

Samuel B. Cushing

Piles.

N^o 88,141.

Patented Mar. 23, 1869.

Figure . 1

Figure . 3

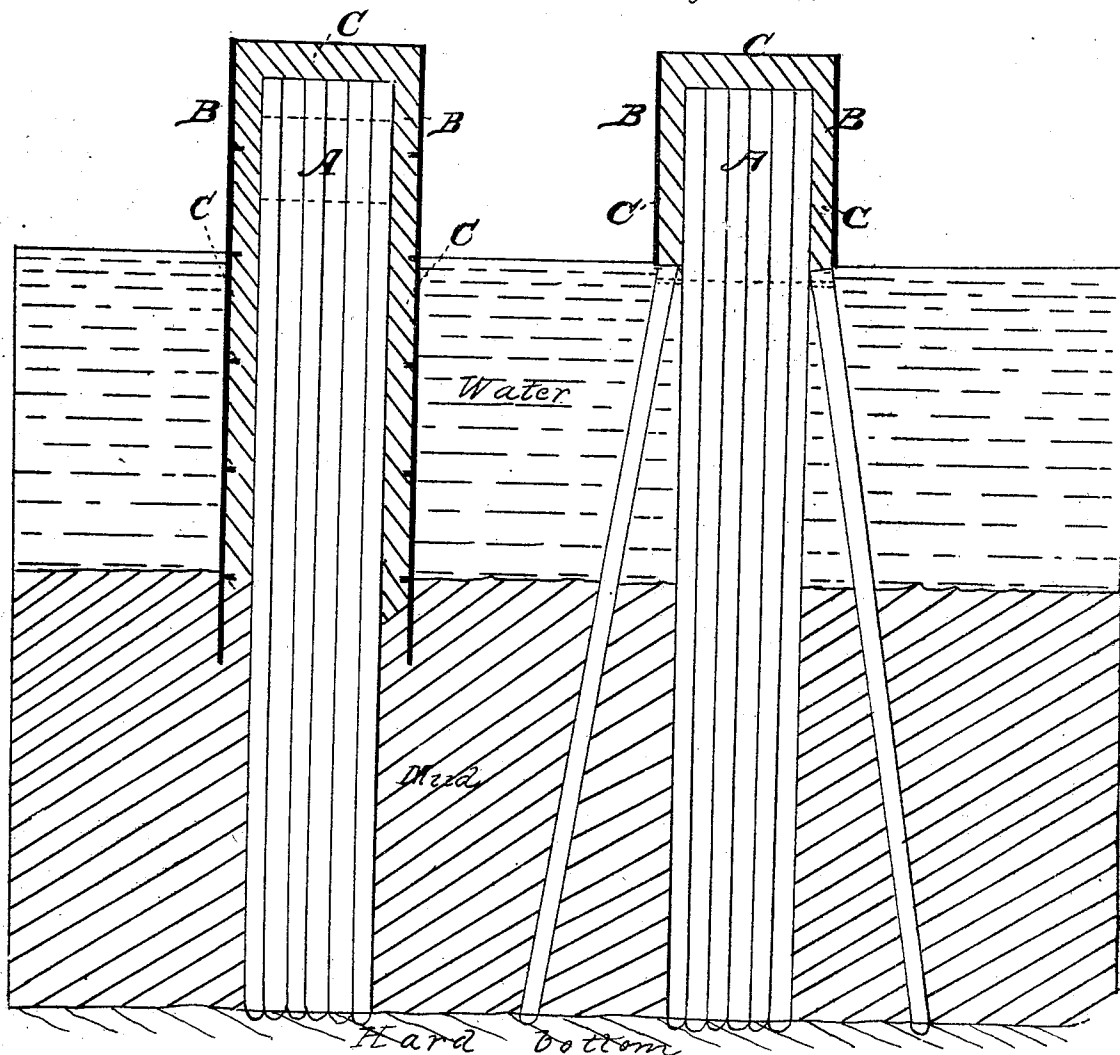
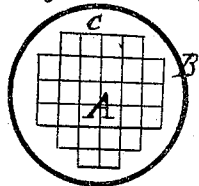


Figure . 2



Witnesses

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UNITED STATES PATENT OFFICE.

SAMUEL B. CUSHING, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN PILES.

Specification forming part of Letters Patent No. **88,141**, dated March 23, 1869.

To all whom it may concern:

Be it known that I, SAMUEL B. CUSHING, of the city and county of Providence, in the State of Rhode Island, civil engineer, have invented a new Method of Constructing Foundations, Piers, or Supports for Bridges, Wharves, and other Structures; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure I represents a vertical section of a pier or support. Fig. II represents a horizontal section of the same near the top. Fig. III represents a vertical section of a pier where the casing is supported on piles.

Letter A denotes the piles, B the casing, and C the concrete.

My invention consists in a method of constructing foundations, piers, or supports for bridges, wharves, &c., composed of a combination of timber piling, hollow cylinders, or casings of other form, made of iron or other material, and of cement, concrete, or other suitable substance filled in between the pile or piles and the casing.

The objects of the invention, chiefly, are to strengthen and consolidate the wooden piles, and to protect them from the action of water, marine worms, air, &c.

The advantages consist, mainly, in the saving of time, labor, and materials in the construction; in the facility and certainty with which the work can be effected, even in deep and rapid currents of water; and in the strength and durability of the foundation.

The mode of construction is substantially as follows: The piles are set singly or in clus-

ters, close together, or at such distances apart as may be best suited to the size, form, weight, and purpose of the intended structure. The length, number, position, the depth to which they are driven, as well as the point at which they are cut off at the top, may be varied to suit the necessity of the case.

The casing, usually of iron, is to surround the mass, and to be sunk to a depth sufficient to protect the piles from injury or decay from the causes above mentioned. In localities where they require protection from the marine worm the casing should penetrate several feet below the surface of the mud. If no danger is apprehended from this cause, it may not be necessary, or if, from economical or other reasons, it may not be desirable to sink it so low, the casing may be supported upon the tops of other piles, driven around the piles to be protected or otherwise.

The vacant space or spaces within the casing are to be filled with concrete or other suitable substance, to consolidate and strengthen the mass, and to exclude the air, &c., from the timber piles.

Having now fully described the nature of my invention and the mode in which it is to be constructed, what I claim therein as new, and desire to secure by Letters Patent, is—

The arrangement, application, and adaptation of timber, iron, or other casing, and concrete or material, substantially as described, for the purpose mentioned.

SAML. B. CUSHING.

Witnesses:

WM. E. CUSHING,
JAMES A. BUCKLIN.