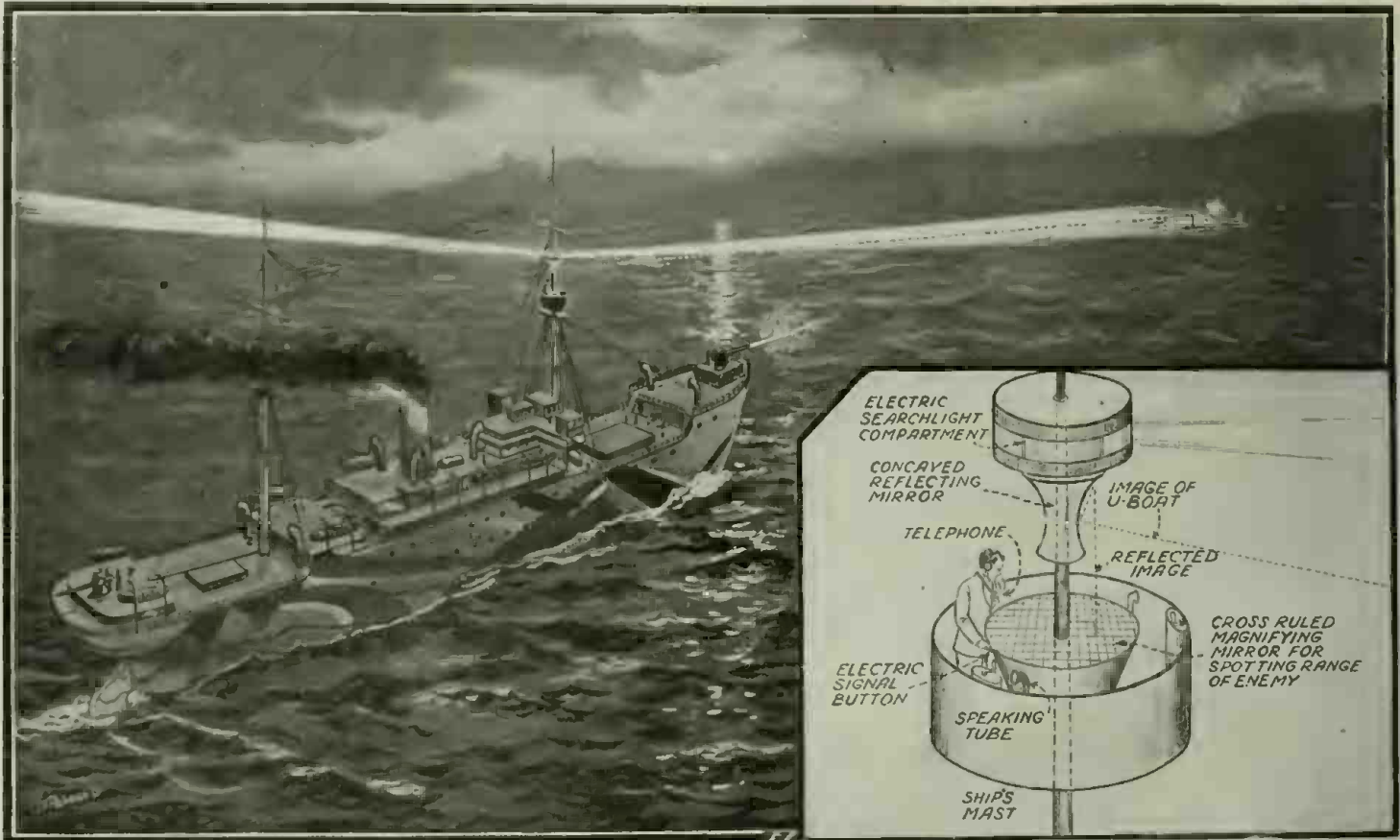


Locating Submarines by Reflection

DEVICES for locating or detecting the presence of submarines are in great demand nowadays. For once a war vessel or merchantman becomes apprised of the fact that he is face to face with a sub-sea fighter, the officer in charge will at once put himself on the *qui vive*. The gun crews can at once be summoned to quarters, and if the

here presented which comprises an optical submarine detector invented by Edward S. Jones, of Mobile, Ala. In the words of the inventor, "This invention relates to improvements in a scientific instrument for locating submarines, floating mines, and other objects of menace to navigation, within a certain radius about the ship. It consists primarily of a series of re-

A powerful electric searchlight or series of searchlights are arranged above the optical locating device just described for use at night, and the searchlight compartment is arranged with suitable windows and shutters so that the one or more beams of light used can be swept over the water rapidly in any formation desired. The device is effective over 180 degrees of horizon.



Here's the Latest Anti-Submarine Invention. The Patentee of the Scheme Illustrated Proposes to Mount a Large Concaved Reflecting Mirror and a Magnifying Mirror at Some Elevated Point, as for Instance on the Mast of a Ship, and to Thus Pick Up by Reflection the Image of a U-Boat or Its Periscope. The Magnifying Mirror Is Ruled Off in Squares to Facilitate Measuring the U-Boat's Range and Direction.

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enemy is to be located at night, the searchlight can be caused to sweep the waters, and the vessel put over a zig-zag course, these precautions having saved many vessels from a disastrous finish as the press reports of such encounters have indicated in the past. Only recently there was a case where an English merchantman spotted the periscope of a submarine—in other words, he was at once apprised of the fact that he had to face two kinds of warfare, by torpedo and by gun fire. To show that it proved valuable for the skipper of this vessel to know what conditions he was up against, it can be said that the captain caused the vessel to pursue a zig-zag course, and shortly after starting this maneuver, the boat managed to just miss by a few yards a white-nosed German torpedo. Presently the submarine arose to the surface and started firing with her deck guns. The merchantman, however, had the best of the game, for being provided with guns both fore and aft, the U-boat was efficiently bombarded and after the twenty-sixth shot the sub-sea craft was rendered helpless, and according to the report of the merchantman's commander, the U-boat was undoubtedly sunk.

All of which leads us to the invention

reflectors, coöperatively so arranged as to show upon a magnifying mirror the surface of the sea and objects thereon within a given radius, so that it may be observed from the look-out cage at the top of the mast, as the illustration herewith depicts, thus enabling the proper officials on board the vessel to be instantly warned of any danger so as to defend the ship if armed, and to escape if unarmed."

As the drawing shows in detail, the look-out cage is fitted with speaking tubes as well as telephones for maintaining constant communication with the bridge and officers' quarters. In the form of the invention here illustrated, the reflecting mirror is concaved, and has its upper end broadened so as to reflect images on the surface of the water as indicated by the dotted lines on to the magnifying mirror, on which the officer looks. This magnifying mirror is preferably graduated by very fine lines running at right angles to each other, their purpose being to assist the observer in locating the distance the reflected image is from the ship. The farther away the submarine or mine happens to be, the smaller, of course, will its image appear on the magnifying mirror, and vice versa.

GERMANS USING MEXICAN RADIO?

Activities of Germans or German-Americans from the United States across the Mexican Lower California border, where a wireless plant is located, are now under investigation by Government agents.

Reports indicate that for months groups of about fifty Germans, changing every week or ten days, have been found in Mexicali, a torrid little collection of baked shacks just across the border from Calexico, Cal.

The Germans, who were never known to visit the town before the war, now congregate at a store started recently by a German. This German is known to have been active in propaganda work in the United States before the war. The Germans have used the wireless station there, which is capable of communicating with Mexico City.

Government officials profess not to know how the Germans reached the town from the United States, since the railroad is carefully watched. It is suspected they cross the border at a number of points in sparsely settled communities.