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O'Connell

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[54] **UNDERWATER DEFENSE SYSTEM**

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[52] **U.S. Cl.** **114/21.2**; 89/1.11; 340/850

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[56] **References Cited**

U.S. PATENT DOCUMENTS

3,783,441	1/1974	Slawsky	367/5
5,012,717	5/1991	Metersky et al.	89/1.11
5,291,194	3/1994	Ames	340/850
5,379,034	1/1995	O'Connell	340/850

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[57] **ABSTRACT**

A communications system of an underwater defense system is decoupled from an unmanned underwater vehicle (UUV) when the UUV is deployed under the surface of the water. A housing attached to the UUV has a communications wire spooled therein with a first end of the wire coupled to the UUV. Once underwater, the housing separates from the UUV causing the communications wire to be paid out from the housing. As a result, a pulling force is applied to the housing via the communications wire. Communications electronics are coupled to a second end of the communications wire. The communications electronics includes an RF antenna switchably coupled to an RF receiver operating at a first frequency and to an RF transmitter operating at a second frequency. A buoy is coupled to the communications electronics to float same to the surface of the water such that the RF antenna breaks the surface of the water. A drag drogue depends from the housing to supply a drag force hat offsets the pulling force to maintain the buoy at the surface of the water and the RF antenna above the surface of the water.

8 Claims, 3 Drawing Sheets