4 of the drawings. Superposed upon the cross arms 6 is the metallic plate 12 through which, as well as the said arms, the bolts 13 pass securing thereto the follower or driving block 14, the extremities of which operate on the pile driver leads or hammer slides 15. The function of the plate 12 is to equalize the effect of the driving blows imparted to the driving head on all of the

core sections, in a manner well known to those skilled in the art to which this invention refers.

At the upper end of each core section and secured to their angle irons, is located a vertically arranged guide arm or plate 19 which extends upwardly through the respective channel arms 6 thereabove, the function of said arms being to guide the core sections in raising and lowering of the core so as to prevent likelihood of said section becoming displaced laterally with a tendency to break or bend the section arms.

The core, as hereinbefore described, is adapted to be inserted within a thin metallic pile shell 16 and this shell is held firmly in contact with the core sections when the latter are expanded, during the driving operation.

In the operation of this apparatus the core is inserted in the shell 16 and forced against its walls until the catches 7 engage beneath the lugs 8 on the core sections, whereupon the shell may be sunk into the earth through the usual operation of driving against the follower 14 by a pile driver. When the shell has been sunk the proper distance the catches 7 are disengaged from the lugs and a cable 17 is hooked onto the follower 14, the latter being provided with an aperture 18 for this purpose, and lifting action will cause the arms of the core sections to slide downwardly in the slots 10′ of the cam members, which slots being inclined inwardly draw the sections in a radial direction away from the pile shell, as most clearly noted by reference to Fig. 2 of the drawings. Withdrawal of the core enables its complete removal from the shell, whereupon the usual operation of filling said shell may be carried out.

I desire it to be understood that it is within the purview of this invention to form the core hereinbefore described with any desired number of sections though I prefer that it consist of quarters since the various coacting parts will in the last mentioned construction work at right angles.

It will be obvious from the foregoing description that a very substantial arrangement is provided by this construction and a very efficient contracting and expanding of the core sections is permitted by the peculiar pin and slot connections throughout the entire length of the core, as hereinbefore mentioned.

Having thus described the invention, what is claimed is:

1. A pile core adapted to sink a pile shell and insertible therewithin, comprising a plurality of sections each having inwardly extending arms and means to impart radial movement to the sections comprising a driving member having pin and slot connection with the arms aforesaid, and locking means engageable with the core sections during driving action for maintaining the core in expanded condition in the shell during driving operation.

2. A pile core adapted to sink a pile shell and insertible therewithin, comprising a plurality of sections each having inwardly extending arms, and means to expand and contract said sections comprising a driving member having vertical supporting means depending therefrom into the core, cam members secured to said supporting means at points corresponding with the arms of the sections and having slots therein in which the arms engage, and means carried by the driving member normally engaging the core sections to hold them in expanded condition, said means being releasable to permit of contraction of said sections for withdrawal of the core from the shell.

3. A pile core for sinking a pile shell and adapted to be inserted therewithin, comprising a plurality of sections, a driving head for said core comprising radial arms disposed above said sections, a locking member carried by each arm and adapted to engage the respective core sections during driving action whereby to hold said sections in expanded condition, and means carried by said driving head for actuating the core sections to impart radial contracting movement thereto.

4. A pile core for sinking a pile shell and adapted to be inserted therewithin, comprising a plurality of sections, a driving head for said core comprising radial arms disposed above said sections, a locking member carried by each arm and adapted to engage the respective core sections during driving action whereby to hold said sections in expanded condition, and means carried by said driving head for actuating the core sections to impart radial movement thereto, said means comprising cam plates secured to the driving head and having pin and slot connection with the core sections.

5. A pile core for sinking a pile shell and adapted to be inserted therewithin, comprising a plurality of sections, a driving head for said core comprising cross arms disposed above said sections, a vertical support secured to said cross arms and extending into the core, cross plates secured at intervals to said support throughout the length thereof and formed with slots inclining inwardly, locking catches pivotally secured to the extremities of the cross arms of said driving head, lugs formed exteriorly of the core sections and adapted to be engaged by the locking catches to hold the core sections expanded during driving action, said catches being releasable to permit of contraction of said core sections for withdrawal of the core from the pile shell, arms secured to the core sections and extending inwardly into

engagement with the slots of the cross plates, and brace means for said arms.

6. A pile core for sinking a pile shell and adapted to be inserted therewithin, comprising a plurality of sections, a driving head for said core comprising radial arms disposed above said sections, a locking member carried by each arm and adapted to engage the respective core sections during driving action whereby to hold said sections in expanded condition, means carried by said driving head for actuating the core sections to impart radial contracting movement thereto, and guide arms carried by the core sections and coöperating with the driving head to prevent displacement of the core sections during operation of the core.

In testimony whereof I affix my signature in presence of two witnesses.

OLIVER D. WALLETT.

Witnesses:
HERBERT B. ELLISON,
JAMES F. GILSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."