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Sirmalis

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[54] **EXTENDIBLE PLANAR PHASED ARRAY MAST**

Attorney, Agent, or Firm—Michael J. McGowan; Robert W. Gauthier; Prithvi C. Lall

[75] Inventor: **John E. Sirmalis**, Barrington, R.I.

[57] **ABSTRACT**

[73] Assignee: **The United States of America as represented by the Secretary of the Navy**, Washington, D.C.

The invention provides a hydrodynamically and stealth shaped suite of antennas and sensors mounted above a hydrodynamically and stealth shaped mast. The mast is configured to extend from the sail of a submerged vessel to the surface so as to provide the vessel with satellite communications capabilities. The hydrodynamic shape of the mast minimizes the surface wake and the stealth shape of the antenna suite and mast minimizes the radar cross section of the system, lessening detection by hostile forces. To obtain a stealth shape, the radar suite utilizes a conformal phased array antenna. In addition, electro-optical sensors in the antenna suite provide visual, environmental and other sensing capabilities to the system. Further, structurally embedded ESM antennas provide ESM and radar capabilities. When in the retracted position, the antenna system conforms to the hydrodynamic and stealth shape of the submerged vessel and the conformal phased array of the antenna suite forms an integral part of the conformal phased array of the vessel.

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[51] Int. Cl.⁶ **H01Q 1/34; H01Q 3/22**

[52] U.S. Cl. **343/709; 343/725; 343/372; 343/872; 343/854**

[58] Field of Search **343/709, 710, 343/723, 574, 766, 372, 725**

[56] **References Cited**

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Primary Examiner—Don Wong
Assistant Examiner—James Clinger

11 Claims, 3 Drawing Sheets

