No. 756,805. PATENTED APR. 5, 1904.

F. SHUMAN.

REMOVABLE PILE FOR FORMING CONCRETE PILING.

APPLICATION FILED FEB. 3, 1904.

NO MODEL.

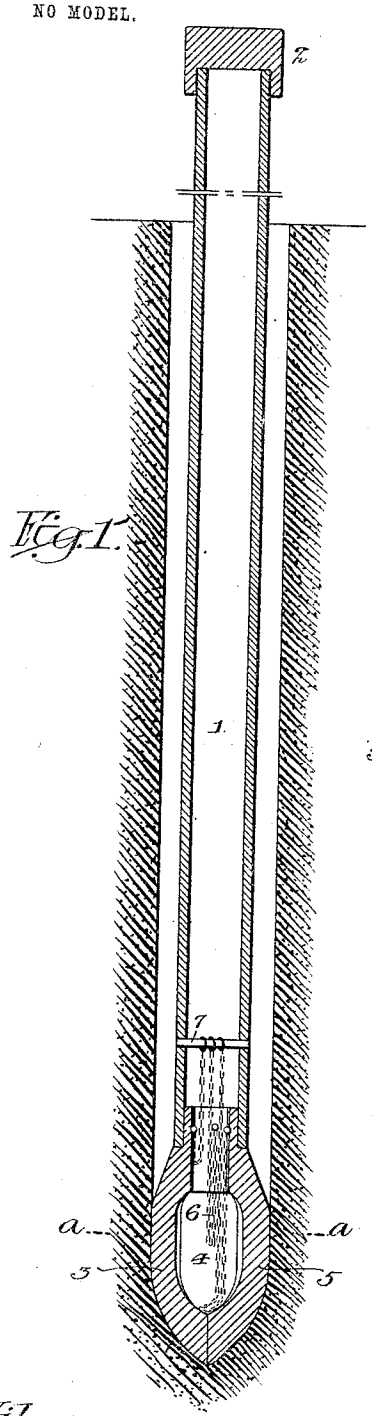


Fig. 1.

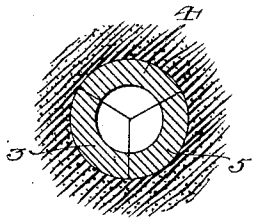


Fig. 3.

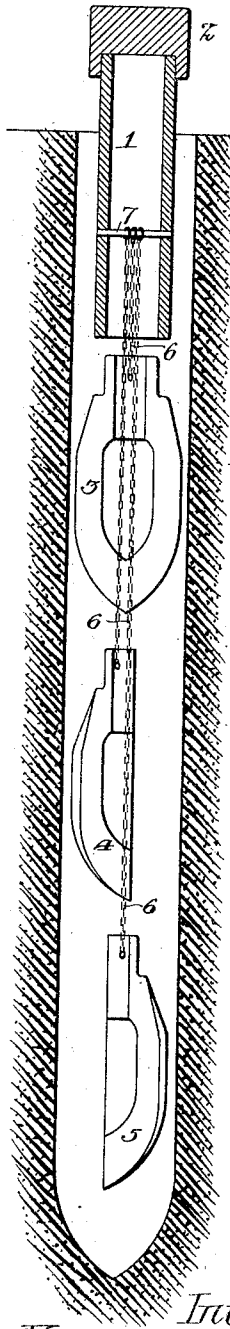


Fig. 2.

Witnesses;
Louis H. Buck.
Titus H. Irons.

Inventor:
Frank Shuman,
by his Attorneys
Howson & Howson

No. 756,805. Patented April 5, 1904.

UNITED STATES PATENT OFFICE.

FRANK SHUMAN, OF PHILADELPHIA, PENNSYLVANIA.

REMOVABLE PILE FOR FORMING CONCRETE PILING.

SPECIFICATION forming part of Letters Patent No. 756,805, dated April 5, 1904.

Original application filed January 13, 1903, Serial No. 138,921. Divided and this application filed February 3, 1904. Serial No. 191,838. (No model.)

To all whom it may concern:

Be it known that I, FRANK SHUMAN, a citizen of the United States, residing at Philadelphia, Pennsylvania, have invented certain Improvements in Removable Piles for Forming Concrete Piling, (the same being a division of my application, Serial No. 138,921, filed January 13, 1903,) of which the following is a specification.

My invention relates to that method of forming piles of concrete or cement which consists in first driving a preparatory pile into the ground, then withdrawing said preparatory pile and filling the opening formed thereby either during or after such withdrawal with plastic concrete or cement, which when it becomes set will form the permanent pile.

The object of my present invention is to provide a preparatory pile of this character with a point which can be removed independently of the pile and can be collapsed or decreased in diameter, so as to be removable without forcible contact of its sections with the walls of the opening formed by the pile.

My invention is especially applicable to piles having enlarged points, such as shown in my Letters Patent No. 733,286, dated July 7, 1903, although not specifically limited to such enlarged points.

In the accompanying drawings, Figure 1 is a vertical sectional view illustrating my improved pile as the same appears while it is being driven. Fig. 2 is a similar view showing withdrawal of the pile; and Fig. 3 is a transverse section on the line *a a*, Fig. 1.

The pile shown and described in my former patent consisted of a metal tube 1 or a solid pile of wood or metal provided at the top with a suitable driving-head 2 and at the bottom with a point which was of so much greater diameter than the pile 1 that the latter would not come into contact to any material extent with the walls of the opening formed by driving the pile, the point being of greater diameter than the pile itself, so that the frictional hold of the earth in driving the pile is restricted to the limited area presented by the expanded point, with the result that the pile could be driven to any desired depth without unduly increasing the frictional hold of the earth upon the pile and could also be withdrawn with the exercise of a relatively limited amount of power.

My present invention consists in providing the pile with a point composed of sections movable one in respect to another, whereby said point can be collapsed, and therefore withdrawn from the opening without bearing forcibly upon the walls of said opening, or can even be withdrawn through the hollow pile itself before the withdrawal of the latter, if desired. As shown in the drawings, the point consists of three sections 3, 4, and 5, each of these sections being in the present instance in the form of a segment of a circle, as the point is of circular cross-section, although, of course, the shape of each segment will vary as the section of the point varies. Each of the sections of the point is connected by a chain 6 to a cross-bar 7 in the hollow pile 1, the chains being of different lengths, so that as the pile is withdrawn from the opening, as shown in Fig. 2, the sections will be successively detached one from another and lifted one by one with the pile from the opening. By increasing the number of sections in the point each of the latter may be so small as to be capable of withdrawal through the hollow pile 1 after the latter has first been withdrawn sufficiently to permit of the separation of the sections one from another, the chains 6 in this case extending to the upper end of the pile, so as to be within easy reach. My invention is, as will be evident, applicable to pile-points which are not of greater diameter than the pile itself, although especially intended for use in connection with points of the latter character.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A removable pile having a detachable point with sections movable one in respect to another, whereby said point can be collapsed or contracted.

2. A removable pile having a detachable point with sections movable vertically one in respect to another or others, whereby the point can be collapsed or contracted.

3. A removable pile having a detachable

point with independent sections, and connections leading to the interior of the pile, whereby these sections can be moved, one in respect to another, to collapse or contract the point.

4. A removable pile having a detachable point composed of independent and separable sections, and connections between each of these sections and the pile, said connections being of different lengths, whereby, as the pile is withdrawn, it will withdraw the sections of the point in succession.

5. A removable pile having an enlarged and detachable point with sections movable one in respect to another, whereby said point can be collapsed or contracted.

6. A removable pile having an enlarged and detachable point with sections, movable vertically one in respect to another, or others, whereby the point can be collapsed or contracted.

7. A removable pile having an enlarged and detachable point with independent sections, and connections leading to the interior of the pile, whereby these actions can be moved, one in respect to another, to collapse or contract the point.

8. A removable pile having an enlarged and detachable point composed of independent and separable sections, and connections between each of these sections and the pile, said connections being of different lengths, whereby, as the pile is withdrawn, it will withdraw the sections of the point in succession.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK SHUMAN.

Witnesses:
JAMES MCMORRIS,
JOS. H. KLEIN.