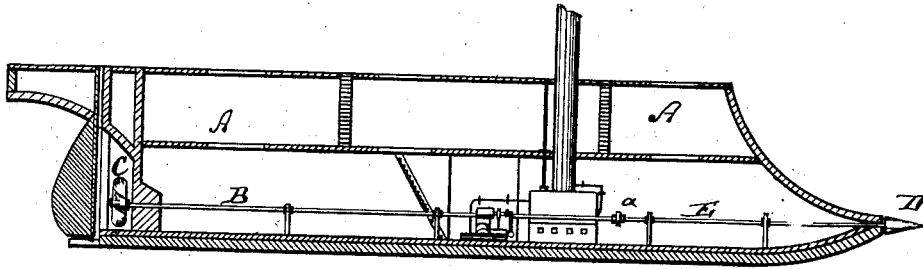


N. H. BORGFELDT.

MARINE RAM.

No. 191,514.

Patented June 5, 1877.



Witnesses

Ernest C. Webb.

A. W. Brierley

Inventor

N. H. Borgfeldt

by his attorney

A. W. Brierley

UNITED STATES PATENT OFFICE.

NICHOLAS H. BORGFELDT, OF NEW YORK, N. Y.

IMPROVEMENT IN MARINE RAMS.

Specification forming part of Letters Patent No. **191,514**, dated June 5, 1877; application filed December 26, 1876.

To all whom it may concern:

Be it known that I, NICHOLAS H. BORGFELDT, of New York city, in the county and State of New York, have invented a new and Improved Marine Ram, of which the following is a specification:

The drawing represents a longitudinal section of a ship having my improved ram.

This invention relates to an improved rotary marine ram, that is applied to the front part of a vessel; and the invention consists in so constructing the ram that its sides will constitute continuations of those of the main body of the ram.

In the drawing, the letter A represents an iron-clad or other vessel of suitable size and style. B is its propeller-shaft; C, its propeller. D is the ram. The same is made of conical, pyramidal, or other form, of steel or other hard substance, and is mounted upon the end of a shaft, E, which extends through the bow of the ship, and to which, by the engine of the ship, or by other suitable mechanism on board the ship, rotary motion may be imparted. The shaft E may, by a suitable coupling, *a*, be connected with the propeller-shaft B, as shown; but I do not confine myself to any special means of revolving said shaft E, and the ram mounted upon the same.

The ram may have smooth sides, or may

be grooved or ribbed, or spirally threaded in suitable manner.

The rotary ram D is made of such a diameter at its rear end that its sides coincide with and are continuations of the sides of the bow of the ship or ram proper, as clearly shown in the drawing.

By this construction the ram may be readily forced into a ship or other object, and can readily be withdrawn without injury to the ship A, to which it is applied, and it also serves to form a proper point for the main ram or bow of the ship.

It will be readily perceived that when a ship having a rotary ram reaches with the point of its ram contact with another ship, the latter will be necessarily perforated by the drilling action of the ram, apart from the piercing effect produced by the speed of the vessel.

I claim—

The combination of a ship, A, with a ram, D, the sides of which coincide with the bow of the ship, to which it is applied, substantially as specified.

NICHOLAS H. BORGFELDT.

Witnesses:

ERNEST C. WEBB,
A. V. BRIESEN.