

# Ex. PGS 1033

[54] **SYSTEM FOR Laterally POSITIONING A TOWED MARINE CABLE AND METHOD OF USING SAME**

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[51] Int. Cl.<sup>3</sup> ..... G01V 1/38

[52] U.S. Cl. .... 367/19; 367/17; 114/246

[58] Field of Search ..... 367/16, 17, 19, 106; 114/242, 246

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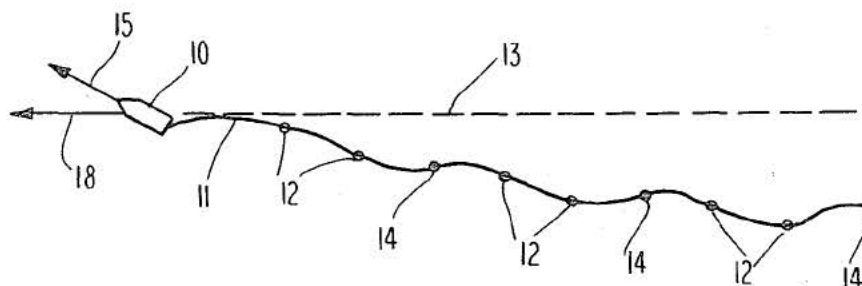
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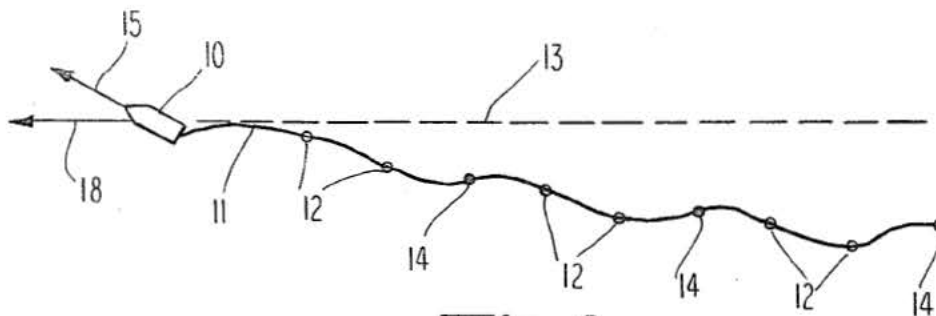
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[57] **ABSTRACT**

A marine cable positioning system which includes a plurality of magnetic compasses and a plurality of lateral positioning devices spaced at known intervals along the cable being towed by a marine vessel. Readings from the compasses together with readings from a magnetic compass and gyrocompass onboard the towing vessel are gathered and used with a selected reference heading to generate X-Y coordinates of the lateral positioning devices with respect to the towing vessel and selected reference heading. These coordinates are recorded and provided to a cathode ray tube for visual display of the relative position of each lateral positioning device with respect to the vessel and selected heading. Coded digital commands are generated and transmitted to each lateral positioning device for adjustment of its control surfaces whereby the lateral thrust produced the device as it is towed through the water is varied and the horizontal position of the portion of the cable to either side of the device controlled. Feedback of changes in the cable's location are provided by updated compass readings and visual displays. Each lateral positioning device responds to a command for a specific adjustment of its control surfaces or for the return of the control surfaces to a neutral orientation where lateral thrust is not produced.

**1 Claim, 8 Drawing Figures**

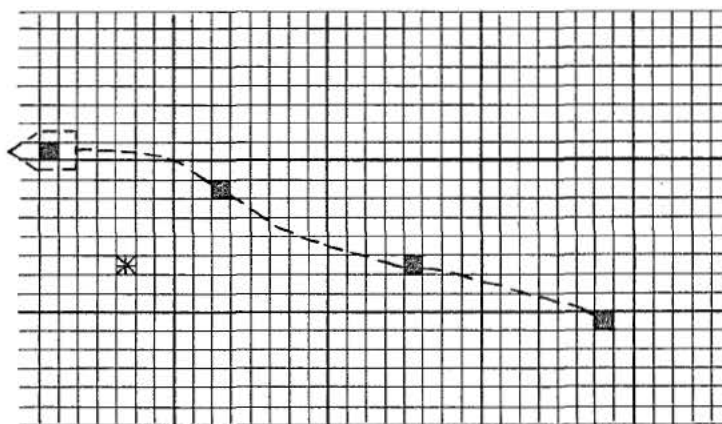




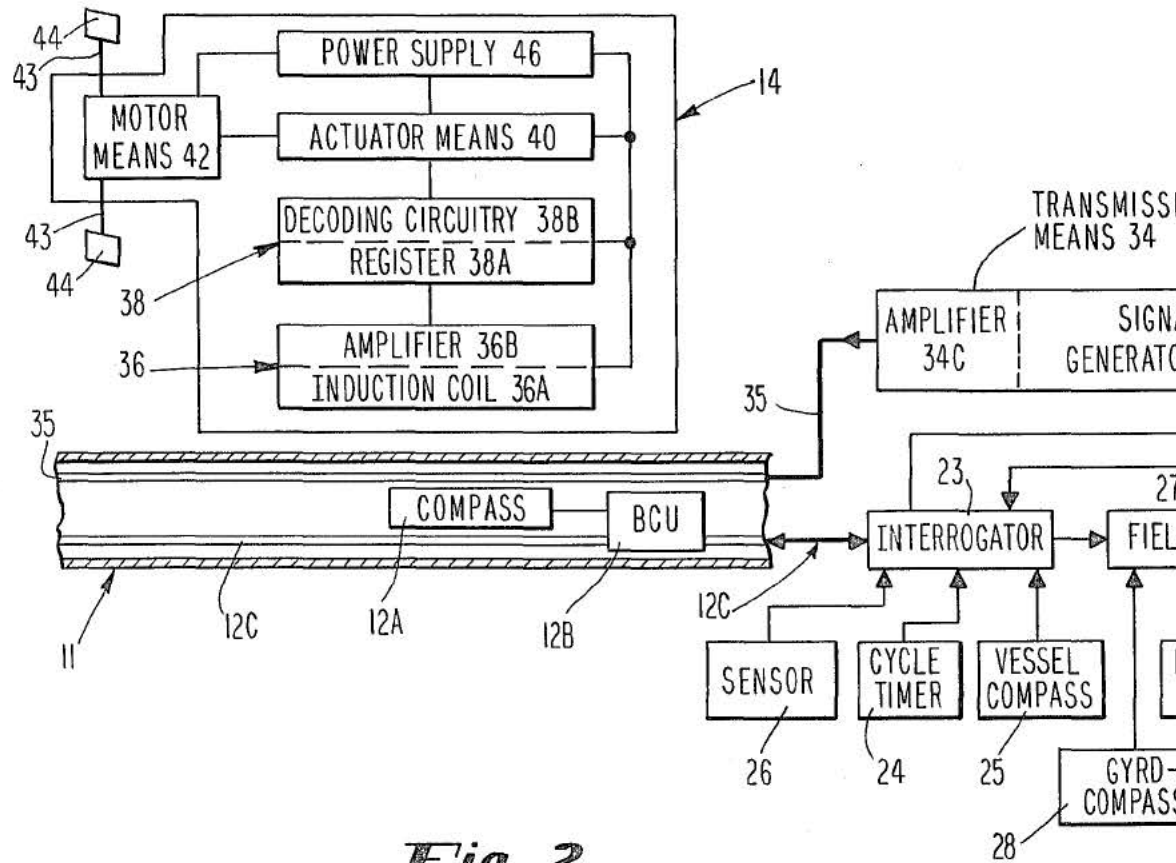
**Fig. 1**

SELECTED (COURSE MADE GOOD) HEADING ←	X = -	X = +
	Y = +	Y = +
	X = -	X = +
	Y = -	Y = -

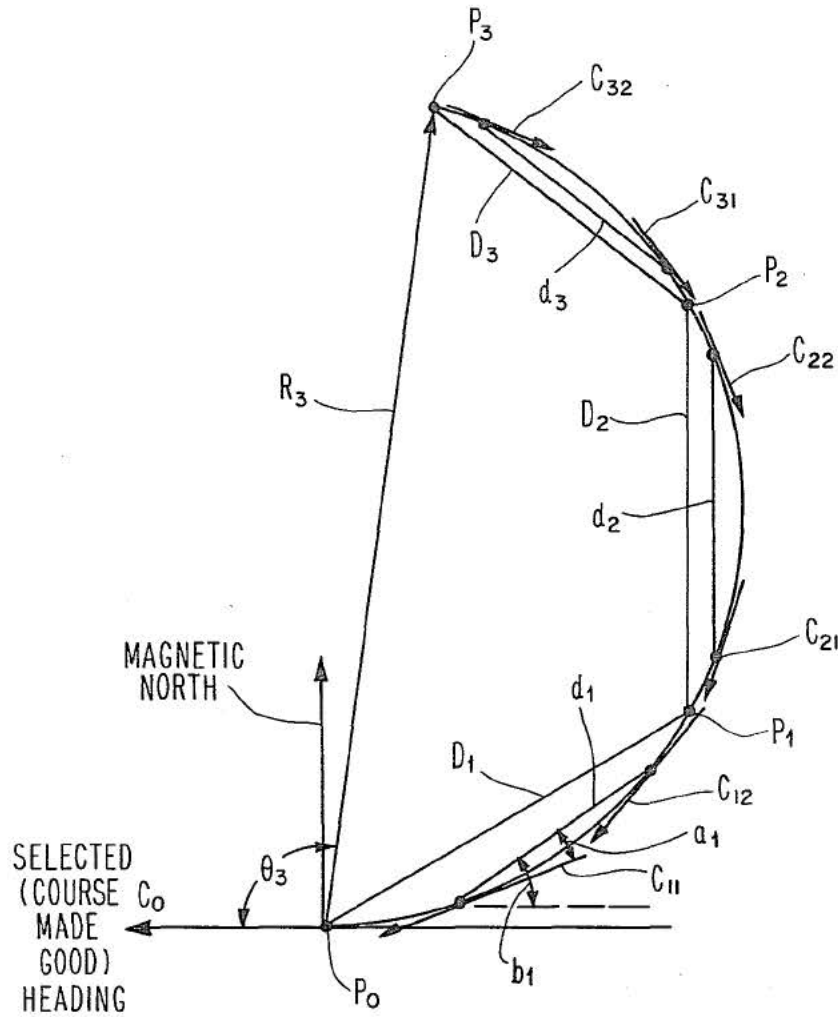
**Fig. 4**



**Fig. 5**



*Fig. 2*



**Fig. 3**

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