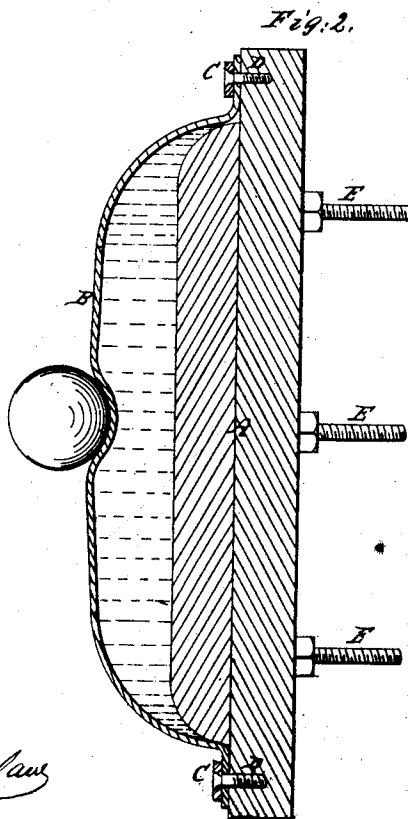
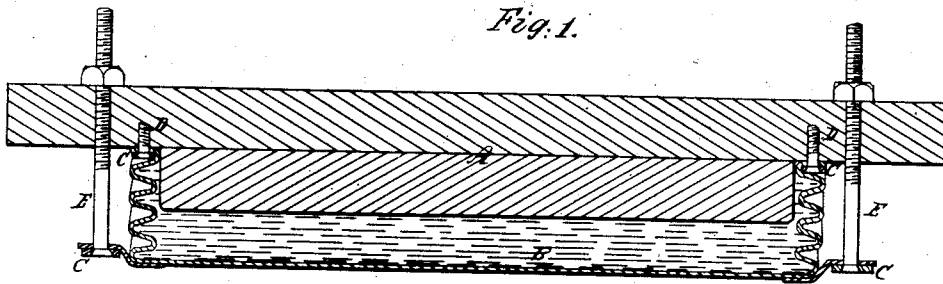


A. Pagenstecher.
Armor Clad.

N^o 43,377.

Patented Jun. 28, 1864.



Witnesses
James Whitelaw
W. Kauff

Inventor
Albert Pagenstecher

UNITED STATES PATENT OFFICE.

ALBERT PAGENSTECHER, OF VALPARAISO, CHILI.

IMPROVED WATER-DEFENSE AS THE PROTECTING-ARMOR OF VESSELS.

Specification forming part of Letters Patent No. 43,377, dated June 28, 1864.

To all whom it may concern:

Be it known that I, ALBERT PAGENSTECHER, of Valparaiso, in the Republic of Chili, have invented a new and Improved Armor for Vessels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a horizontal section of the portion of the side of a vessel protected by my improved armor partly expanded. Fig. 2 is a transverse vertical section of the same, illustrating its operation when struck by a shot.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in the application to the outside of a vessel of a series of chambers with flexible sides made of sheets of india-rubber, or other suitable elastic material, to be filled with water when in action, and emptied when not in action, in such a manner that when the vessel is not in action the armor can be drawn up tight to its sides, where it does not interfere with the sailing qualities of said vessel, and when preparing for action the armor can be expanded by filling the chambers with water, thus incasing the entire vessel in a water-jacket, and protecting it against projectiles of any kind which may be hurled against it.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the side of a vessel which is to be protected by my improved armor. The india-rubber or other flexible elastic material is taken in sheets B of any desired thickness, and if india-rubber is used it must be protected by horse-hair, carpet, or other suitable material to limit its elasticity, and impart to it a certain stiffness. The sheets B are attached to the sides of the vessel by means of metal strips C and screws D and bolts E, forming bags, which must be partly open at the

top so as to allow the escape of a certain quantity of water when struck by a projectile.

The screws D fasten the lower edges of the sheets closely to the sides of the vessel, and the side edges or ends of each sheet are held in position by the bolts E, which pass through the side of the vessel, being provided with long screw-threads and nuts, so that the sheets can be drawn up tight to the vessel's side when not in action, and that they do not interfere with her sailing qualities or motions in any direction.

While preparing for action, the sides of the sheets are released by screwing back the nuts of the bolts, and the bags thus formed are filled with water, as clearly shown in the drawings. The entire vessel can thus be incased in a stratum of water, the thickness of which may be varied from one to three feet, (more or less,) as experience will dictate, and when struck by a projectile this armor will protect the vessel in the most effectual manner. A fresh supply of water must be kept on hand, so as to replenish the bags when some of their contents should be spilled or driven out above. When going out of action, the bags are emptied and drawn up tight against the vessel's sides, and in this state they do not interfere with her motion, as previously stated.

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

1. The employment or use of bags made of india-rubber or other suitable material, and filled with water, substantially as herein specified, for the purpose of forming armor for a vessel.

2. The application to the sides of a vessel of sheets B of india-rubber or other suitable flexible and elastic material, to operate in combination with metal strips C and adjusting-bolts E, substantially in the manner and for the purpose herein shown and described.

ALBERT PAGENSTECHER.

Witnesses:

JAMES WHITELAW,
M. M. LIVINGSTON.