US006006145A

United States Patent [19]

Bessacini

[11] **Patent Number: 6,006,145**

[45] **Date of Patent: Dec. 21, 1999**

[54] **METHOD AND APPARATUS FOR DIRECTING A PURSUING VEHICLE TO A TARGET WITH INTELLIGENT EVASION CAPABILITIES**

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[21] Appl. No.: **08/885,701**

[22] Filed: **Jun. 30, 1997**

[51] **Int. Cl.**[6] **G06F 165/00**

[52] **U.S. Cl.** **701/1**; 701/23; 701/24; 701/27; 701/302; 244/3.1; 244/3.11; 244/3.14; 244/3.15; 244/3.16; 244/3.19

[58] **Field of Search** 701/1, 23, 24, 701/27, 302; 244/3.11, 3.1, 3.14, 3.15, 3.16, 3.19

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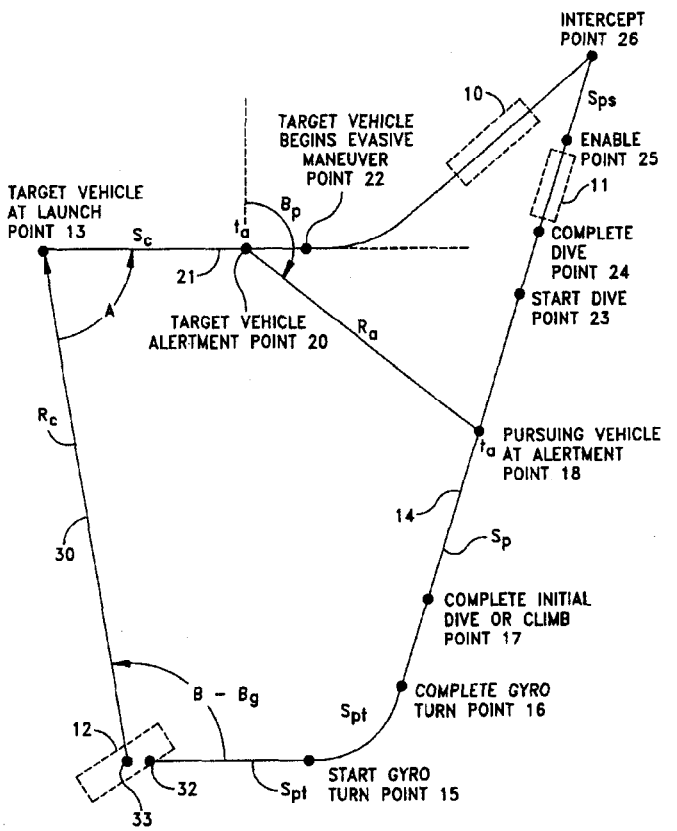
[57] **ABSTRACT**

A method and apparatus for directing a pursuing vehicle, such as a torpedo, on an intercept trajectory from a launching vehicle to a target vehicle with evasion capabilities. Models of the pursuing vehicle and evading target provide proposed trajectories based upon various environmental considerations. A guidance system uses estimates of initial operating parameter solutions, such as gyro angle, alertment time and intercept time, to begin a convergent, iterative process that defines final operating parameter solutions from which the guidance parameters are determined and transferred to the pursuing vehicle at launch. During each iteration, the solution determines an alertment time and an alertment bearing from the target vehicle to the pursuing vehicle at the alertment time. A selected evasive strategy includes a turn that is calculated relative to the alertment bearing.

15 Claims, 7 Drawing Sheets