J. N. BOGERT & H. C. HOLMES.

GRAPNEL FOR SUBMERGED PILES.

No. 189,688. Patented April 17, 1877.

Fig. I.

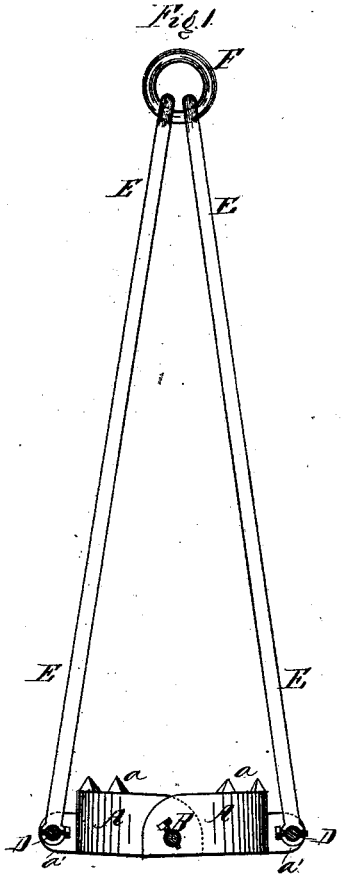


Fig. III

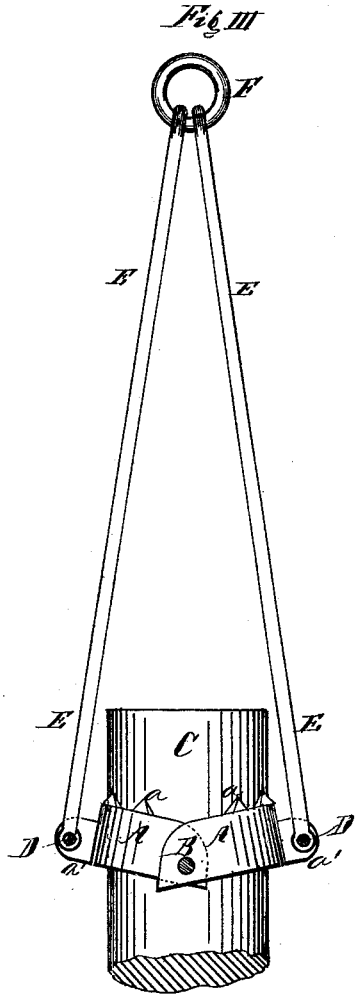
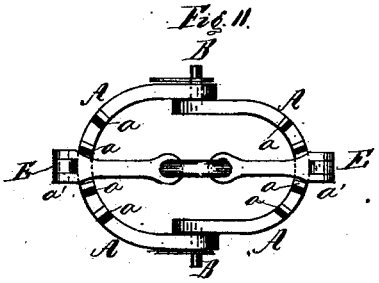


Fig. II.



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UNITED STATES PATENT OFFICE.

JOSEPH N. BOGERT AND HOWARD C. HOLMES, OF SAN FRANCISCO, CAL.

IMPROVEMENT IN GRAPNELS FOR SUBMERGED PILES.

Specification forming part of Letters Patent No. **189,688**, dated April 17, 1877; application filed March 16, 1877.

To all whom it may concern:

Be it known that we, JOSEPH N. BOGERT and HOWARD C. HOLMES, of San Francisco, in the county of San Francisco, State of California, have invented a new and useful Grapnel for Submerged Piles, of which the following is a full and clear description:

This invention relates to two semicircular bands, having toothed jaws on their upper edges, and coupled together by a bolt or hinge-joint, so as to allow them to open out with their top and bottom edges in parallel planes, in which position the opening between the two joined jaws will be circular in form, so as to be suited to drop over the top of an ordinary round pile, and then, as soon as the toothed band shall have been so dropped over a pile, it will be drawn off by two lifting-rods, which are attached by means of pins or hinge-bolts to two lugs attached to the outsides of the toothed jaws, and as soon as lifting-force is applied to the lifting-rods, the action will cause the toothed jaws to violently impinge upon the inclosed pile, which must, therefore, be drawn off with the lifting-rods.

The invention will be readily understood by reference to the accompanying drawings, of which—

Figure I is a side elevation of the improved grapnel. Fig. II is a plan of the same, taken just above the jaws, and showing the lifting-rods in section. Fig. III is a side elevation of the machine, showing it attached to a pile in the act of being drawn up.

The grapnel consists of two semicircular jaws, A A, coupled together by means of a pin-bolt, B, so as to allow the two jaws to open out straight, as in Fig. I, or close up on the pile, as shown in Fig. III. The top edges of the jaws A A are studded with teeth *a*, so as to enable them to firmly grasp the pile C, over which the apparatus is to be thrown. Each of the jaws is provided with a lug, *a'*, on its outside, near the bottom edge, and holes through these lugs receive the round pins or bolts D, by which the lifting-rods E are coupled to the said lugs. The top ends of these lifting-rods are to be connected to a ring, F, or any other suitable appliance, by which they may be attached to the machine that is to lift the pile off.

The parts being constructed as above described, the toothed jaws A A will press upon the pile C in direct proportion to the amount of force applied to lift the pile up. If it becomes necessary to force the jaws down into the mud to get at a pile, the rods E may be strengthened by bolting or strapping them to pieces of timber.

Having described our invention, we claim—

The toothed jaws A A, hinged together by bolt B, and provided with lifting-lugs *a'*, to which the lifting-rods E are attached by the hinge-bolts D, all substantially constructed and operated as and for the purpose set forth.

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