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Ronaldson & Neill.

Marine Railway.

Patented May 22, 1830.

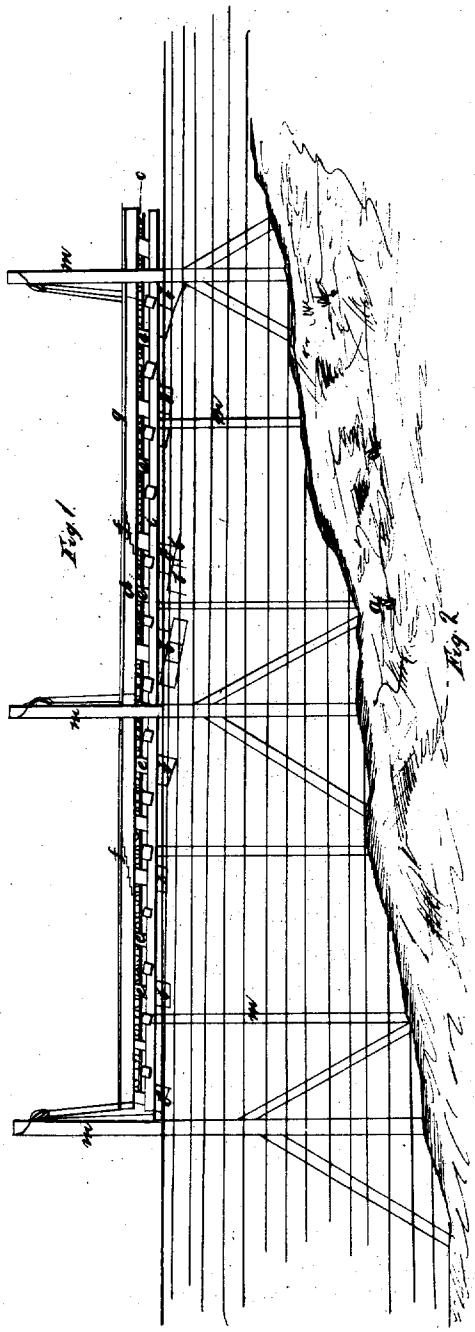


Fig. 1.

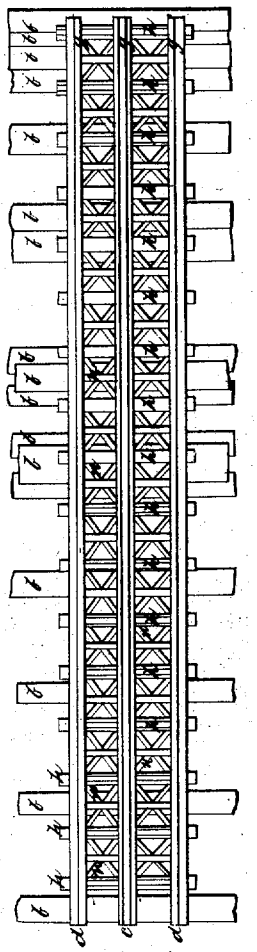


Fig. 2.

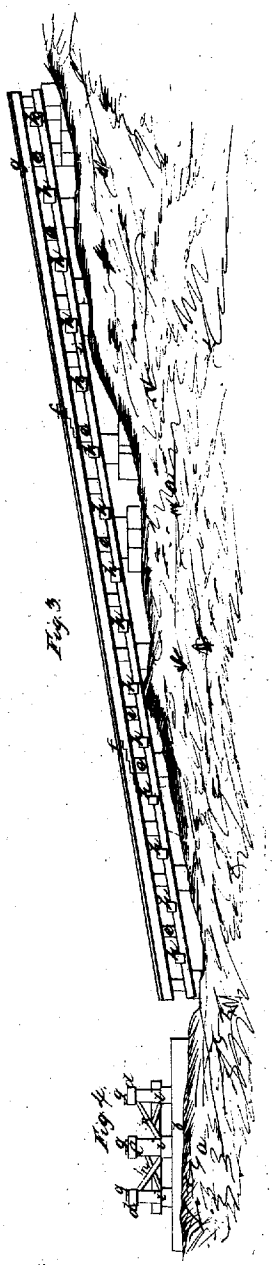


Fig. 3.

Fig. 4.

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James Ronaldson & John L. Neill. of Philadelphia

Letters Patent.

The schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said James Ronaldson and John Lindsay Neill, themselves, of their Improvement in the mode of laying the foundation of Marine Railways

To all persons whom it may concern.

Be it known that we James Ronaldson of the city and County of Philadelphia in the state of Pennsylvania and John Lindsay Neill, a Foreigner who has resided within the united States for two years, have invented and applied to use, a new mode of laying the foundation of a Marine Railways, under water, and that the following is a full and exact description of the same, and of the manner in which it has been carried into operation.

Our said invention is particularly intended for marine railways, in places where, from the nature of the bottom of a River or other water, on which it is to be established piles cannot be securely driven, or where the expense of driving them and of erecting the required structure upon them, would form a serious objection thereto. It is also applicable in all situations where the bottom is of hard substance and is equally efficacious with a foundation of piles; and can be carried into operation in many instances with much greater facility and less expense.

A proper survey of the bottom upon which the Railway is to be erected, must first be made in order to ascertain the proper shape or curvature, which should be given to the under part of the frame work of which the foundation, and Railway below the water are to consist. This frame may be made and braced together in various ways, the sills being so formed as to adapt themselves to the bottom and the upper part, or rails having such inclination, as may be considered best for the intended purpose. In forming the Philadelphia & Marine Rail way, the work was put together over the place where it was to be used, but it may be formed or framed other where and transferred to its place of destination. The framing was commenced by placing a number of beams, strong enough to sustain the intended superstructure, upon

such relative position, as that a line crossing them, would have the same inclination with the bottom of the river, which is to be the foundation. Upon these beams, were laid three sills of mills parallel to each other, the centre sill being situated under the keel rail, and the two side ones, under the bilge rail.

The sills were united together by logs, forming cross ties and into the upper sides of the sills were inserted posts to support the rails. These posts were inserted into the sills sufficiently deep to admit of a breast rail. The whole of the sills, rails and posts, being strongly braced by timber, framed into them diagonally and otherwise to give them the requisite strength. Iron bolts, dowels, and breast rails, were also driven when they were deemed useful. The ways, or iron rails were all dovetailed and bolted, and made to rest on the posts, the ways were likewise dovetailed to each cross tie besides bolting. The upper sides of the ways or wooden rails were made perfectly even, and the iron rails then securely bolted upon them.

The manner in which this framing was effected, is represented in the drawing, and also in a model deposited in the Patent office, they are deposited in conformance with the law which requires that drawings with written references be furnished, and they serve to exhibit, in a practical way, how the invention has been carried into effect.

The frame when completed, is to be sunk into its place. Before this is done, the bottom upon which it is to stand, must if covered by any loose substance, be scraped so as to remove what ever might interfere with its adapting itself thereto. The mode which we adopted for sinking the frame, was first, to lay a floor upon the cross ties or logs, and fasten planks to the sills. These planks were to keep in the stone or material, used to sink the frame. The supporting beams were then removed, and the whole frame let down by tackles that held it suspended, when the cross beams were taken out. To save the trouble and expense of procuring large stones, small ones were put into barrels, and secured up in order to return them in the situations where they were required. The frame was then sunk into its place and loose stone, earth and sand, then thrown into, and around the whole.

We claim as our invention, the mode in which the above frame was put together and we claim as ours, and our invention, the method of making the foundation and the fixing of a bearing Pilework, under water without the driving of piles

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the making of coffer dams, the using of diving bells or any similar structures as usually employed for that purpose.

If the railway is intended for large vessels the having five railways viz one under the keel, one under each bilge, and one on each side for the support of the upper works of the vessel, with shores, are all considered modifications of the principle herein described - and we accordingly claim this method also as our invention.

Witnesses

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