2 Sheets—Sheet 1.

S. HOWELL.

Wharf.

No. 216,412. Patented June 10, 1879.

Fig. 1.

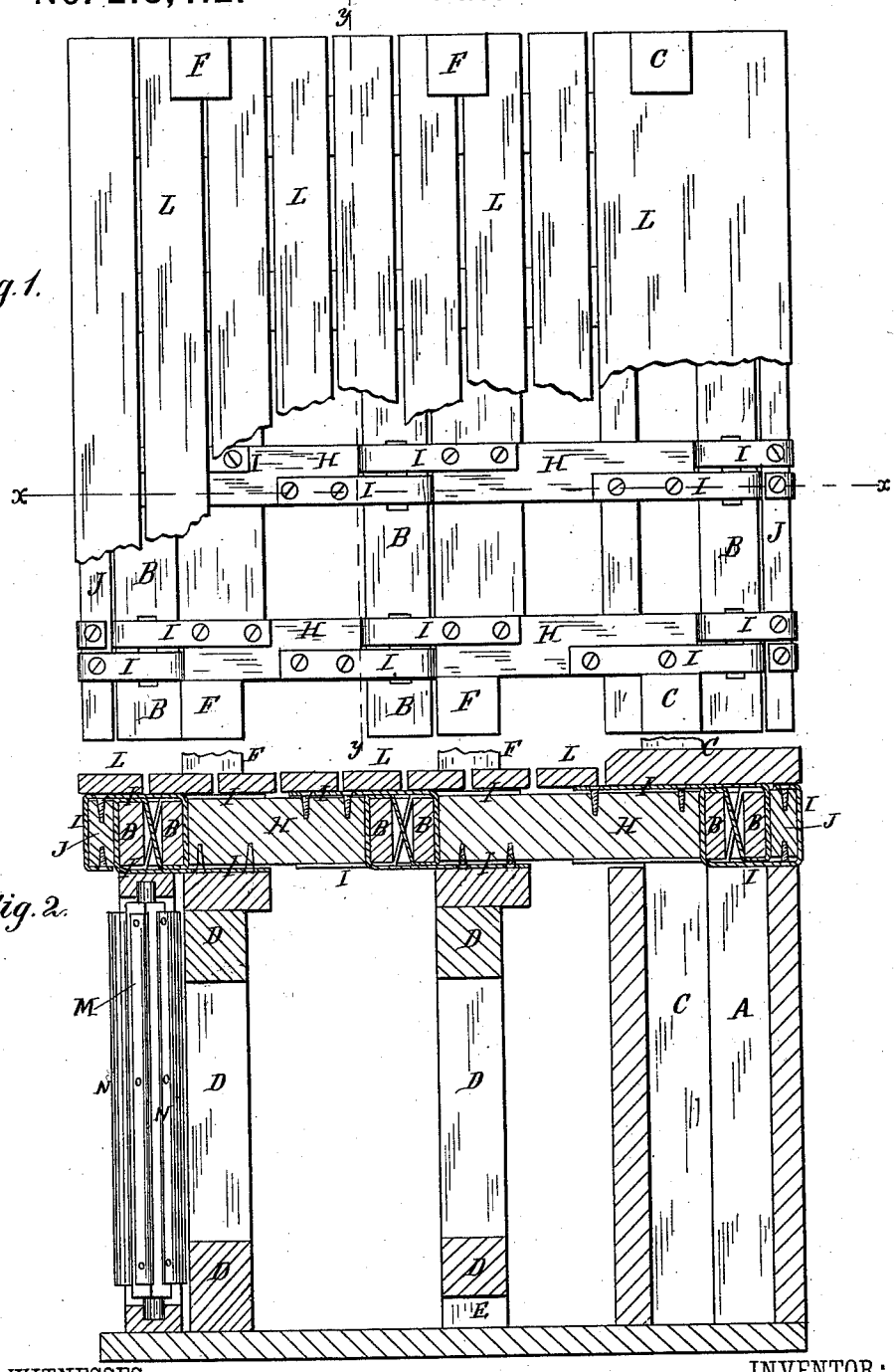

Fig. 2.

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INVENTOR:

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2 Sheets—Sheet 2.

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Fig. 3.

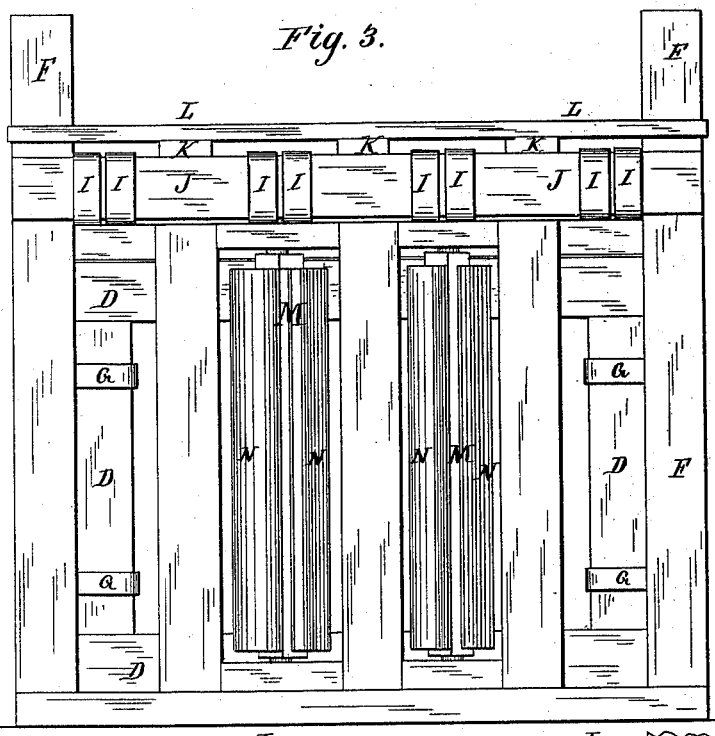
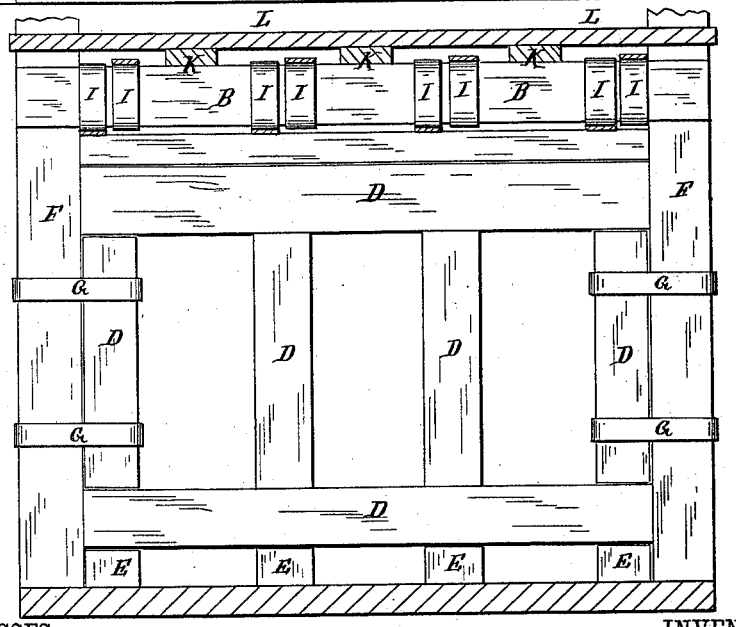


Fig. 4.



WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

STODDART HOWELL, OF NEW ORLEANS, LOUISIANA, ASSIGNOR TO EDWARD L. HOWELL, OF SAME PLACE.

IMPROVEMENT IN WHARVES.

Specification forming part of Letters Patent No. **216,412**, dated June 10, 1879; application filed March 17, 1879.

To all whom it may concern:

Be it known that I, STODDART HOWELL, of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and useful Improvement in Wharves, of which the following is a specification.

Figure 1, Sheet 1, is a top view of my improved wharf, part being broken away to show the construction. Fig. 2, Sheet 1, is a vertical longitudinal section of the same, taken through the line *x x*, Fig. 1. Fig. 3, Sheet 2, is a front view of the same. Fig. 4, Sheet 2, is a vertical cross-section of the same, taken through the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish improved wharves for use in rivers, harbors, and lakes, which shall be so constructed as to receive a portion of its support from the shore or levee, so as to relieve the bottom from having to sustain the whole weight of the wharves and the freight upon them, and which shall be simple in construction, and at the same time strong, durable, and easily repaired.

The invention consists in the combination of the metal straps with the mortised cross-pieces and the stringers of a wharf; in the combination of the planks with the metal straps, the cross-pieces, and the stringers at the front and rear ends of the wharf; in the combination of the upright frames and the bands or straps with the cross-pieces, the stringers, and the side piles; in the combination of the revolving shafts provided with wings, and, whether made in one piece or in sections, with the timbers of the wharf at its openings.

A represents piles, which are driven into the ground in the bank or levee at a suitable distance from the water, and upon the upper ends of which rests a cross-piece, B. C are strong piles, which are driven into the ground at the water side of the ends of the cross-piece B for the said ends to rest against. D is an upright frame, any desired or necessary number of which may be used.

The base-timber of the frame D may rest upon the bottom when the said bottom is level; but when the bottom is uneven the said base-timber should rest upon piles E driven into the said bottom. F are strong piles driven into the bottom at the ends of the upright frames D, and which are made large and heavy, to strengthen the wharf and to resist the strain of the vessels tied to them. G are bands which pass around the upright end timbers of the frames D and around the piles F. The bands G are bolted to the piles F, but not to the frames D, so that should the bottom sink or be washed away beneath the said upright frames D, the said frames may sink without getting out of place. Should this happen the frames D may be forced down into a level position by screws or other means, and timbers may be placed upon their tops to bring them to the required height.

In the cross-pieces B, opposite each stringer H, are formed mortises, through each of which are passed two iron straps, I. The upper ends of the straps I are bent outward, pass down across the sides and bottom of the cross-pieces B, and are bolted to the lower sides of the stringers H upon the opposite sides of the said cross-pieces. The lower ends of the straps I are bent outward, pass up across the sides and top of the cross-pieces B, and are bolted to the upper sides of the stringers H upon the opposite sides of the said cross-pieces. At the rear and front ends of the wharf the outer ends of the straps I are bent around and bolted to thick planks J, placed against the outer sides of the end cross-pieces. The cross-pieces B should cross the front sides of the piles F, as shown in Figs. 1 and 2.

Upon the tops of the stringers H are laid the sleepers or joists K, to which the planks L are spiked. The planks L may be put down in sections or singly, as may be desired. The cross-pieces may be further secured to the stringers by bolts passing through the said cross-pieces and into the corners of the said stringers, but which are not shown in the drawings.

The size of the timbers must depend upon the size of the wharves and the strains which they will have to resist. The straps I, in the case of small light wharves, may be made so thin that they can be bent cold; but in the case of large heavy wharves they may be made thicker, and may be heated to be bent.

M are shafts, the ends of which are pivoted to bearings attached to the wharf-timbers, and which are provided with wings N.

The winged shafts M N should be placed in all the openings of the wharf, and are designed to prevent the current from washing the bottom and the bank, and thus undermining the wharf.

The winged shafts M N may be made in parts or sections, to prevent their upper parts from being stopped by the choking of their lower parts.

With this construction wharves can be made of any desired size and extended to any desired length, and the several sections can be framed in the shop and brought to the place and put up, so that the wharf can be built in much less time and at much less expense than wharves built in the usual way.

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

1. The combination of the metal straps I with the mortised cross-pieces B and the stringers H of a wharf, substantially as herein shown and described.

2. The combination of the planks J with the metal straps I, the cross-pieces B, and the stringers H at the front and rear ends of the wharf, substantially as herein shown and described.

3. The combination of the upright frames D and the bands or straps G with the cross-pieces B, the stringers H, and the piles F, substantially as herein shown and described.

4. The combination of the revolving shafts M, provided with wings N, and, whether made in one piece or in sections, with the timbers of the wharf at the openings, substantially as herein shown and described.

STODDART HOWELL.

Witnesses:

ANDREW HERO, Jr.,

D. J. DOWERS.