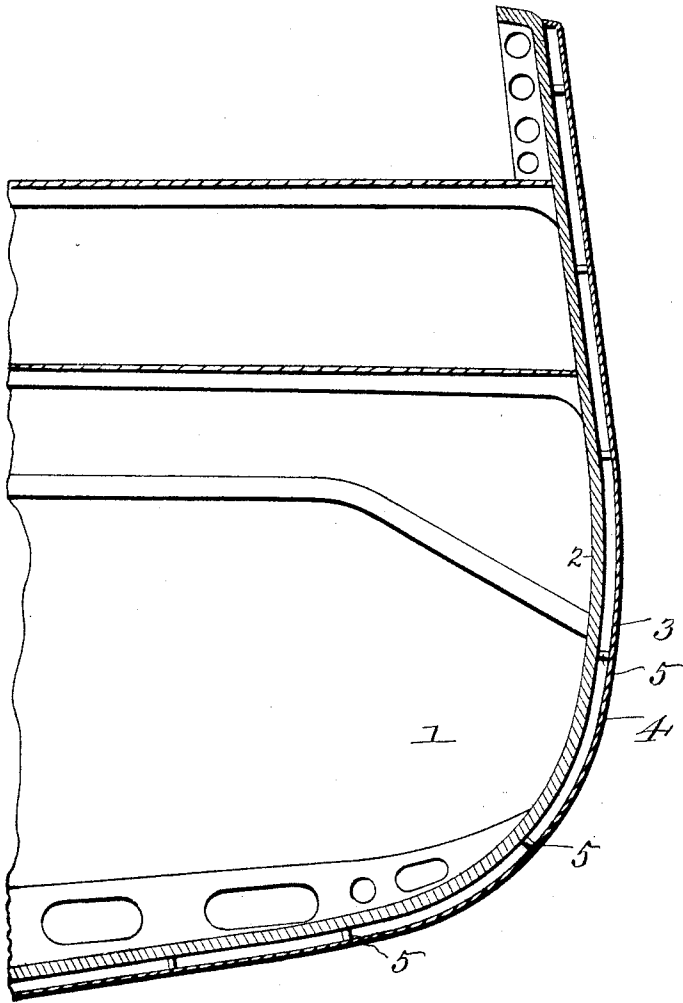


(No Model)

E. M. JOHNSON.
ARMORED VESSEL.

No. 582,648.

Patented May 18, 1897.



Witnesses:
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UNITED STATES PATENT OFFICE.

ELIAS M. JOHNSON, OF NEW YORK, N. Y.

ARMORED VESSEL.

SPECIFICATION forming part of Letters Patent No. 582,648, dated May 18, 1897.

Application filed August 10, 1896. Serial No. 602,327. (No model.)

To all whom it may concern:

Be it known that I, ELIAS M. JOHNSON, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Armored Vessels; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, which forms a part of this specification.

My invention relates to armor-plated vessels which are protected by plates having hardened surfaces. The armored vessels as now constructed are surrounded by a single layer or thickness of harveyized or other hardened plates, which vary in thickness from four to eighteen inches, according to the location it is desired to protect.

The object of the hardened or harveyized plate is to prevent a shot or projectile from starting to penetrate the surface of the plate, or, in other words, it is to break, crush, or partly destroy the point of the projectile. When the point is thus destroyed, the shot loses its penetrating qualities and is smashed or broken on the plate, only penetrating the same a short distance. To accomplish these results, the face of the harveyized plate is made extremely hard, this hard surface becoming softer and tougher as the back of the plate is reached. It is found that if a shot once gets through this hard surface and keeps its point if it has velocity enough it will penetrate the plate. By recent improvements the point of the projectile is so protected that the surface of the harveyized plate is now nearly as easily penetrated as before the plate was put through the hardening process.

The object of the present invention is to construct the armament of a vessel of two layers or thicknesses of plates with a space between them, so that the point of a projectile which may penetrate the outer layer in passing through this first layer or thickness loses its means of protection and will be prevented from penetrating the second layer of hardened plates, or of two or more thicknesses or lay-

ers in contact with each other, and its point will be smashed on these second plates or layers.

The invention consists in an armor-plated vessel provided with two layers or thicknesses of plates with a space therebetween and the inner layer or plates surface-hardened, as hereinafter fully described.

In the accompanying drawing the figure is a transverse sectional view of an armored vessel constructed in accordance with my invention.

In the said drawing the reference-numeral 1 designates the hull of the vessel; 2, the inner layer or thickness of surface-hardened plates; 3, the outer layer or thickness; 4, the space therebetween, and 5 studs for keeping the plates of two layers or thicknesses apart. The projectile which these layers or thicknesses are intended as a protection against is of that class or character which are provided with a hard solid conoidal point having a soft-metal cap which will receive the impact when the projectile strikes the plate, and thus protecting the point and preventing it from being smashed or broken. By constructing the vessel with two layers of such plates with a space between, the projectile may pass through the first plate without injury, but upon reaching the second plate or layer, the protecting-cap having been destroyed, the point will be smashed on the said second plate and the projectile prevented from penetrating the same. As the object of the first plates or layers is to break down the cap on the head of the projectile, it is not necessary that these plates or layers should be surface-hardened, as the cap will be destroyed even when a soft-iron plate is used. The space between the layers will prevent the back bulge of the first plate caused by the impact of the projectile from injuriously affecting the plates of the second layer.

Having thus fully described my invention, what I claim is—

1. An armored vessel provided with two layers or thicknesses of plates with a space therebetween the plates of the inner layer or thickness being harveyized or surface-hardened, substantially as described.

2. A vessel provided with a protecting plating or layer of thick plates harveyized or surface-hardened on their outer sides and an outer plating or layer of thin plates with a
5 space between the two layers, substantially as described.

In testimony that I claim the foregoing as

my own I have hereunto affixed my signature in presence of two witnesses.

ELIAS M. JOHNSON.

Witnesses:

GEO. H. WHITEHEAD,
J. J. DEWEY.