(No Model.)

J. W. SURPRENANT & J. E. FERGUSON.

HYDRAULIC PILE DRIVER.

No. 283,300. Patented Aug. 14, 1883.

Fig 1

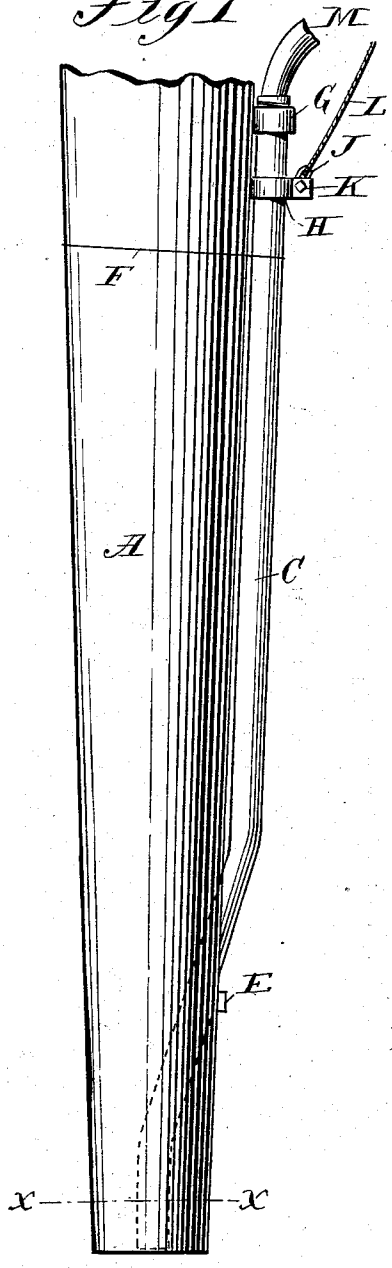


Fig 2

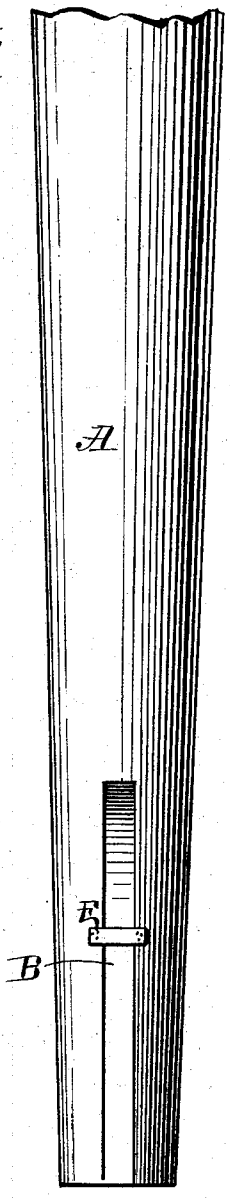


Fig 3

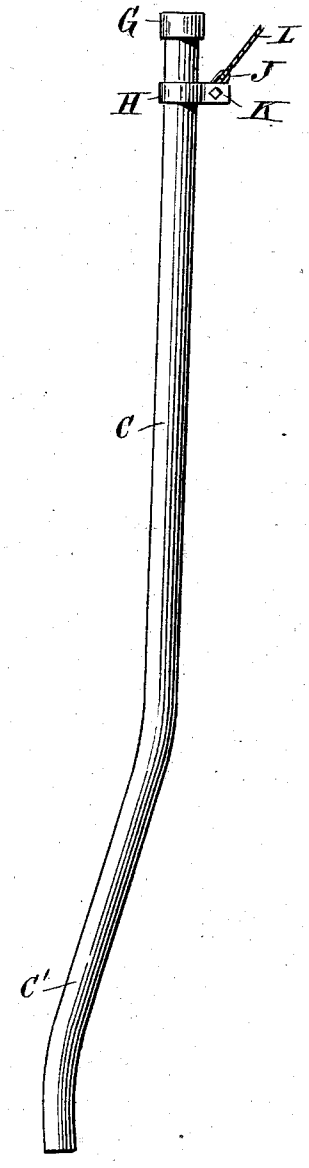
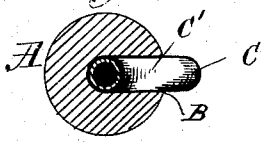


Fig 4



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UNITED STATES PATENT OFFICE.

JOSEPH W. SURPRENANT AND JAMES E. FERGUSON, OF ASTORIA, OREGON.

HYDRAULIC PILE-DRIVER.

SPECIFICATION forming part of Letters Patent No. 283,300, dated August 14, 1883.

Application filed February 15, 1883. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH W. SURPRENANT and JAMES E. FERGUSON, both of Astoria, in the county of Clatsop and State of Oregon, have invented a new and Improved Hydraulic Pile-Driver, of which the following is a full, clear, and exact description.

The object of our invention is to provide a new and improved device for driving piles by means of water.

The invention consists of a bent pipe adapted to fit against the side of the pile and in a longitudinal groove in the pile. The pipe is held against the pile and in the groove by suitable devices, and is provided with means for raising it after the pile has been sunk. Means are provided for coupling a hose-pipe with the pile-pipe. If water is forced through the pipe and ejected from the lower end of the same, it washes away the sand under the pile and causes the same to descend into the ground.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar latters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal elevation of the lower end of the pile to which our improved pile-driver is attached. Fig. 2 is a longitudinal front elevation of the pile, the pile-driver being removed. Fig. 3 is a longitudinal elevation of our improved pile-driver. Fig. 4 is a cross-sectional view of the pile and the pile-driver on the line *x x*, Fig. 1, looking upward.

The pile A, which is to be driven, is provided at its lower end with a longitudinal groove, B, which gradually increases in depth toward its lower end, the groove terminating at the end of the pile. A pipe, C, is bent at its lower end, C′, so as to fit closely against the side of the pile and against the bottom of the groove B, which pipe is placed against the pile and the bottom of the groove, so that its lower end will be about flush with the lower end of the pile. The pipe is held in place by a block, E, nailed on the pile and across the pipe at its bend, so that the pipe can rest on the block. A rope, strand, or cord, F, is passed around the upper end of the pipe C and the pile A. The pipe C is provided at its upper end with a screw-collar, G, on which a hose-coupling can be screwed. A band or ring, H, is secured around the pipe C, directly below the collar G, and to the said band a link or ring, J, is pivoted by a bolt, K, and to the said link or ring a rope or chain, L, is attached, which is secured to a windlass or other hoisting device.

The operation is as follows: The pipe C is held to the pile and in the groove B in the manner described, and the rope L is attached to the link J. The pile and the attached pipe are then lowered until they rest upon the bed of the river or place where the pile is to be sunk, whereupon water is admitted under pressure to the pipe C by means of a hose, M, which has been previously coupled to the upper end of the pipe C. The water issuing from the lower end of the pipe C washes away the sand, silt, or other material into which the pile is to be driven, thus permitting the pile to descend. After the pile has been sunk or driven sufficiently the pipe C is pulled up or raised by means of the rope L, and is then used with another pile.

If desired, more than one pipe C may be used simultaneously on one pile.

We do not claim, broadly, the idea of sinking piles by means of water-jets, as there are various well-known methods of employing such jets for this purpose; but,

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a pile having a groove extending from the side to the center of its lower end, of a curved pipe adapted to rest against the pile along its side and in said groove to discharge at the center of said lower end, as described.

2. The combination, with the pile A, having a longitudinal groove, B, at its lower end, of the bent pipe C and the block E, substantially as herein shown and described, and for the purpose set forth.

3. The combination, with the pile A and

the pipe C, of the band H, surrounding the upper end of the pipe, and the link J, for attaching a rope, substantially as herein shown and described, and for the purpose set forth.

4. The combination, with the pile A, having a longitudinal groove, B, at its lower end, of the bent pipe C, the block E, and the rope L, substantially as herein shown and described, and for the purpose set forth.

JOSEPH WM. SURPRENANT.
JAMES E. FERGUSON.

Witnesses:
E. C. HOLDEN,
FRANK BARROW.