

**May 19, 1931.**

H. V. CAMPBELL

**1,805,975**

## FILE STRUCTURE

Original Filed Oct. 20, 1926

Fig.1.

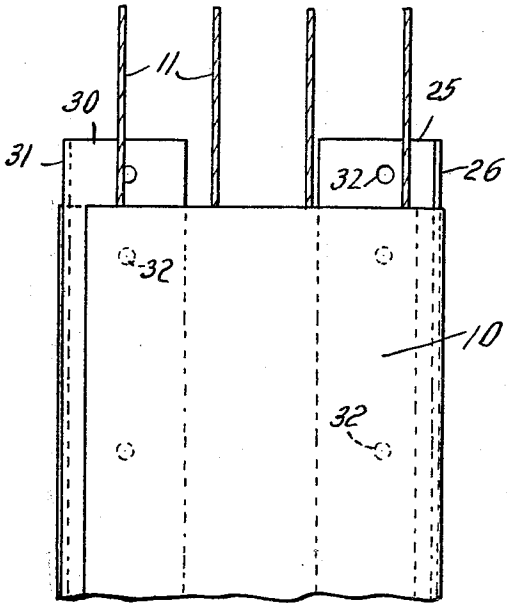


Fig. 2

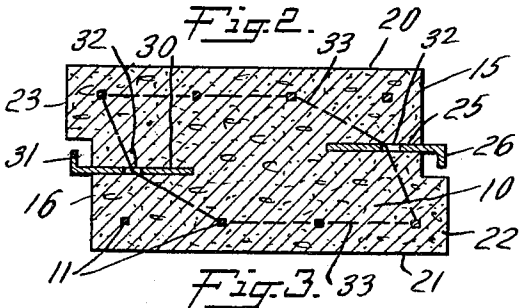


Fig.3.

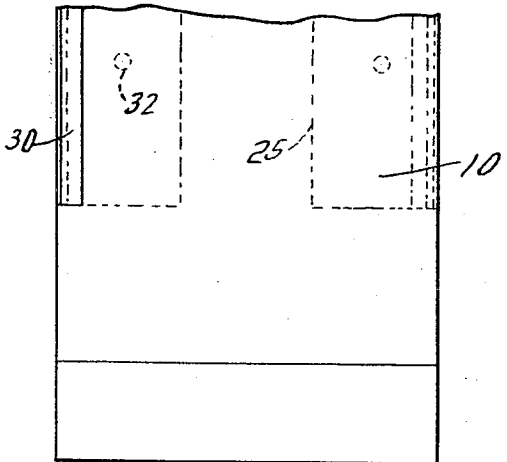
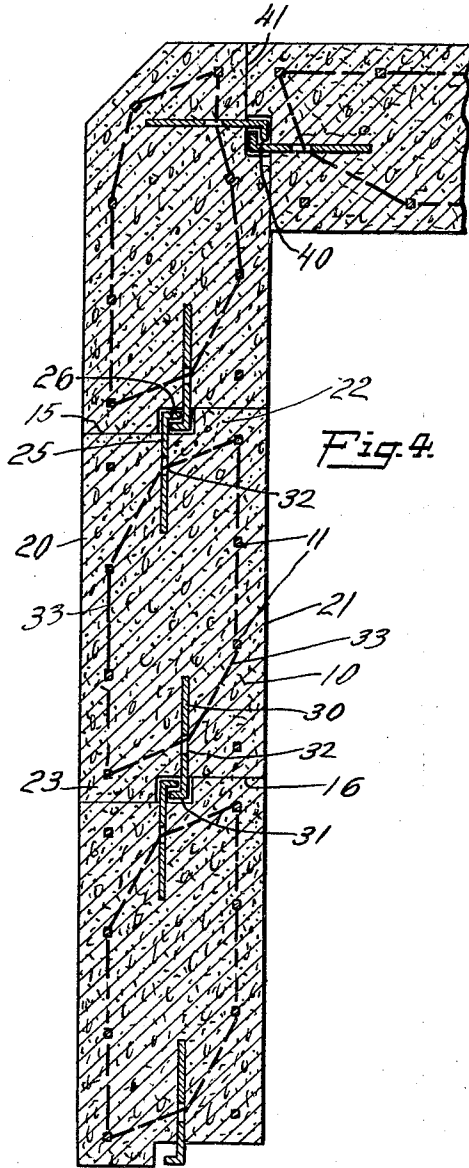


Fig. 4.



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## PILE STRUCTURE

Original application filed October 20, 1926, Serial No. 142,855. Divided and this application filed August 8, 1928. Serial No. 298,142.

This invention relates to pile structures and particularly to reinforcing concrete piles for use in building foundations, sea-walls, jetties, cribs and similar structures.

5 Various forms of reinforced interlocking piles have been designed but such piles are commonly constructed in such a manner that they cannot be interchanged or reversed since the two sides of the piles differ in construction. For instance, one side may have a 10 groove or socket extending longitudinally thereof and the other side may have a longitudinally extending tongue or projection adapted to fit into the socket or groove of the 15 adjacent pile.

This invention has for its salient object to provide a reinforced concrete pile so constructed that it is reversible and either side of any pile can be interlocked with either 20 side of any other pile.

Another object of the invention is to provide a pile structure that is cheap in construction and can be economically manufactured.

Further objects of the invention will appear from the following specification taken in connection with the drawings, which form 25 a part of this application, and in which

Fig. 1 is an elevational view of one end of the pile constructed in accordance with the 30 invention;

Fig. 2 is a transverse sectional elevation of the pile shown in Fig. 1;

Fig. 3 is an elevational view similar to Fig. 1 but showing the other end of the pile; and

35 Fig. 4 is a sectional elevation of a sea-wall formed from a plurality of piles constructed in accordance with the invention.

The invention briefly described consists of a pile formed of reinforced concrete and 40 having the two side edges thereof provided with longitudinally recessed or cut away portions. Each pile has imbedded thereon a longitudinally extending angle bar having a portion extending beyond the side edge of 45 the pile and extending into the recessed or cut away portion. The pile is so formed that the recess at one edge extends to one face of the pile and the recess at the other end extends to the other face of the pile. The 50 two side edges of the piles are therefore sim-

ilar in construction but are reversed. This provides a structure in which the outwardly projecting portions of the angle bars overlap when the piles are positioned adjacent each other and interlocked. Cement or grout 55 can be poured into the interlocking joints and will fill in the space around the interlocking ends of the angle bars.

This application is a division of application Serial No. 142,855, filed October 20, 1926, 60 and in the particular form of the invention illustrated the piles are formed of material commonly used, such as cement, sand, broken stone or gravel, and each pile 10 has imbedded therein and extending longitudinally 65 thereof reinforcing members such as rods or bars 11.

Each pile is recessed or cut away, as shown at 15 and 16, on the opposite longitudinal edges thereof, the recess 15 extending from 70 one face 20 and the recess 16 extending from the other face 21. Thus it will be seen that the recesses 15 and 16 at the two edges of the pile are reversed, one extending from one face and the other from the other face. The 75 recesses or cut away portions provide longitudinally extending portions 22 and 23.

An angle bar is imbedded in each side of the pile, one bar 25 extending outwardly into the recess 15 and having an angle or 80 flange 26 disposed in the recess 15 and spaced from the edge of the pile. The other bar 30 extends outwardly into the recess 16 and has an angularly disposed flange 31 disposed in the recess 16 and spaced from the edge of 85 the pile.

The bars 25 and 30 are provided with openings 32 through which are passed wires or stirrups 33.

When the piles are used for forming a wall 90 or jetty, they are interlocked as shown in Fig. 4, the flange 26 of one of the angle bars 25 overlapping the flange 31 of the angle bar 30 in the adjacent pile. The interlocked joints are then filled with grout or like material which is poured into the ends of the 95 joints.

Fig. 4 illustrates at 40 an interlocking joint formed between two angularly disposed piles. This joint is similar to those already 100

described and differs from the structure shown in Fig. 2 only in the formation of the recess into which the outer edges of the angle bars extend. The recess 41 shown at the top of Fig. 4 is formed in one of the side faces of the pile rather than in the edge thereof.

It will be obvious from the above description that a very simple, cheap and inexpensive form of interlocking pile has been designed and that either side of any pile can be interlocked with either side of any other pile, the piles being reversible and interchangeable.

Although one specific embodiment of the invention has been particularly shown and described, it will be understood that the invention is capable of modification and that changes in the construction and in the arrangement of the various cooperating parts may be made without departing from the spirit or scope of the invention, as expressed in the following claims.

What I claim is:

1. A pile having oppositely extending, exactly similar, angular recesses at the two side edges thereof, and oppositely extending longitudinal angle bars embedded in the pile structure, the outer edges of the bars being disposed in said recesses.

2. A concrete pile having oppositely extending, exactly similar, angular recesses at the two side edges thereof, and oppositely extending longitudinal angle bars formed of metal and embedded in the pile structure, the outer edges of the bars being disposed in said recesses.

3. A pile formed of reinforced concrete and having longitudinally extending, exactly similar, recessed portions at the sides thereof, one portion extending to one face of the pile and the other portion extending to the other face, and longitudinally extending bars embedded in the pile, one bar extending into each recessed portion and having an angularly disposed flange disposed in said portion.

4. A pile formed of reinforced concrete and having longitudinally extending, exactly similar, recessed portions at the sides thereof, one portion extending to one face of the pile and the other portion extending to the other face, and longitudinally extending bars embedded in the pile, one bar extending into each recessed portion and having an angularly disposed flange disposed in said portion and spaced from the side face of the recessed portion.

5. A pile formed of reinforced concrete and having longitudinally extending, exactly similar, recessed portions at the sides thereof, one portion extending to one face of the pile and the other portion extending to the other face, and longitudinally extending bars embedded in the pile, one bar extending into each recessed portion and having an angular-

ly disposed flange disposed in said portion and spaced from the side face of the recessed portion, the flanges extending in opposite directions.

6. A pile having oppositely extending, exactly similar, longitudinally extending recesses at its sides and an angle bar embedded in the pile and extending into each recess, each bar having a flange at its outer edge disposed in the recess.

7. A pile having oppositely extending, longitudinally extending, exactly similar, recesses at its sides and an angle bar embedded in the pile and extending into each recess, each bar having a flange at its outer edge disposed in the recess, the flanges being spaced from and substantially parallel to the inner walls of the recesses.

In witness whereof, I have hereunto set my hand this 27th day of June, 1928.

HARRY V. CAMPBELL.