

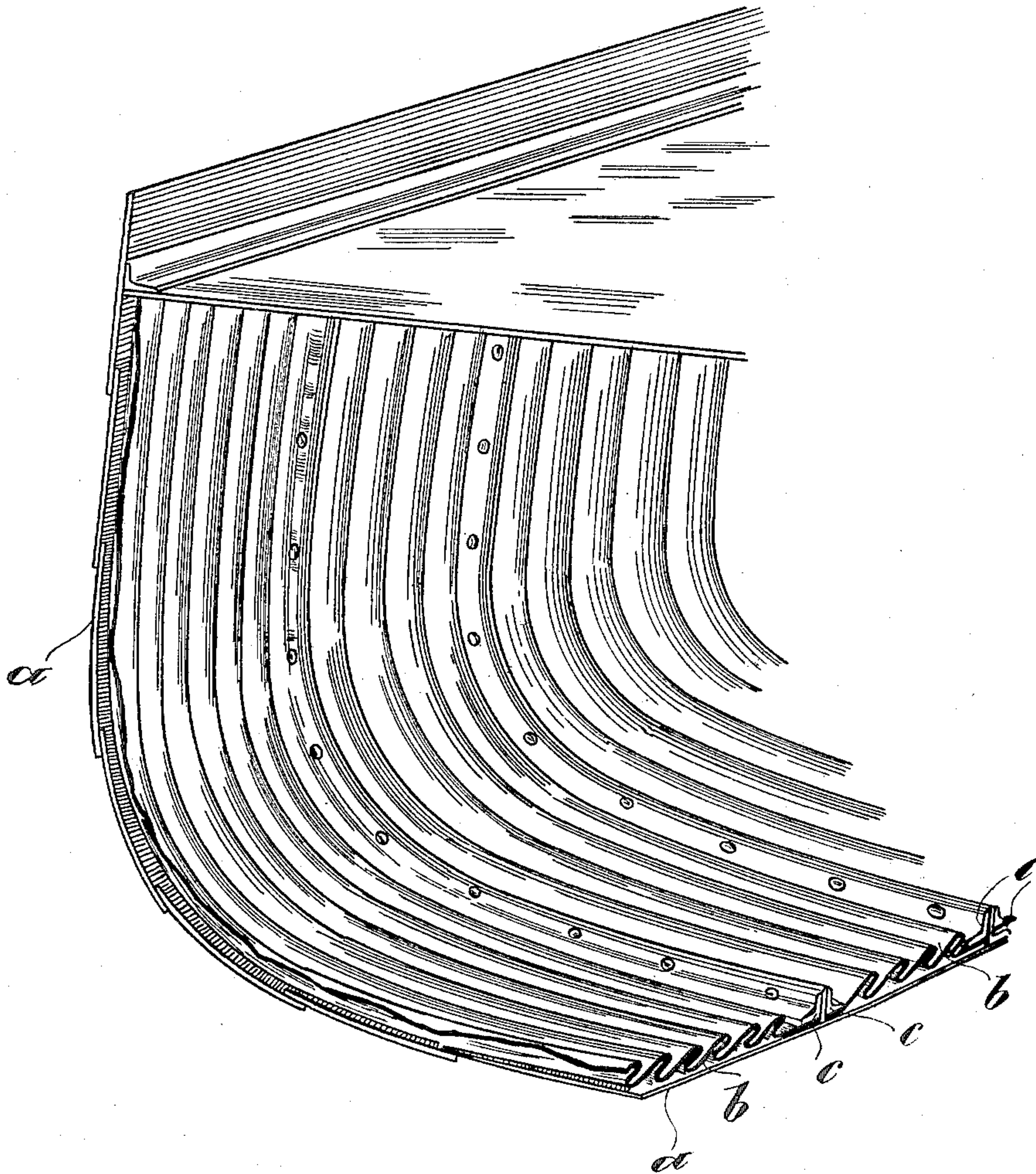
No. 659,948.

Patented Oct. 16, 1900.

A. WYSGALLA & F. ENGEL.  
MEANS FOR PREVENTING SHIPS FROM SINKING.

(Application filed Mar. 21, 1899.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ANDREAS WYSGALLA AND FRANZ ENGEL, OF Breslau, GERMANY.

## MEANS FOR PREVENTING SHIPS FROM SINKING.

SPECIFICATION forming part of Letters Patent No. 659,948, dated October 16, 1900.

Application filed March 21, 1899. Serial No. 709,885. (No model.)

*To all whom it may concern:*

Be it known that we, ANDREAS WYSGALLA and FRANZ ENGEL, of Breslau, Germany, have invented certain new and useful Improvements in Ships or other Vessels, of which the following is a specification.

This invention relates to ships or other vessels; and its object is to provide reliable and simple means for preventing them from sinking after they have been staved in or damaged by a collision or otherwise.

The invention consists in providing the hull of a vessel with a metallic lining formed in plaits or folds, so that its superficial area is considerably greater than the hull which it lines, said metallic lining being secured in place by means of suitable ribs attached to the hull, as will be hereinafter described and then particularly claimed. The metal of which the lining is made and its arrangement may be varied considerably; but the form shown in the accompanying drawing is the one preferred.

The drawing represents a perspective sectional view of a portion of a vessel's hull.

*a* indicates the hull of the vessel, which is provided with a metallic lining *b*, which is of such dimensions that it may be pressed inward to a considerable distance from the hull *a* without fracture or damage. This is permitted by making the sheet-metal lining *b* of much greater superficial dimensions than the part of the vessel it is to cover, the excess metal being arranged in plaits or folds, as shown. A metallic lining, such as shown, will

give without being damaged when the hull of the vessel is staved in, and said lining is of such stiffness, resistance, and toughness that when the sides of the vessel are simply pierced or broken, so as to allow the water to enter between the hull and the lining, it will practically maintain its shape without bulging in, and thereby perhaps injuring a portion of the cargo. When the vessel is staved in badly, the lining is deformed, but not broken or penetrated.

A very convenient way of arranging the metallic lining is to form it in sections, the edges of which may be attached to ribs or angle-irons *c*, secured to the hull *a* in such a manner as to form water-tight joints, which prevent the water which may enter behind one section from passing to the next. The described protective lining is always in working condition and does not require any attention at the moment of an accident.

What we claim is—

The combination with a vessel's hull, of a metallic lining arranged in folds or plaits, said lining being stiff and of a resistance to withstand and hold its own against water-pressure, substantially as set forth.

In witness whereof we have hereunto set our hands in presence of two witnesses.

ANDREAS WYSGALLA.  
FRANZ ENGEL.

Witnesses:

WILHELM WEIDNER,  
HERMANN BARTSCH.