(No Model.) 2 Sheets—Sheet 1.

H. CASE.

PIER OR FERRY RACK.

No. 288,308. Patented Nov. 13, 1883.

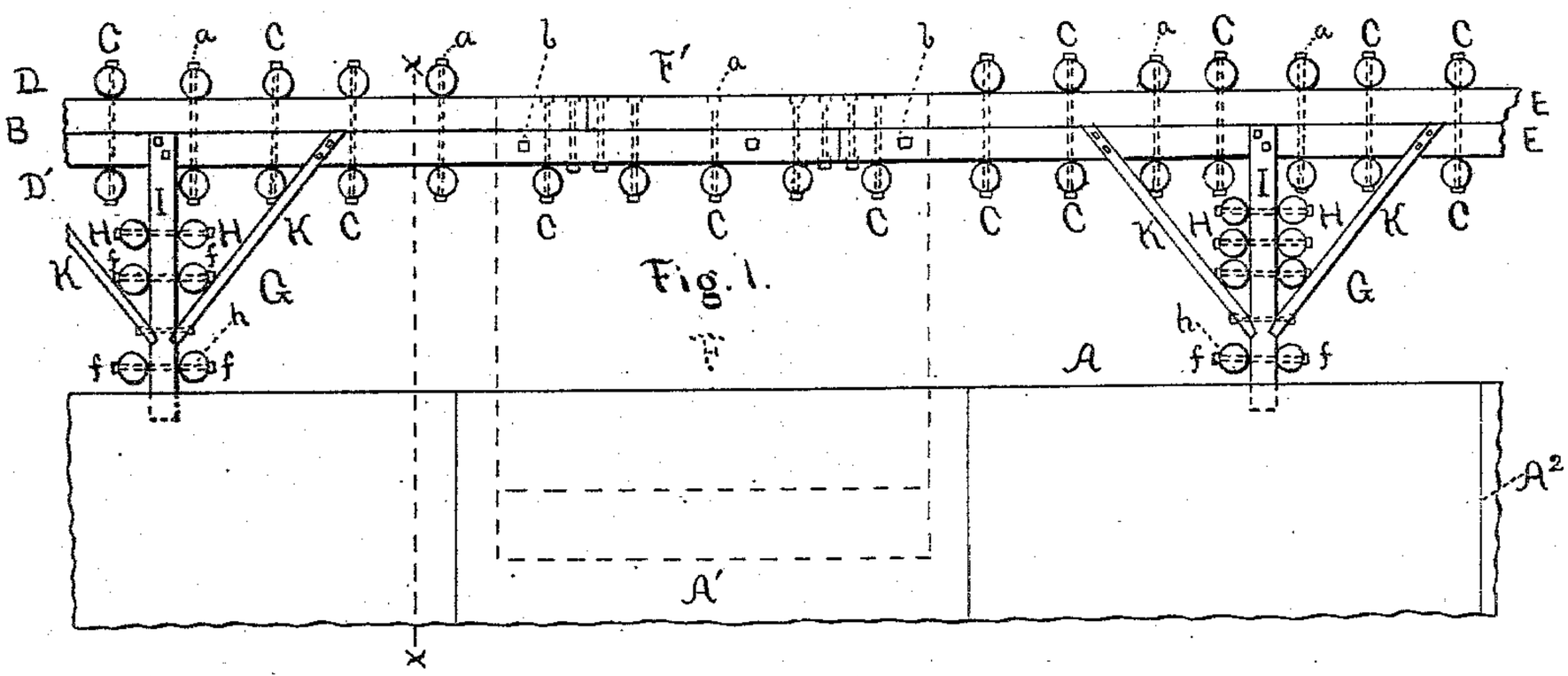


Fig. 1.

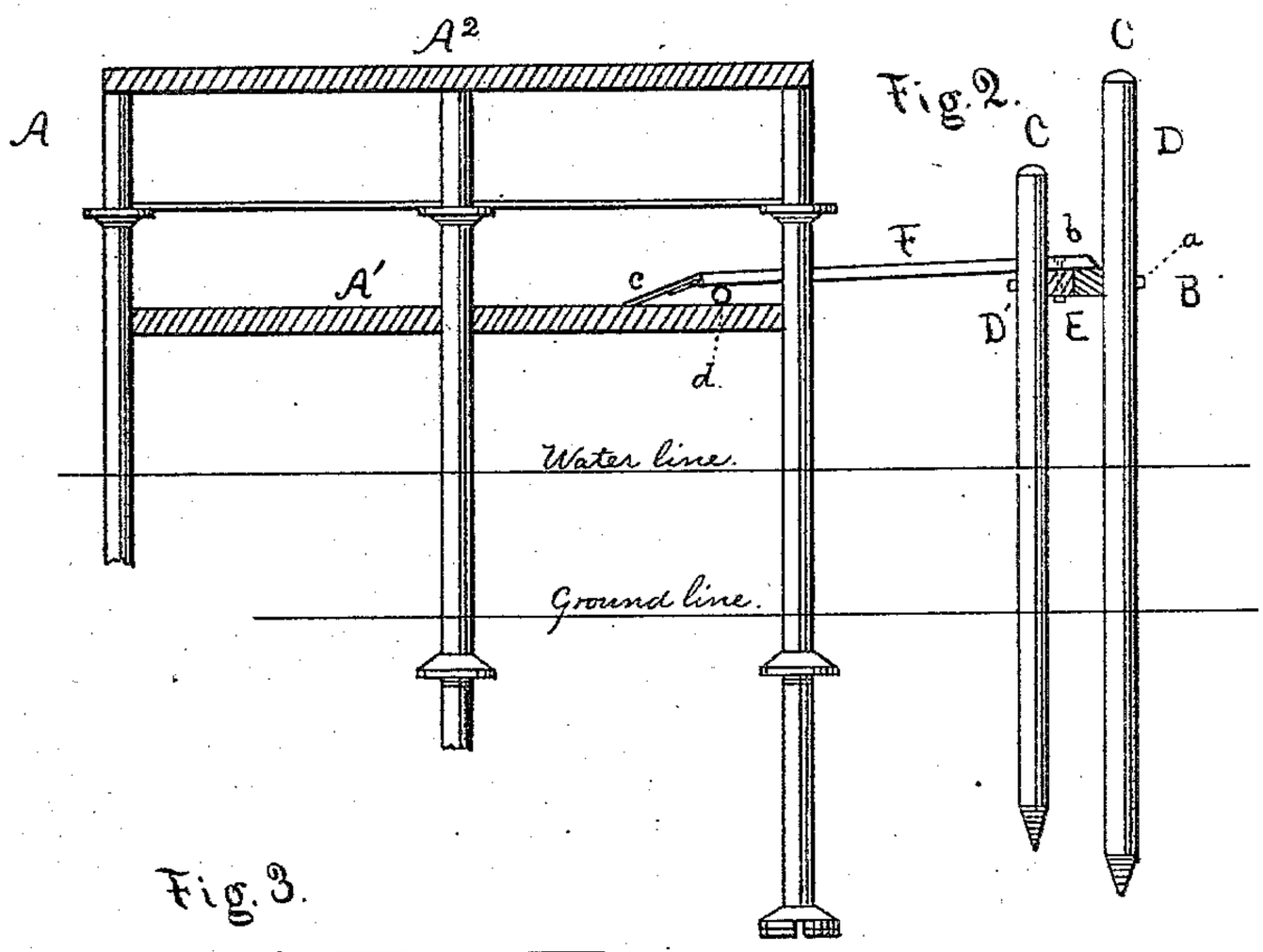


Fig. 2.

Fig. 3.

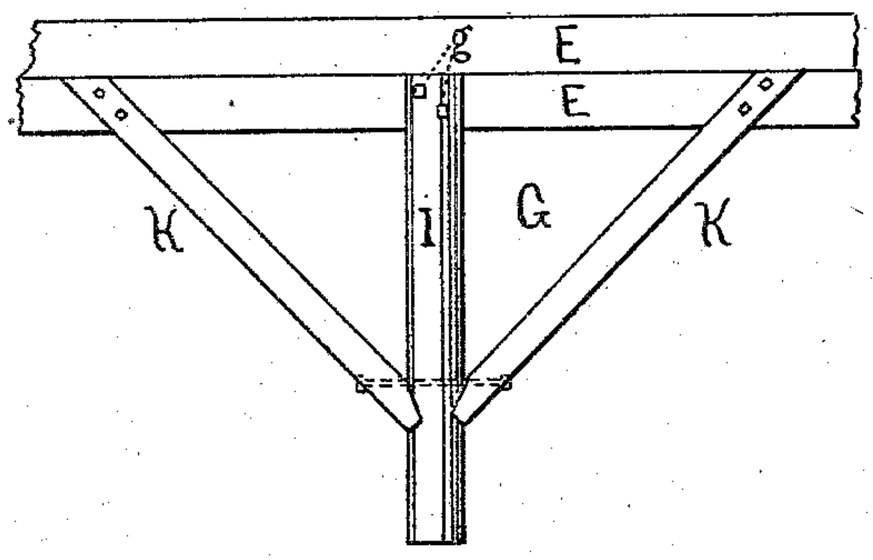
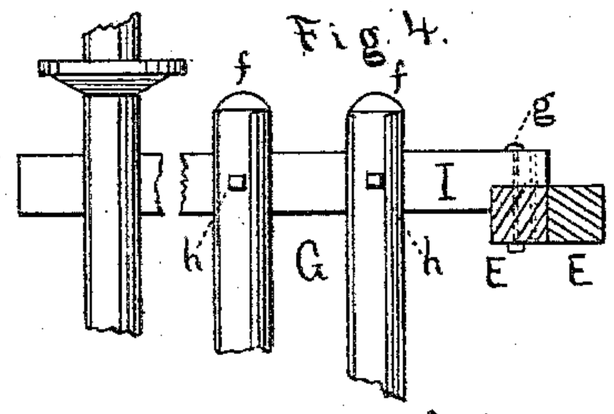


Fig. 4.



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(No Model.)

2 Sheets—Sheet 2.

H. CASE.

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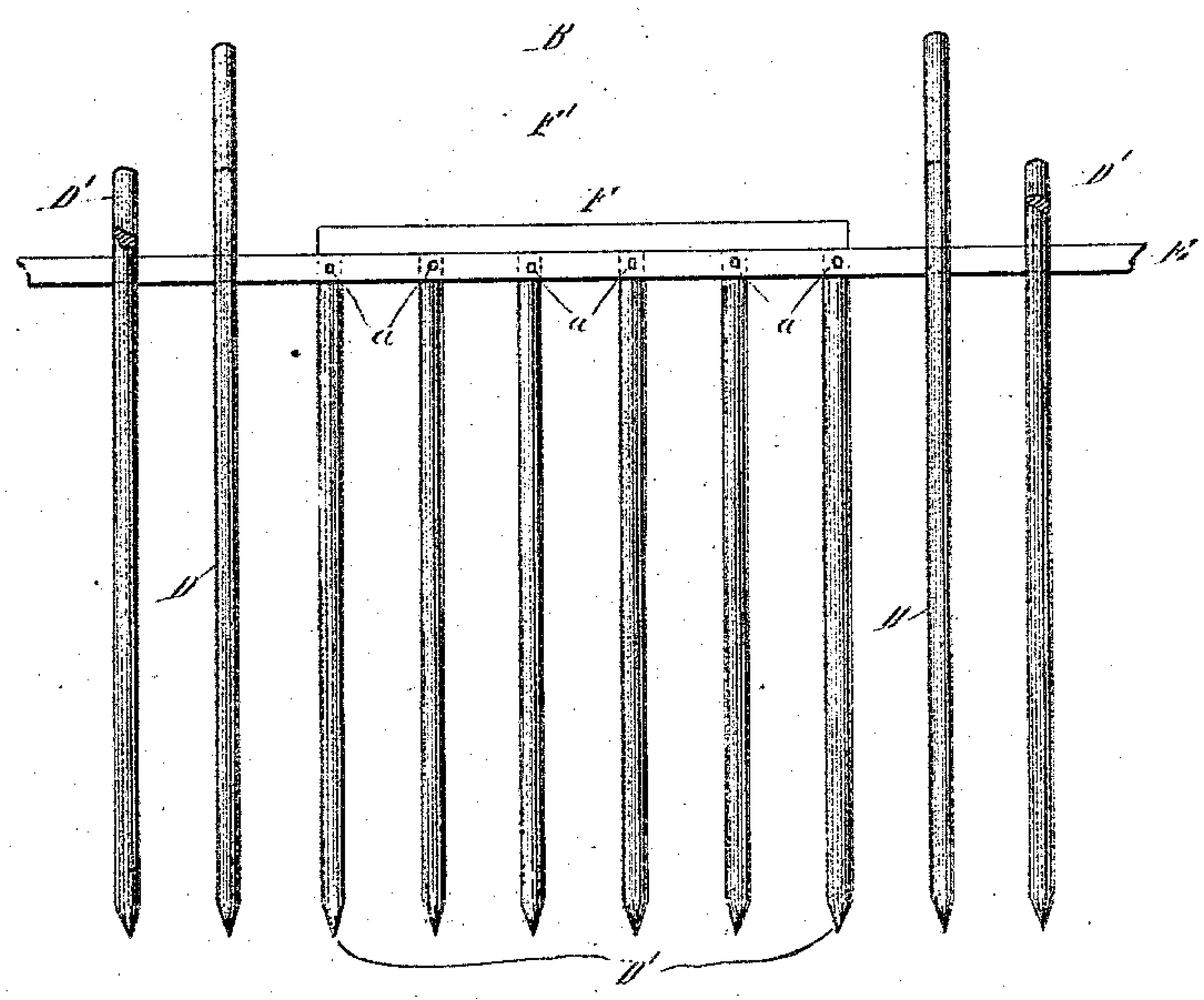
Fig. 5.



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UNITED STATES PATENT OFFICE.

HENRY CASE, OF BROOKLYN, NEW YORK, ASSIGNOR TO MARGARET A. CASE, OF SAME PLACE.

PIER OR FERRY RACK.

SPECIFICATION forming part of Letters Patent No. 288,208, dated November 13, 1883.

Application filed April 30, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY CASE, a citizen of the United States of North America, and a resident of Brooklyn, county of Kings, State of New York, have invented a new and useful Improvement in Pier or Ferry Racks, of which the following is a specification.

The object of this invention is to provide an improved device for protecting piers, breakwaters, and like structures from collision of steamboats and other vessels, and from heavy seas, and at the same time to afford protection from injury to steamboats or other vessels coming to or lying at piers, breakwaters, ferry-slips, and the like, while affording, also, every convenience for the landing of passengers or freight.

The invention consists of an improved form of trussed pier or ferry rack constructed of piles and timbers, combined and arranged in a novel manner, as hereinafter fully set forth.

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

Figure 1 is a plan of my improved device as applied to a pier, wherein the gang-plank is indicated in dotted lines. Fig. 2 is a sectional side elevation on line *x x*, Fig. 1. Fig. 3 is an enlarged plan of a detailed portion of the structure. Fig. 4 is an enlarged partly-sectional side elevation of a detailed portion of the structure. Fig. 5 represents a front elevation of a portion of the structure, with parts broken away to exhibit other parts.

In the drawings, A represents a pier, of which A′ represents the lower or landing platform, and A″ the top or upper platform, which is designed to be reached from the said lower platform by stairs or steps. (Not shown.)

My improved rack B is designed to be fixed at a suitable distance—say eight feet, more or less—from the pier, breakwater, or other structure it is designed to protect, and consists of piles C, driven in two parallel rows, D D′, about two feet apart, more or less, the piles of the outer row, D, having their tops two or three feet (more or less) higher above water than the piles of the inner row, D′, so that they are at such an elevation that the guards of a boat coming or lying alongside cannot become caught on them. Between these rows of piles stout timbers or stringers E E are secured horizontally by bolts *a*, passing through both piles and timbers, as shown, whereby this part of the structure is stiffened and strengthened. Preferably, no outer piles, D, are driven at or opposite the end of the gang-plank F, this space F′ being left clear to the easy loading or unloading of passengers or freight, and the tops of the piles D′, that are opposite this space F′, cut off level with the upper surface of the stringers E E, as indicated in Fig. 5, so that the outer end of the gang-plank F may extend over them and be secured on the said stringers E E, preventing injury to the guards of a vessel. The gang-plank F has its outer end secured by bolts *b* upon the upper faces of the stringers E E, as shown, while its inner end, to which is hinged a shoe, *c*, extending inward, rests on a roller or wheel, *d*, on the landing-platform A′ of the pier A, the said roller *d* permitting the free inward and outward motion of the plank F when the rack B is swayed by contact of boat or vessel, or motion of the waves. So far as described, this portion of the rack may not differ, essentially, from others in use, and would be well adapted for rivers and harbors where smooth water prevails, which are not subject to heavy seas.

To adapt the rack for breakwaters, piers, and the like, which are exposed to heavy seas and severe storms, I construct it with one or more inside braces or horizontal trusses, G, each of which consists of a double row, H, of piles *f*, a timber, I, secured to a stringer E by bolt or bolts *g*, and extending between the rows of piles H, with its inner end reaching beneath the pier-top. Diagonally-placed timbers K K, having their outer ends secured to the stringer E and their inner ends to the timber I, add strength to the brace or truss, and bolts *h h*, holding the timber I and piles *f f* rigidly together, complete the truss or brace G. It is obvious that these trusses or braces G would, when supplied in sufficient number, secure a rack and the pier or breakwater it is designed to protect from displacement or injury by colliding vessels or heavy seas, while a rack unprovided with them would, under the same

conditions, afford no adequate protection, nor endure for any considerable time. For ferry-slips the improved rack, while being more durable than those now in general use, will be found to possess all the elasticity that may be desired.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. An improved pier or ferry rack, constructed substantially as herein shown and described, consisting of parallel rows D D′ of piles, stringers E E, and horizontal braces or trusses G, all combined and arranged as set forth.

2. In a pier or ferry rack, the combination, with rack B, constructed of pile-rows D D′ and stringers E E, secured thereto, of braces G, secured at right angles thereto on the inside toward the pier, and consisting of pile-rows H H and timbers I K, combined and arranged substantially as herein shown and described.

3. In a pier or ferry rack, the combination of rack B, having space F′ devoid of piles, attached gang-plank F, and braces or trusses G, substantially as herein shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 26th day of April, 1883.

HENRY CASE.

Witnesses:
JACOB J. STORER,
ALBERT P. MORIARTY.