No. 869,336. PATENTED OCT. 29, 1907.

J. STEWART.

CONCRETE PILE AND MEANS FOR DRIVING SAME.

APPLICATION FILED FEB. 15, 1907.

Fig. 1.

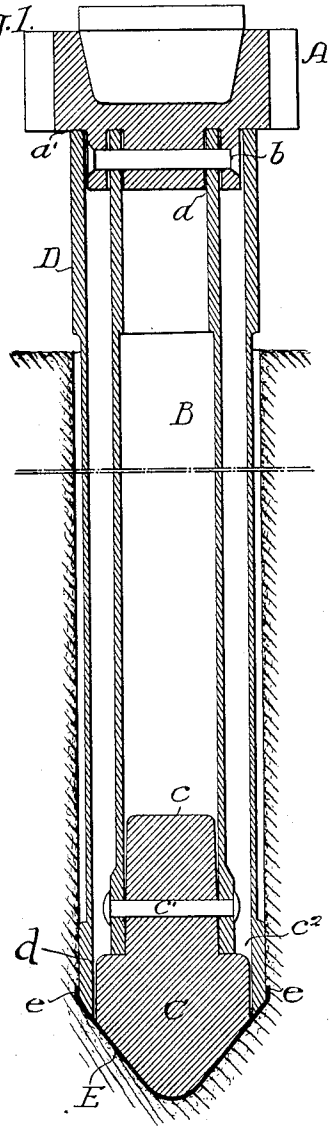


Fig. 2.

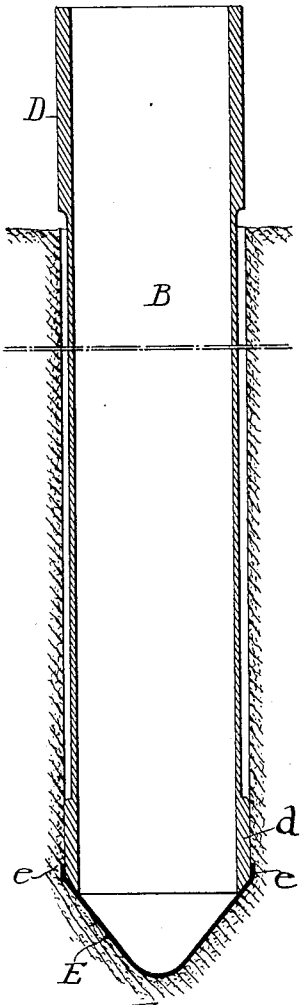


Fig. 8.

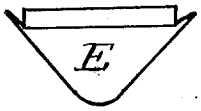


Fig. 3.

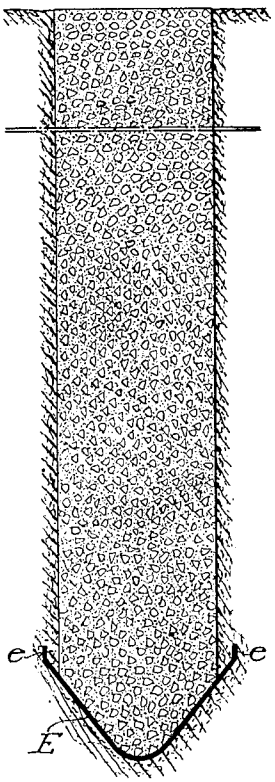


Fig. 4.

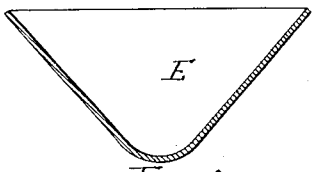


Fig. 6.

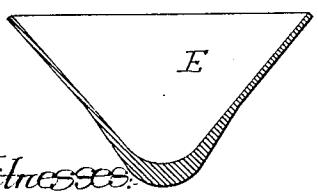


Fig. 5.

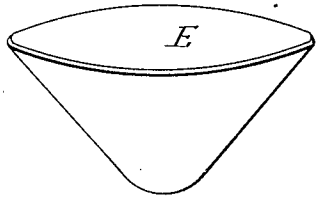
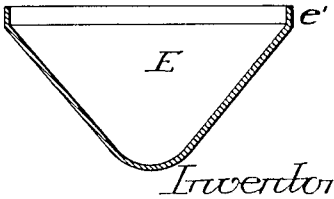


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN STEWART, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE SIMPLEX CONCRETE PILING COMPANY, OF WASHINGTON, DISTRICT OF COLUMBIA, A CORPORATION OF THE DISTRICT OF COLUMBIA.

CONCRETE PILE AND MEANS FOR DRIVING SAME.

No. 869,336. Specification of Letters Patent. Patented Oct. 29, 1907.

Application filed February 15, 1907. Serial No. 357,471.

To all whom it may concern:

Be it known that I, JOHN STEWART, a citizen of the United States, residing at Pittsburg, Pennsylvania, have invented certain Improvements in Concrete Piles and Means for Driving the Same, of which the following is a specification.

The object of my invention is to provide a thin metallic cap for the removable hollow pile, so as to dispense with the usual heavy detachable point heretofore used, and to provide means whereby water and earth are prevented from entering the cavity formed by the pile prior to the concrete being placed in the opening. This object I attain by providing a plate, which is driven with the pile and remains within the opening after the preparatory pile is removed forming a cap for the permanent concrete pile. This object I attain in the following manner, reference being had to the accompanying drawings, in which:—

Figure 1, is a sectional view, showing the driving form and the preparatory pile driven in the ground; Fig. 2, is a view showing the preparatory pile within the ground, and the driving form withdrawn; Fig. 3, is a sectional view, showing the concrete pile in place; the preparatory pile being withdrawn; Fig. 4, is an enlarged sectional view of the cap; Fig. 5, is a perspective view of the cap, and Figs. 6, 7 and 8, are views showing modifications of the invention.

A is the driving head to which is attached the tubular driving form B. This tubular form has at its lower end a pointed head C. The driving head A has an annular groove *a* in which rests the upper end of the driving form B, which is secured to the head by a transverse pin *b*. The form B is connected to the point C by a pin *c'*, which extends through the shank *c* of the head, as clearly shown in Fig. 1; the form B resting upon a shoulder c^2. D is the outer preparatory pile inclosing a portion of the driving head A and the driving form. A shoulder *a'* on the driving head rests against the end of the pile D. The lower end *d* of the preparatory pile is heavier than the body of the pile and is tapered, as indicated.

E is a pressed steel cap in the shape of an inverted cone and preferably blunt at the end.

It will be noticed in Fig. 4, that the cap is greater in diameter than the outer preparatory pile D, so that when the pile is driven, as in Fig. 1, the edge *e* of the cap is forced in against the outer walls of the preparatory pile and makes a tight joint at this point, so that when the inner driving form and its point are withdrawn, water or dirt cannot gain access to the interior of the hollow preparatory pile. When the concrete is placed in the opening and the hollow preparatory pile withdrawn, the sheet steel cap forms the base of the concrete pile.

While I prefer to make the cap as shown in Fig. 4, it may be made, as shown in Fig. 6, heavier at the center than at the edges, or it may be made as shown in Fig. 7, with a flange *e'* turned up to fit the outer surface of the preparatory pile; the object of the invention being to provide a cap which can be driven into the ground by a pointed head and which will remain in the ground after the head is removed and which will prevent the inrush of water or soft soil into the opening for the concrete pile and will finally form the point or base of the pile. This cap can be made very cheaply; being preferably made of sheet iron or steel. In some instances the cap can be made of comparatively thin metal and flat, being of greater diameter than the preparatory pile, so that when the pile is forced into the ground the sheet metal plate will conform to the shape of the pointed head and will bend over the edge of the preparatory pile. In some instances the flange of the cap may extend in between the preparatory pile and the driving point, as shown in Fig. 8, although this form is not so desirable as the one illustrated in the drawings, as a neat fit should be made between the said cap and the preparatory pile.

The method of driving the pile is as follows: The preparatory pile is mounted on the head and the point of the driving form, and the cap is placed in position on the end of the point, then the entire structure is driven into the ground, making an opening of any desired depth with the cap at the bottom of the opening; the periphery of the cap being turned over the edge of the preparatory pile as it is driven into the ground. The driving form with its point is then withdrawn, leaving the preparatory pile and the cap in the ground. Concrete is then poured into the hollow preparatory pile and the pile is filled throughout its entire length with concrete, then the preparatory pile is withdrawn, or a small quantity of concrete is poured into the pile and the pile raised to the upper surface of the concrete, then more concrete is placed in, and so on, until the entire opening is filled with concrete. The concrete is then flush with the surface of the ground. Thus, there is no chance for moisture or loose or soft dirt entering the opening in the preparatory pile prior to the insertion of the concrete, producing a pile with a perfect base.

I claim:—

1. The combination of a preparatory pile, a driving form, a cap plate extending under the end of the driving

form and the preparatory pile, said cap plate being detachable and remaining in the ground after the other parts have been withdrawn, substantially as described.

2. The combination of a driving head having a point shaped to conform to the end of the opening to be formed, a preparatory pile and a cap plate mounted at the end of the driving form and preparatory pile and detachable therefrom, so that when the pile and the driving head are driven into the ground the cap plate will be driven into the ground and will remain after the driving head and preparatory pile are withdrawn, substantially as described.

3. The combination of a driving form having a tapered point, a preparatory pile surrounding the driving form, with a conical sheet metal cap plate at the end of the driving form and preparatory pile, said cap plate being detachable from both the pile and the form, substantially as described.

4. The combination of a driving form having a tapered point, a preparatory pile surrounding the driving form and having its edge shaped to conform to the taper of the driving point, and a detachable cap plate conforming both to the taper of the point and the preparatory pile, substantially as described.

5. The combination of a driving form having a tapered point, a preparatory pile surrounding the driving form and its point and having an end tapered to conform to the taper of the point, a cap plate greater in diameter than the preparatory pile so that when it is driven into the ground an overlapping flange will be formed making a tight joint between the preparatory pile and the cap plate, substantially as described.

6. The combination of a driving form, a preparatory pile surrounding the driving form, said driving form having a tapered point, a sheet metal cap plate conical in form and conforming to the shape of the point, said cap plate being greater in diameter than the preparatory pile so that when it is driven into the ground its outer edge will be flanged and bear tightly against the outer walls of the preparatory pile forming a tight joint between the cap plate and the preparatory pile, substantially as described.

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

JOHN STEWART.

Witnesses:
GEO. H. BEALL,
JNO. W. BEALL.