

J. G. BRUGGEMAN.

BREAKWATER.

No. 175,270.

Patented March 28, 1876.

Fig. I.

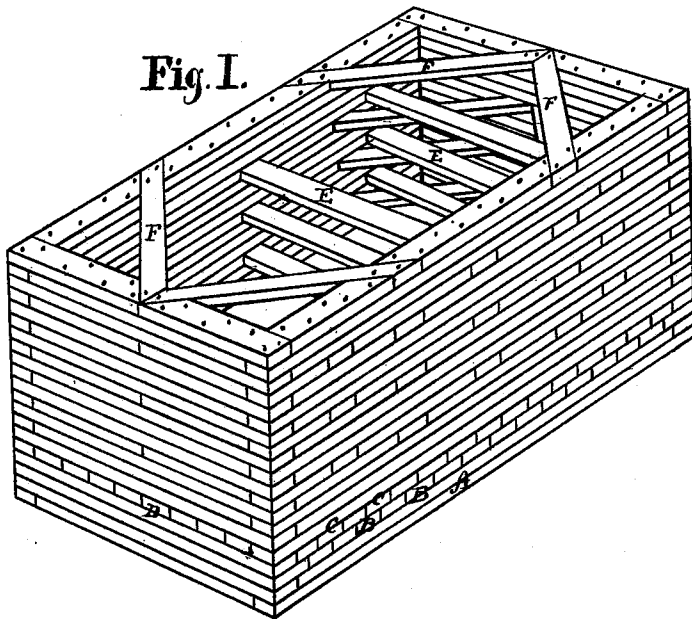
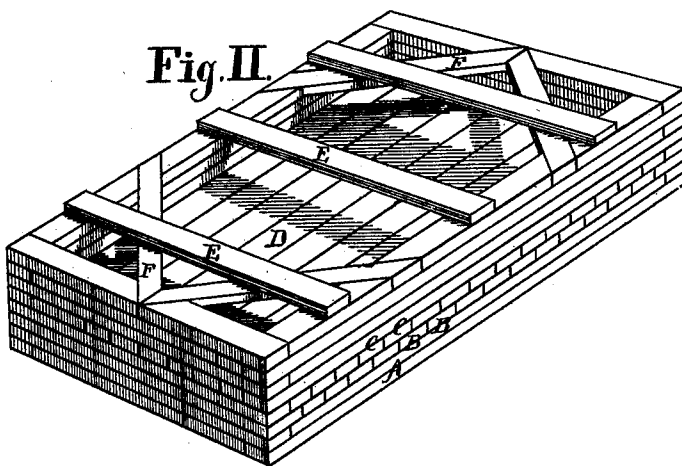


Fig. II.



Witnesses

J. Mahon

H. B. Tilton

By

J. G. Bruggeman

Geo. W. Tibbitts

Inventor

Attorneys

UNITED STATES PATENT OFFICE.

JOHN G. BRUGGEMAN, OF CLEVELAND, OHIO.

IMPROVEMENT IN BREAKWATERS.

Specification forming part of Letters Patent No. **175,270**, dated March 23, 1876; application filed February 11, 1876.

To all whom it may concern :

Be it known that I, JOHN G. BRUGGEMAN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new Method of Constructing Breakwaters, of which the following is a specification :

This invention relates to a method for constructing cribs for breakwaters, piers, and the like ; and consists of walls constructed of boards or planks, cross-tied and braced in such a manner that it shall possess adequate strength, and be sufficiently tight to hold a sand filling.

The object being to lessen the cost of construction, as hereinafter fully shown.

In the accompanying drawing, Figure 1 is a perspective view of the said crib. Fig. 2 is a sectional view, showing the manner of constructing the same.

I take boards or planks of two or three inches in thickness, and eight to twelve inches in width, planed or dressed on one side, and first make a foundation-frame of two courses, A, Figs. 1 and 2, taking care in each and every course to break joints, each course of plank being spiked to the next below, using spike of sufficient length to reach through three thicknesses of planks. Upon the said frame A I next lay a floor of plank, B, crosswise, over which I lay a second floor, C, in like manner, but breaking the joints as shown; then over

this I lay a third floor, D, the planks lying lengthwise of the crib, and crosswise of the planks of the two first floors. Upon this bottom or base I lay the walls for the sides and ends of the crib, and at suitable intervals placing cross-pieces E between the side walls, and braces F F at the corners to give strength to the structure. The different layers of plank composing the walls are arranged so as to break joints, and, being firmly spiked together, form tight walls, capable of holding and retaining a filling of sand or common earth.

This makes a substantial and durable breakwater, which may be built and towed to the required position and filled with common earth, always at hand, and thus saves the expense of stone for that purpose. It also makes a good foundation upon which to build a superstructure.

Having described my invention, I claim—

The herein-described crib for a breakwater or piers, consisting of boards or planks, constructed with a foundation-frame, A, three floors, B C D, and the walls, with the cross-ties E and braces F, the same being made to hold sand or common earth, as and for the purpose set forth.

J. G. BRUGGEMAN.

Witnesses:

GEO. W. TIBBITTS,
F. W. CADWELL.