

# UNITED STATES PATENT OFFICE.

HENRY FIELD, JR., OF NEW BEDFORD, MASSACHUSETTS, ASSIGNOR TO  
HIMSELF AND NEW BEDFORD COPPER COMPANY.

## IMPROVEMENT IN SHEATHING FOR VESSELS.

Specification forming part of Letters Patent No. 51,110, dated November 21, 1865.

### *To all whom it may concern:*

Be it known that I, HENRY FIELD, Jr., of New Bedford, in the county of Bristol and State of Massachusetts, have invented an Improvement in the Art of Sheathing Vessels; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

In sheathing the bottoms of vessels with thin plates or sheets of copper, or of Muntz or yellow metal or other suitable alloys, it has been the constant practice to submit such sheets to acid-baths prior to delivering them from the rolling-mill, the object being to improve the appearance of the sheets by giving them the normal color and brightness of the metal or alloy, and in this brightened condition the sheets are applied to vessels. This practice is injurious, in that the coating formed by oxidation, which is hardened and smoothed by the action of the rolls of the mill, is removed, and with it some of the metal or alloy, leaving the surfaces of the sheets in a roughened condition as compared to their state before being acted upon by acids. The usual acid-bath is made of dilute sulphuric acid, to which a small quantity of nitric acid is added. After the sheets are submitted to the action of this bath they are rinsed with water, and are quickly dried by application of heat to prevent the surfaces from

becoming dull and lusterless. The meretricious appearance of the sheets is thus produced at a considerable expense for acids and repeated handling of the sheets, which for actual service are depreciated in value, as the surface of the metal, besides being left rough, is unprotected by the firm, hard, oxidized coating, which the acid removes.

My invention in the art of sheathing vessels consists in making use of sheets of copper, Muntz metal, or other suitable alloys, in the condition, as to surface, in which they come from the rolls, the advantages arising therefrom being a saving in the first cost; second, a smoother surface, resulting in an increase of speed for vessels; and, third, greater durability, it being estimated that the loss from the metal in the bath is equal to or greater than would result from six months' wear in the water in actual service on the bottom of vessels.

What I claim is—

The employment for sheathing purposes of sheets of copper or copper alloys having a coating formed by oxidation and rolling, substantially as set forth.

In witness whereof I have hereunto set my hand this 17th day of October, A. D. 1865.

HENRY FIELD, JR.

Witnesses:

J. W. BENJAMIN,  
CHAS. S. RANDALL.