(No Model.)*

R. A. MESSERVEY.

HULL OF VESSELS.

No. 257,360. Patented May 2, 1882.

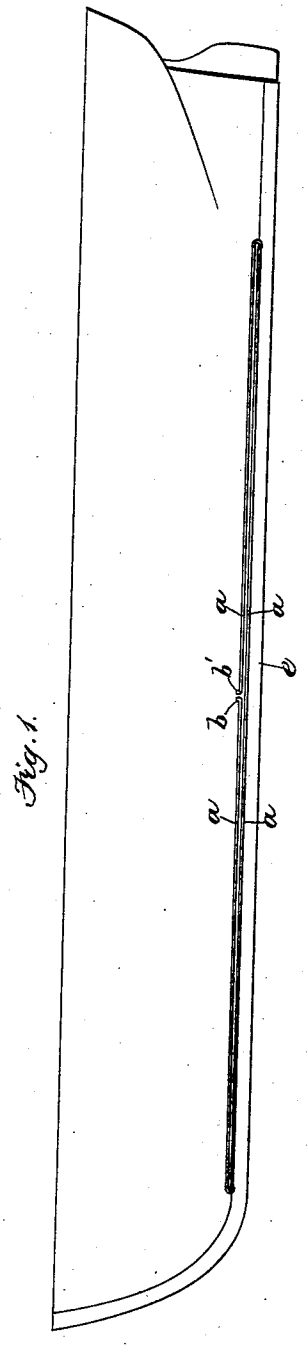


Fig. 1.

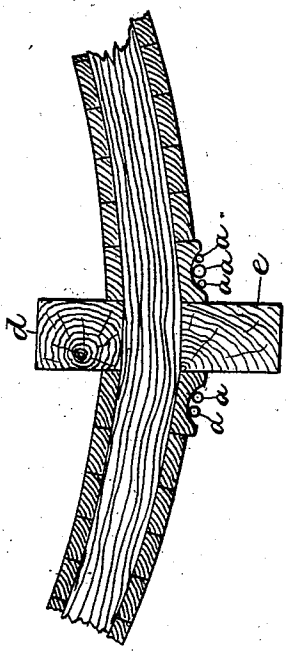


Fig. 2.

Witnesses.
E. B. Merriman.
A. L. White.

Inventor.
R. A. Messervey
by Wright & Brown
Attys.

UNITED STATES PATENT OFFICE.

REUBEN A. MESSERVEY, OF MEDFORD, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO JOHN M. WATSON, TRUSTEE, OF BROOKLINE, MASS.

HULL OF VESSELS.

SPECIFICATION forming part of Letters Patent No. 257,360, dated May 2, 1882.

Application filed January 17, 1882. (No model.)

To all whom it may concern:

Be it known that I, REUBEN A. MESSERVEY, of Medford, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Cooling and Condensing Apparatus for Marine Vessels, of which the following is a specification.

This invention relates to the cooling and condensation of liquids and gases employed in chemical refrigerating apparatus on marine vessels by means of cooling or condensing pipes placed upon the exterior surface of the hull of a vessel below the water-line, so that the water supporting the vessel shall have free access to the exterior surfaces of said pipes and exert a cooling effect upon the contents thereof, said pipes being connected with the refrigerating apparatus, so that the chemical refrigerant will pass through the pipes and return to the refrigerating apparatus.

The invention has for its object to provide simple means for protecting the pipes from injurious contact with external objects; and to this end it consists in forming a longitudinal groove in the exterior surface of the vessel and placing the pipes in said groove, as I will now proceed to describe.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of the hull of a vessel provided with my improvement. Fig. 2 represents an enlarged transverse section, showing a part of the hull.

The same letters of reference indicate the same parts in all the figures.

a represents a pipe or series of pipes connected with a refrigerating apparatus employing a chemical refrigerant—such as ammonia, anhydrous sulphurous oxide, or other chemical which becomes heated in the refrigerating process—said pipes extending from the apparatus below the surface of the water on which the vessel floats, and in contact with such water a suitable distance, and then back to the refrigerating apparatus, a suitable pump or forcing device being employed to insure the circulation of the refrigerant. The heated refrigerant is cooled by the water in its passage through the pipes, and is ready to again perform its refrigerating function on its return to the apparatus.

In carrying out my invention I form a longitudinal groove in the external surface of the vessel below the water-line and place the pipes in said groove, as shown in Fig. 2, said pipes passing at *b b* through the side of the vessel and being secured in the groove in any suitable manner. Said groove is of such depth that the pipes will not project materially from it, and will be thereby protected in a measure from injury by contact with external objects. The groove is located just above the keel *e*, and in the inner portion of the re-entrant angle or recess formed by the vertical side of the keel and the inclined side of the hull. This angle or recess constitutes an additional protection to the pipes and decreases the chances of their being injured by contact with external objects, so that the groove containing the pipes does not require to be made of such depth as it would if made in an exposed portion of the vessel—for example, in the bottom of the keelson, as has been proposed heretofore.

I claim—

A marine or navigable vessel having a longitudinal groove in its exterior surface located in the re-entrant angle or recess immediately above the keelson, and a pipe or pipes communicating with a refrigerating apparatus and placed in said groove, whereby said pipes, while exposed to the cooling action of the water on which the vessel floats, are protected from injurious contact with external objects, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 12th day of January, A. D. 1882.

REUBEN A. MESSERVEY.

Witnesses:

C. F. BROWN,

SAMUEL WATSON JOHNSON.