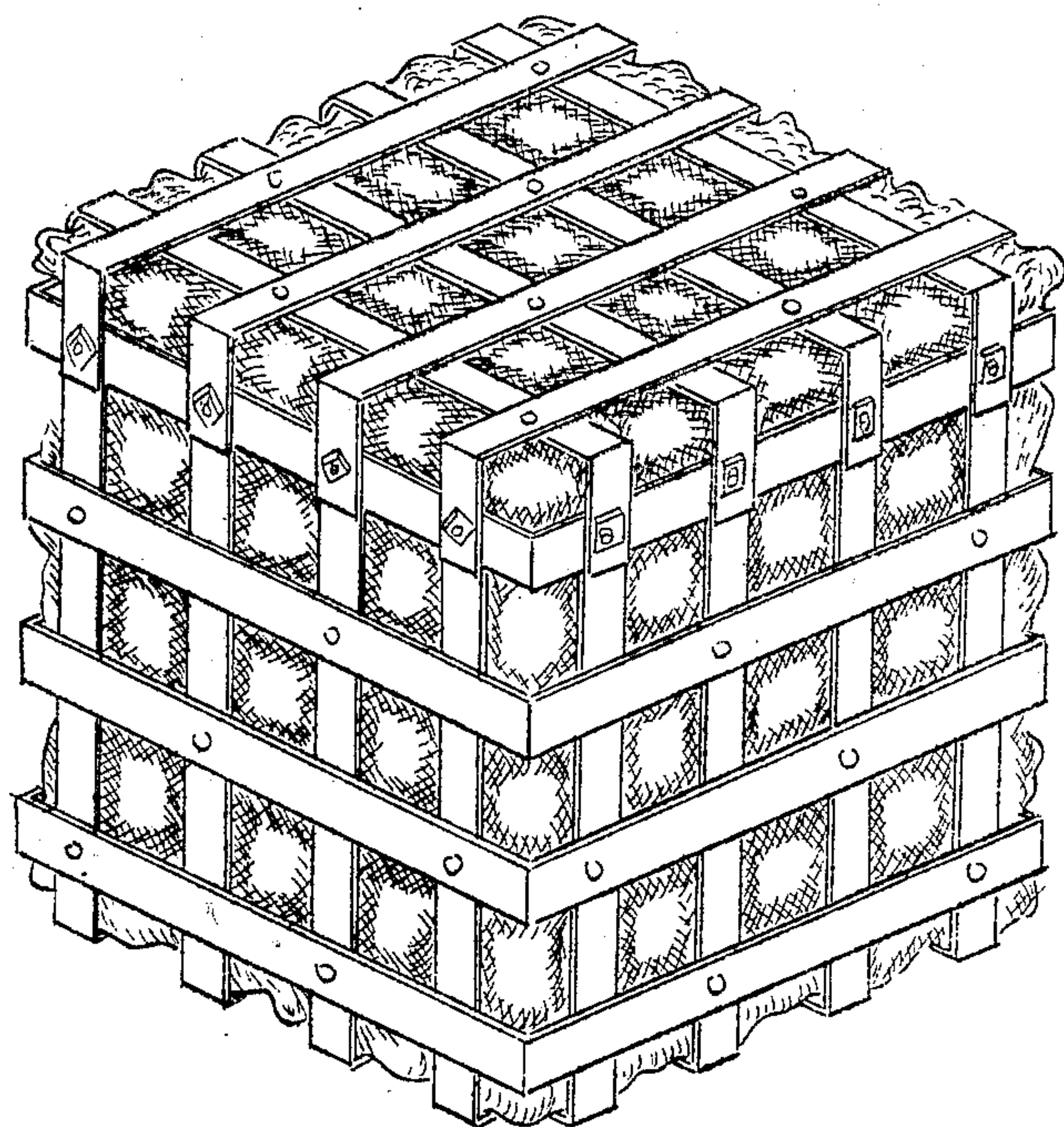


E.MANICO'S IMPROVEMENT
IN
OBTAINING FOUNDATIONS FOR MARINE
73617 OR OTHER STRUCTURES



PATENTED
JAN 21 1868

WITNESSES.

Jno Burdwood, Staff Commander R.N.
Thomas R. Stubb, Master R.N.

INVENTOR

Edward Manico

United States Patent Office.

EDWARD MANICO, OF LONDON, GREAT BRITAIN, ASSIGNOR TO JOHN P. MANICO, OF NEW ORLEANS, LOUISIANA.

Letters Patent No. 73,617, dated January 21, 1868; patented in England, October 23, 1857.

IMPROVEMENT IN MARINE FOUNDATIONS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, EDWARD MANICO, of the city of London, and Kingdom of Great Britain, have invented a new, useful, and improved mode of obtaining or securing "Foundations for Marine or other Structures;" and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification.

In order to accomplish the object proposed, I construct a cradle or receiver of bar-iron, of any convenient size or shape, but I prefer the shape shown on the drawings. These cradles are to be filled with stones, for the ready admission of which the tops thereof are secured by screw-bolts, in such manner that they can be taken off or put on at pleasure.

Whenever a foundation is required, either at the mouths of harbors or rivers, on shifting sands at sea, in swamps, or along river-courses or similar places on land, I propose to establish said foundation by lowering these cradles upon the sands, (if at sea,) and leaving them to be filled up with sand, and gradually to sink to the underlying rock, chalk, or other solid foundation upon which the superstratum of sand always rests. The filling in of the sand will be effected by the action of the waves, and the sinking by the specific gravity of the receivers or cradles themselves. In establishing a foundation, any number of cradles are sunk that may be required, until a foundation shall have been formed on which a superstructure may be raised, either by a continued use of the cradles, or by masonry or otherwise, as shall be most appropriate to the circumstances and the locality. The cradles may be attached to each other by chains or other means, or they may be put down separately, accordingly as the exigencies of the occasion and place indicate the one or the other plan to be most advantageous or desirable.

My attention has been devoted for the last thirty years to this subject, and a large experience on the coasts of Great Britain and Ireland ten years ago enabled me to reach conclusions on the action of the sea, and the means of resisting or arresting its violence, which resulted in my devising this invention, and on the 23d of October, 1857, I took out Letters Patent for the same for and within the United Kingdom of Great Britain and Ireland, the Channel Isles, and the Isle of Man.

I call my invention a "*caisson de fer*." It will be perceived that it is adapted in an especial manner to fixing and securing foundations for permanent sea-works on dangerous and exposed coasts, where masonry will not stand the effects of the sea, and where there is no escape for vessels that are driven upon such coasts, because it presents the means of creating artificial harbors where nature has not provided them, and also that it is applicable to banks of canals, to the re-creation of land washed away by the sea, and for sea-works on sandy coasts, where foundations for breakwaters cannot be obtained by any other means.

My invention is also peculiarly adapted to the establishment of breakwaters at the mouths of such rivers as the Mississippi and Mobile, where, in order to deepen the channel, it is necessary to reduce the width of the mouth of the river by artificial means, with the view to confine the current within narrow and prescribed limits. It is also useful in obtaining foundations for light-houses, fortifications, and other public works, in marshes, and upon soft alluvion deltas, such as are so frequently found on the Atlantic and Mexican Gulf coasts of the United States, as well as for many other purposes that need not herein be particularly mentioned.

Experience has demonstrated that perhaps a cubic yard is the best or most suitable size for the cradle; but, as I have before stated, I do not confine myself to any given dimensions or shape, but vary the one and the other as circumstances require. A cradle of the dimensions of a cubic yard will contain about one ton of stones, and, when embedded in sand or shingle, the interstices between the irregularly-shaped stones will receive from ten to twelve hundredweight of the same. Add to this the weight of the iron of which the cradle is composed, and we have a weight of upwards of two tons.

In the construction of the cradles, I commonly use bar-iron, three inches wide by half an inch thick, but heavier or lighter iron may be employed, and sometimes even wood may be substituted for iron. The bars, where they cross each other, may be fastened together by rivets or bolts, and they must be sufficiently distant from each other to leave open spaces large enough for the easy-admission of sand, to fill up the spaces between the stones.

Having thus described my invention, I desire it to be understood that I do not claim any of the articles used in my invention when taken separately; but

What I do claim, and desire to secure by Letters Patent, is—

The combination of parts and articles herein described, when the same are used for obtaining foundations for marine and other structures requiring them.

EDWARD MANICO.

Witnesses:

JNO. BURDWOOD, *Staff Commander, R. N.*

THOMAS A. HULL, *Master, R. N.*