

Torpedo-Proofing Ships with Air Tanks

Air-cushions to run along sides of ship are proposed as a protection against torpedoes

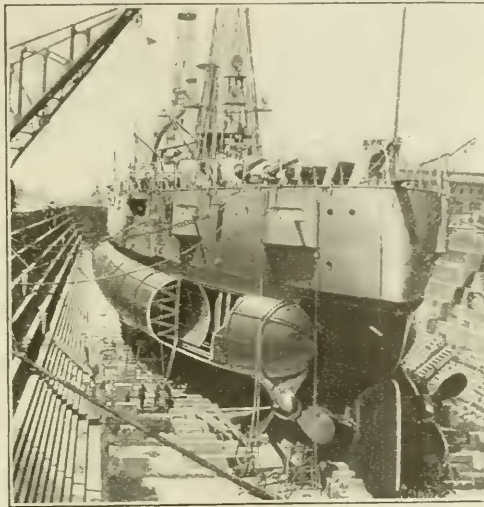
SINCE the beginning of the Great War, and particularly since Germany adopted the submarine policy, the brains and ingenuity of inventors of all classes and ratings have been directed toward finding some means of counteracting the destructive effects of the torpedo. Many expedients have been suggested, ranging all the way from extremely feasible propositions to the wildest vaporings. The following article deals with one of the more probable ones.

Hudson Maxim, who has, himself, suggested a method for torpedo-proofing ships in which he makes use of the principle of the "gun silencer," states that the explosive charge in the war-head of a modern torpedo consists of about four cubic feet of T.N.T. (tri-nitro-toluol). When the detonator inside the charge is fired the T.N.T. explodes, and within less than the twenty-thousandth part of a second the four cubic feet of explosive are transformed into 40,000 cubic feet of gases, having a temperature of about 5,000 degrees F. The mass of water surrounding the explosive offers a greater resistance to the sudden expansion of the gases than the wall of the ship and as the expansion follows the line of least resistance, the wall of the ship is crushed and the

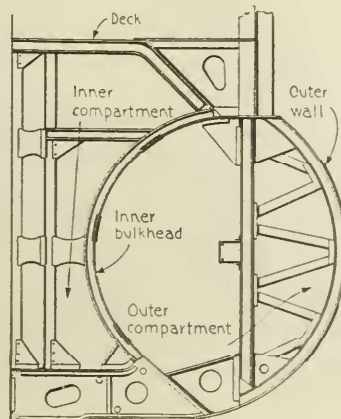
expanding gases enter into the body of the ship with destructive violence.

With this picture of a torpedo's effect before us we are prepared to understand the invention of Thomas G. O. Thurston, of London, England, recently patented in the United States. Thurston, taking the terrific expansion of the gases generated by modern explosives into account, seeks to provide a system of large resistance and expansion chambers which act like an air-cushion by which the force of the intruding gases is smothered and robbed, to a great extent, of its destructive potentiality.

The inventor proposes to construct these shock-absorbing chambers along the sides of the ship for a suitable distance forward and aft. He suggests various forms, all showing a decided bulging outward, beyond the normal contour of the ship. The back of these bulging outer chambers, formed by a suitably stiffened bulkhead or inner framework, separates the outer chamber from the inner compartment, which provides the final and strongest resistance to the expanding gases. This inner compartment has a strongly braced back, curving inward toward the interior of the ship, and the air contained in it is intended to act as an additional cushion.



A cruiser in dry-dock, showing how the air-chambers are attached below the waterline



Diagrammatic view of the latest torpedo protection