

(No Model.)

R. M. FRANKLIN.

PILE FOR USE IN THE CONSTRUCTION OF WHARVES AND OTHER  
STRUCTURES.

No. 260,015.

Patented June 27, 1882.

Fig 1.

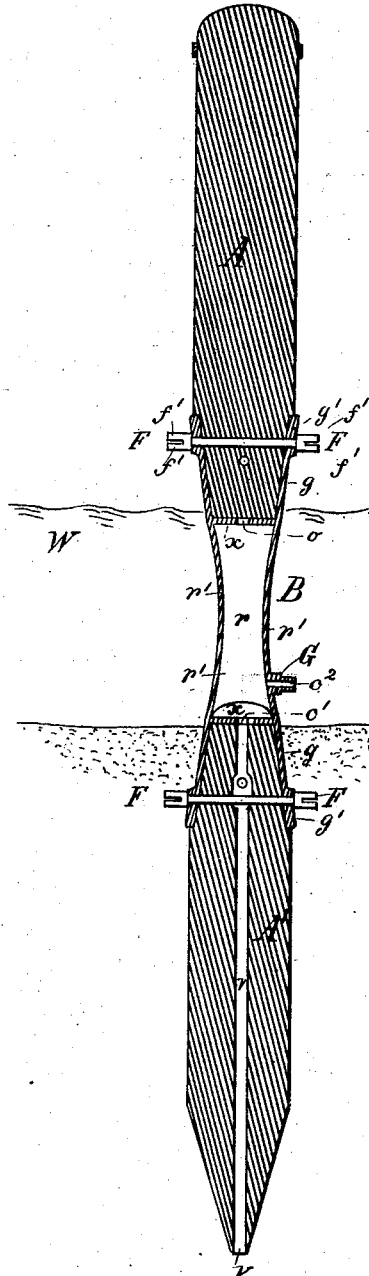


Fig 2.

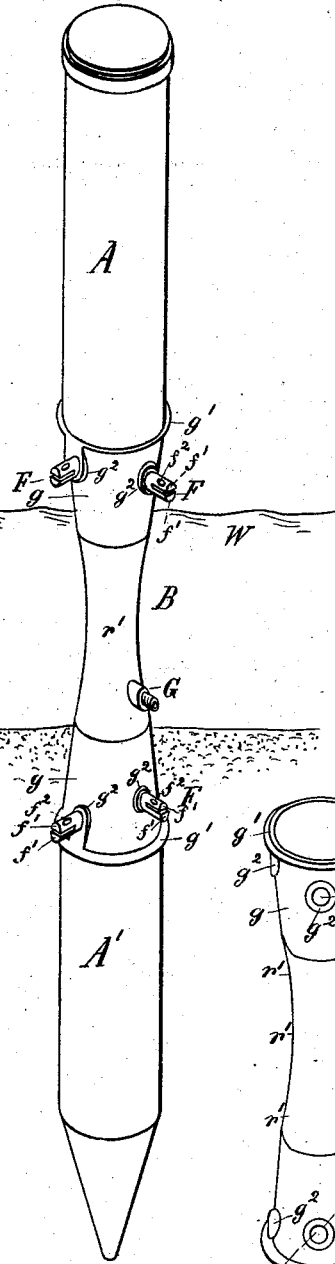


Fig 4.

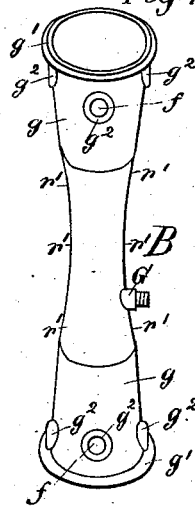
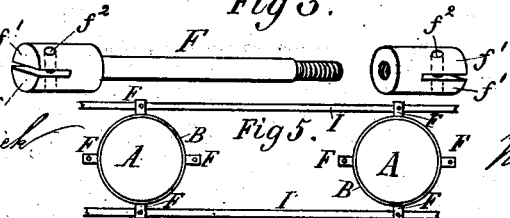


Fig 3.



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# UNITED STATES PATENT OFFICE.

ROBERT M. FRANKLIN, OF GALVESTON, TEXAS.

PILE FOR USE IN THE CONSTRUCTION OF WHARVES AND OTHER STRUCTURES.

SPECIFICATION forming part of Letters Patent No. 260,015, dated June 27, 1882.

Application filed October 31, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT M. FRANKLIN, a citizen of the United States, residing at Galveston, in the county of Galveston and State of Texas, have invented a new and Improved Pile for Use in the Construction of Wharves and other Structures over Water; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and letters of reference marked thereon, forming a part of this my specification of said invention.

Figure 1 is a central longitudinal section of my improved pile, and Fig. 2 a perspective view thereof. Fig. 3 is a perspective view of the bolts employed to secure the upper and lower sections of the pile to its central section, and which at the same time serve as supports for brace-bars between the piles used for a given structure. Fig. 4 is a detached perspective view of the middle or metal section of the pile. Fig. 5 is a plan view, showing a tie-rod, I, or bar of iron inserted and held in place in the heads of bolts F of adjacent piles.

My invention relates to that class of piles which have a portion of their length most exposed to decay and destruction from worms constructed of metal, and that portion of their lengths above the water and beneath the water-bed constructed of wood.

In the drawings, Figs. 1 and 2 show my improved pile with its upper wooden section, A, exposed above the water W, its middle or metal section, B, in the water, and its lower wooden section, A', in the soil s, beneath the water, said middle or metal section being made of a length greater than the depth of the water in which the pile is to be used, and with its upper end somewhat projecting above the ordinary water-line when placed in position, and with its lower end extending into the earth a sufficient depth to be below any washout liable to occur around the pile.

The middle or metal section, B, is made of cast-iron or other suitable metal, and for strength and convenience is cast in a single piece, as indicated in the figures, and with ferrules g at each end, having bottoms x, thus leaving a chamber, r, between said bottoms. The body portion r' of the section B is of concave form, and of much less diameter than the ferrule g at each end, so as to offer less resist-

ance to currents of water, as well as to save metal. In making the section B the holes o o' are formed by the withdrawal of the iron rod used to support the core in casting, and after the withdrawal of said rod the hole o may, if desired, be plugged. It is, however, in fact closed by the end of the section A resting in close contact with the bottom x of the ferrule, as shown.

The wooden sections A and A' are adjusted into the ferrules g at either end of the metal section, after having been carefully turned off, so as to fit exactly the interior of the ferrules, and rest solidly against their bottoms x, and so produce a solid pile for driving, and thus prevent strain on the sides of the ferrules, as well as on the bolts F, during the act of driving.

The metal section is bolted to the wooden sections through holes f in the ferrules by bolts F. (Shown in detached view in Fig. 3.) These bolts are provided with heads having double lugs f', perforated, as at f<sup>2</sup>, for the reception of bolts to hold in place between the lugs tie rods or bars of iron, passed from the bolts F of one pile to like bolts on other piles, thus bracing and firmly securing in position the whole number of piles used in a given work. For ordinary work one bolt through each ferrule will suffice, but for work requiring great solidity two bolts at right angles, as shown in the figures, will be used, thus enabling the pile-work to be braced with tie-rods longitudinally and transversely throughout.

The lower section, A', is made with a hole, v, from one to two inches in diameter, lengthwise of its axis, as shown, and in line with the hole o', leading into the chamber r of section B, and thus communicates with the opening o<sup>2</sup> through a screw-coupling, G, upon the section B, and thus the means are provided for the passage of water into the chamber r, and down through the pile to its pointed end, to facilitate the sinking of the same, a force-pump, during such act, being used with a flexible hose connected with the screw-coupling G. The chamber r, becoming filled with water under the action of the pump, serves as a pressure-reservoir to give additional effect and constancy of action to the jet of water forced through the channel v during the act of sinking the pile.

Under this construction all the advantages of a jet of water through the center of a pile are secured, while the strength of the pile is not impaired by the boring out of its upper part, since only the section below the water, where the strain is least, is hollowed out.

The ferrules *g*, at their outer ends, are re-enforced by a rim, *g'*, and the holes in the ferrules for the reception of the bolts *F* are also re-enforced by extra thickness of metal, as at *g*<sup>2</sup>, thus imparting great strength to the ferrules.

The pile thus produced, while it possesses all the advantages of strength and almost of durability, at less than half the cost, of the pile constructed entirely of iron, also possesses the advantage over the perforated wooden pile in that its upper portion is not impaired by boring out, while the advantage of a jet of water in sinking the pile is at the same time secured.

I do not claim a central metal section having at its top a plane or horizontal seat for a beam to rest upon, and with upwardly-projecting portions on two sides of the seat, and with a socket at its bottom to receive a pile, and with re-enforced bolt-holes, as in Patent No. 171,102.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. A pile consisting of an upper wooden section, *A*, a lower wooden section, *A'*, and a central metal section, *B*, having socket-ferrules *g* at each end, substantially as and for the purpose specified.

2. The lower wooden section, *A*, provided with a channel, *v*, in combination with the metal section *B*, having a chamber, *r*, provided with a communicating coupling, *G*, substantially as and for the purpose described.

3. The bolts *F*, provided with double lugs *f'* or their equivalent, in combination with the ferrules *g* of sections *B*, and the wooden section held therein by said bolts, substantially as and for the purpose described.

4. The middle section, *B*, cast in a single piece, with a ferrule, *g*, at each end, and with bolt-holes *f* re-enforced, and with a chamber, *r*, in combination with the wooden sections *A*, *A'*, substantially as and for the purpose described.

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Witnesses:

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