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[54] MAGNETO-ACOUSTIC SIGNAL CONDITIONER

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[58] Field of Search **367/131, 901, 128, 134; 73/181**

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[57] ABSTRACT

An apparatus for enhancing the signal to noise ratio of

piezoelectric hydrophone outputs by decoupling the turbulent velocity pressure noise from the imbedded acoustic signal. An electromagnetic turbulent velocimeter is positioned coaxially with a piezoelectric hydrophone and flush mounted in a shell structure. The velocimeter senses the changes in the electric potential caused by the velocity of a conductive fluid passing through a magnetic field normal to the shell structure surface. The velocimeter responds to electromagnetic signals and is insensitive to acoustic signals. The piezoelectric hydrophone is positioned so as to contain the electromagnetic turbulent velocimeter magnetic field within the hydrophone field of view. The hydrophone responds to conductive fluid velocity pressure variations and is insensitive to electromagnetic signals. The output frequency components of the velocimeter are correlated or coupled with those of the hydrophone. The correlated velocity frequency components are then decoupled from the hydrophone output to provide an enhanced acoustic signal output. Similarly, correlated velocity frequency components are decoupled from the electromagnetic turbulent velocimeter output to provide an enhanced electromagnetic signal output.

16 Claims, 3 Drawing Sheets

