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Benson, Jr.

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[54] **UNDERSEA VEHICLE PROPULSION AND ATTITUDE CONTROL SYSTEM**

2.330.674 9/1943 Briggs 114/151
2.963.543 12/1960 Link et al. 114/151

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[57] **ABSTRACT**

An undersea vehicle propulsion and attitude control system is used to control the forward/reverse movement, vertical up/down movement, lateral movement, pitch, roll and yaw of an undersea vehicle. The propulsion and attitude control system includes a forward port at a forward end of the undersea vehicle, an aft port at an aft end of the vehicle, and radial ports extending radially along the undersea vehicle. The propulsion and attitude control system further includes a single pump, either reversible or unidirectional, and a plurality of valves that, through a controller, selectively control fluid flow between the pump and the forward port, aft port, and radial outlet ports in the undersea vehicle, to provide accurate vehicle propulsion and attitude control.

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[51] **Int. Cl.⁶** **B63G 8/14**

[52] **U.S. Cl.** **114/330; 114/151**

[58] **Field of Search** 114/330, 331, 114/144 R, 150, 151, 337, 338; 440/38, 39

[56] **References Cited**

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20 Claims, 4 Drawing Sheets

