

(No Model.)

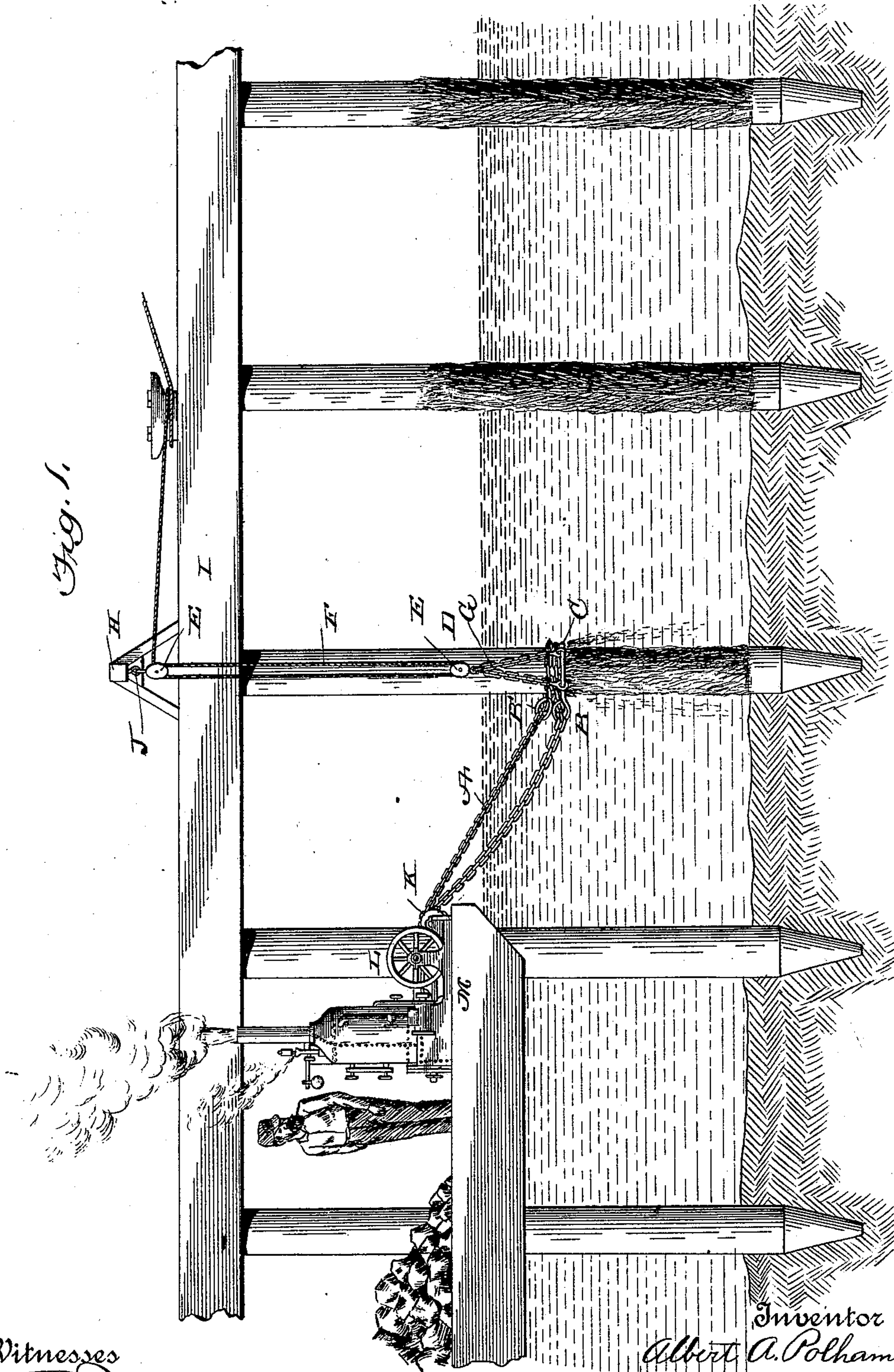
3 Sheets—Sheet 1.

A. A. POLHAMUS.

METHOD OF AND APPARATUS FOR PRESERVING PILES.

No. 518,354.

Patented Apr. 17, 1894.



Witnesses
J. M. Quinn
Geo. F. Knicaid

Inventor
Albert A. Polhamus
by John Wedderburn
his Attorney

(No Model.)

3 Sheets—Sheet 2.

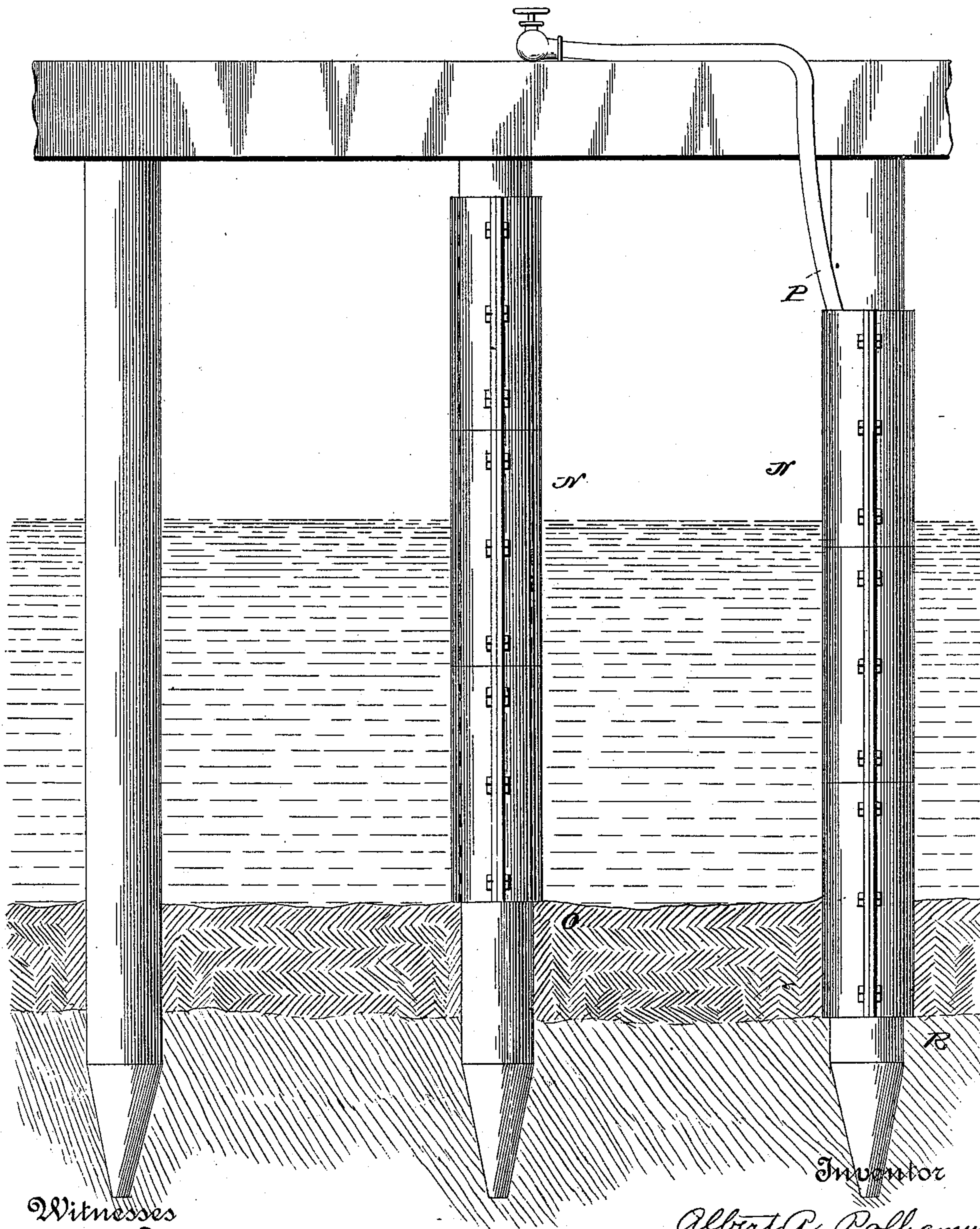
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Fig. 2.



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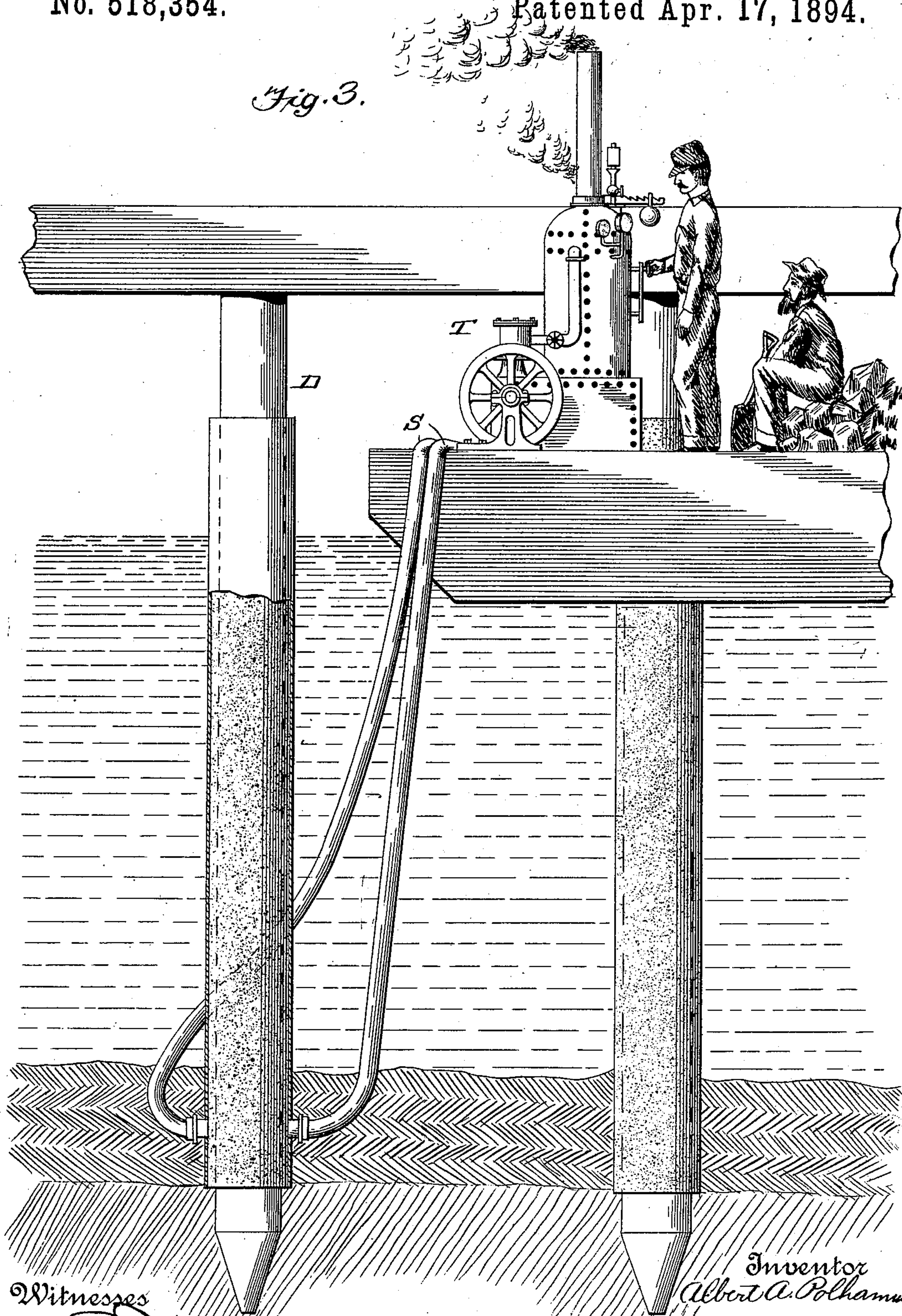
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Fig. 3.



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UNITED STATES PATENT OFFICE.

ALBERT A. POLHAMUS, OF SAN DIEGO, CALIFORNIA.

METHOD OF AND APPARATUS FOR PRESERVING PILES.

SPECIFICATION forming part of Letters Patent No. 518,354, dated April 17, 1894.

Application filed June 25, 1892. Serial No. 437,962. (No model.)

To all whom it may concern:

Be it known that I, ALBERT A. POLHAMUS, of San Diego, in the county of San Diego and State of California, have invented certain new and useful Improvements in Methods of and Apparatus for Preserving Piles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improved apparatus for and method of preserving piles for piers, wharves, &c., from being destroyed by worms and insects, and the invention consists in means and methods of cleaning the piles from adhering foreign substances, forcing the mud away from around the bottom of the piles, and incasing the piles in a thin layer of protective cement.

In the accompanying drawings, Figure 1 is a side view in elevation, partly in vertical section, showing the means and method used in cleaning the piles. Fig. 2 is a similar view showing the means and method of forcing the mud away from around the bottom of a pile, and Fig. 3 is a similar view showing the incasing of a pile with a layer of cement.

In Fig. 1, A is an endless chain which passes through the hole B in one end of a U-shaped guide C and then around the pile D and through the hole B' in the other end of the U-shaped guide C. The guide C, and with it the chain A are raised or lowered on the pile D by means of the blocks E and rope F which are attached to C by the chain G and to a projecting beam H on the pile cap I by the hook J. The endless chain A also passes over the drum K of an engine L on a barge M.

When it is desired to remove shells, barnacles or other foreign matter from the pile, the guide C and chain A are placed around the pile D and the engine L started. The chain A slides around the pile and scrapes from it all foreign matter. The guide C and with it the chain A are given a vertical motion along the pile by means of the rope F, and thus the different parts of the pile are cleaned in turn, until the whole pile has been thoroughly cleaned. After the pile has been cleaned by the above process, a water-tight casing N (Fig. 2) made of metal or other suitable material is placed around the pile with its bottom part

resting on the mud O. Water is then allowed to flow into the casing N at the top thereof through a pipe P. The weight of the superincumbent water within the casing N gradually expels the mud from within the casing around the bottom thereof, and the casing will sink until it rests upon the hard bottom R.

In the next step of the process, two flexible tubes S are connected one on either side of the bottom of the casing N (Fig. 3). By means of a ram T on the barge, stiff mortar cement is forced through the tubes S into the bottom of the casing N surrounding the pile D until the casing is filled with cement. After the cement has sufficiently hardened, the casing is taken off and applied to another pile. By inserting the cement in the casing from the bottom a dam is formed which will offer less resistance to the filling action of the casing with the cement than if it were introduced through the top of said casing for the reason that in introducing the cement through the top of the casing outwardly, it is thrown against the water contained within the casing and will become disseminated or integrated, and it will be possible with great difficulty, if at all, to apply the cement from the top and fill the casing against the upper buoyant tendency of the water therein. Therefore by filling through the bottom of the casing and at the point of the least buoyancy or resistance gradually upwardly, the operation can be successfully and practically carried out.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. As an improved apparatus for cleaning piles, the combination of a guide surrounding the pile, eyes carried by the guide, a chain passing through the eyes and around the pile, and means for changing the position of the guide longitudinally of the piles, substantially as described.

2. As an improved apparatus for preserving piling the combination of a casing surrounding a pile, a tube discharging in to the top of said casing, means for forcing a supply of water through the tubes, a reservoir above the surface of the water, and flexible tubes opening into the casing at the bottom and connecting with said reservoir whereby the

pile may be cleaned and cement applied there-
to from the bottom upward, substantially as
described.

3. The herein described method of preserv-
5 ing a pile consisting in cleaning the same by
a mechanical apparatus surrounding it with
a casing, injecting water within the casing to
gradually expel the mud, and within said cas-
ing around the bottom thereof to permit the
10 latter to gradually sink, coating the cleansed
pile with a covering of cement from the bot-

tom upward while the casing still surrounds
the same, and removing the casing, substan-
tially as set forth.

In testimony whereof I have signed this 15
specification in the presence of two subscrib-
ing witnesses.

ALBERT A. POLHAMUS.

Witnesses:

JAMES A. HEATH,
EUGENE C. DIVVORT.