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Hillenbrand

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[54] **UNMANNED UNDERSEA VEHICLE INCLUDING KEEL-MOUNTED PAYLOAD DEPLOYMENT ARRANGEMENT WITH PAYLOAD COMPARTMENT FLOODING ARRANGEMENT TO MAINTAIN AXI-SYMMETRICAL MASS DISTRIBUTION**

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[52] **U.S. Cl.** **114/21.2**; 114/316; 114/318; 89/1.81

[58] **Field of Search** 114/21.2, 316, 114/317, 318; 89/1.809, 1.81; 102/411

[56] **References Cited**

U.S. PATENT DOCUMENTS

5,076,192	12/1991	Tegel et al.	114/316
5,163,379	11/1992	Chorley	114/317
5,248,978	9/1993	Manthy et al.	342/54
5,267,220	11/1993	Burt	367/131
5,442,358	8/1995	Keeler et al.	342/54
5,447,115	9/1995	Moody	114/312
5,448,941	9/1995	Godfrey et al.	89/1.809

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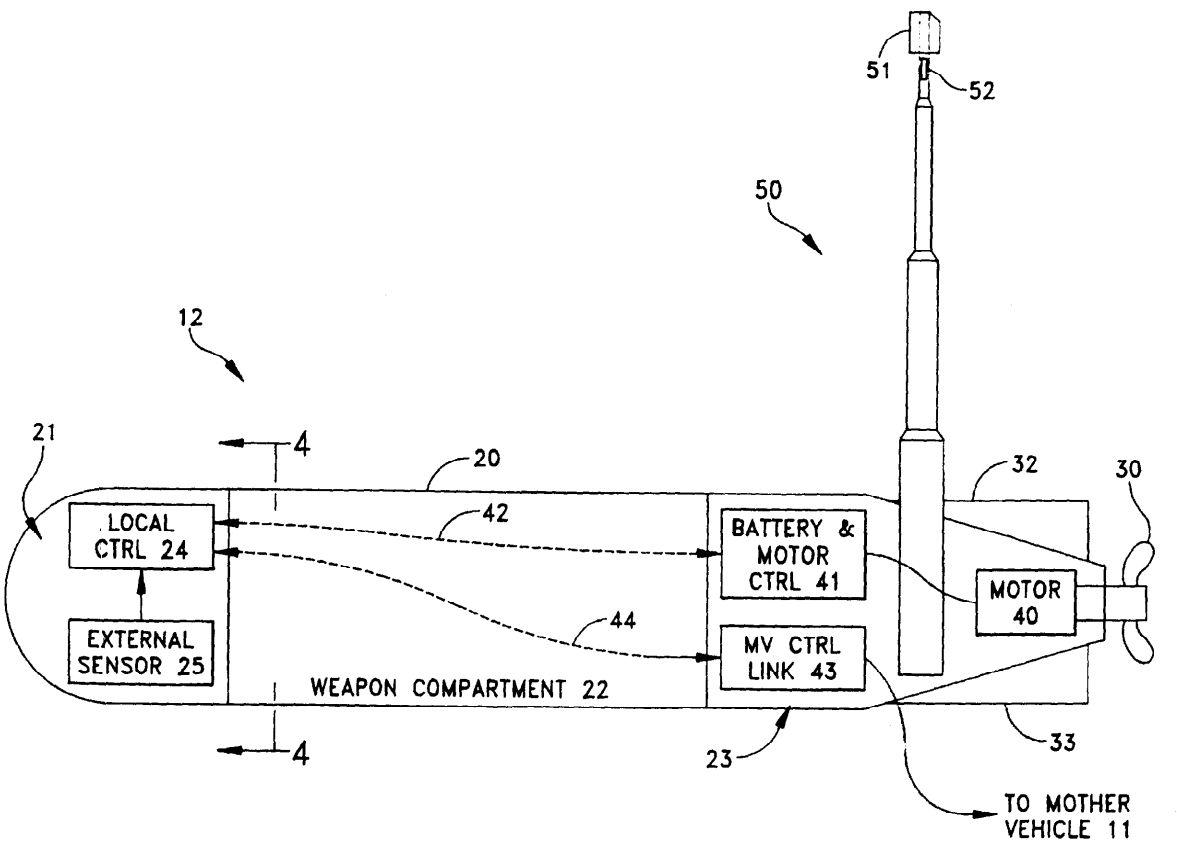
[57] **ABSTRACT**

An unmanned undersea vehicle system comprises an axi-symmetrical cylindrically-shaped self-propelled undersea deployment vehicle of predetermined diameter, the undersea deployment vehicle having an amidships undersea weapon compartment. The weapon compartment includes elements for receiving a weapon and a buoyancy chamber positioned axi-symmetrically within the weapon compartment. The buoyancy chamber is initially empty and has sufficient capacity so that it can be loaded with seawater whose mass approximates the mass of the weapon. The weapon compartment further includes controllable valves for enabling seawater surrounding the vehicle to fill the buoyancy chamber. A control element controls the deployment of the weapon by expelling the weapon from the weapon compartment and thereafter controlling the firing of the weapon, contemporaneously controlling the valves during weapon deployment to enable filling of the buoyancy chamber to maintain an axi-symmetrical distribution of mass as the weapon is deployed.

3 Claims, 9 Drawing Sheets