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Fouche

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(54) **SYSTEM AND METHOD FOR CONTROLLING MODEL AIRCRAFT**

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Related U.S. Application Data

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(51) **Int. Cl.**[7] **B64C 11/34**

(52) **U.S. Cl.** **701/3**; 244/3.21; 244/164; 244/171; 342/29; 340/967

(58) **Field of Search** ..... 701/3, 4, 7, 48; 244/3.21, 164, 171, 181, 183, 158 R, 177, 179; 342/29, 30; 340/967, 975, 978

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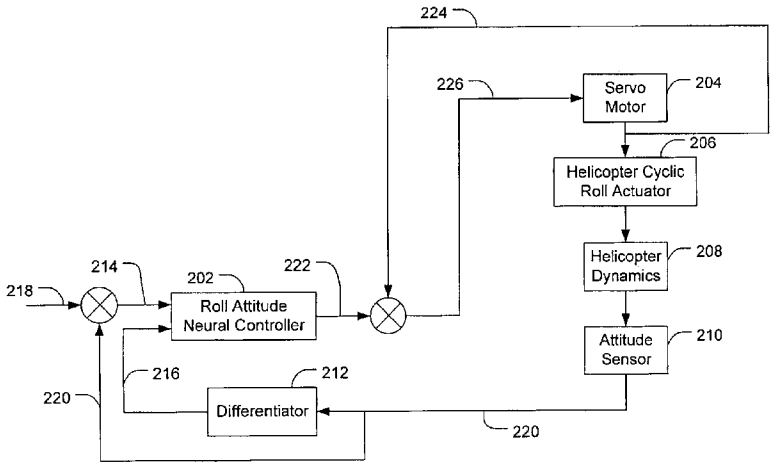
(57) **ABSTRACT**

In one embodiment, a method for controlling an aircraft comprises providing an attitude error as a first input into a neural controller and an attitude rate as a second input into the neural controller. The attitude error is calculated from a commanded attitude and a current measured attitude, and the attitude rate is derived from the current measured attitude. The method also comprises processing the first input and the second input to generate a commanded servo actuator rate as an output of the neural controller. The method further comprises generating a commanded actuator position from the commanded servo actuator rate and a current servo position, and inputting the commanded actuator position to a servo motor configured to drive an attitude actuator to the commanded actuator position. The neural controller is developed from a neural network, wherein the neural network is designed without using conventional control laws, and the neural network is trained to eliminate the attitude error.

28 Claims, 16 Drawing Sheets



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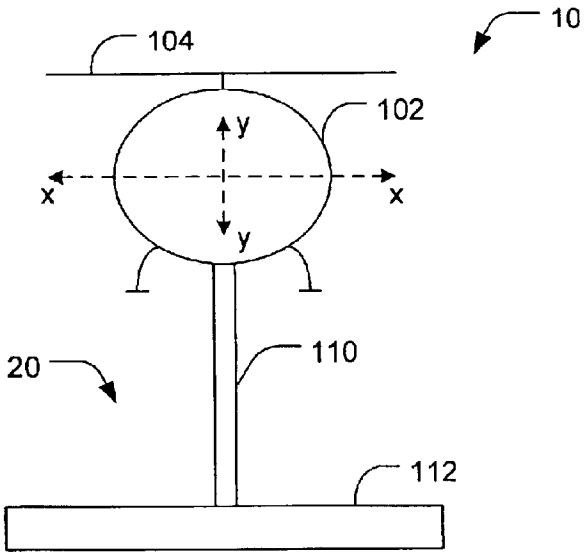
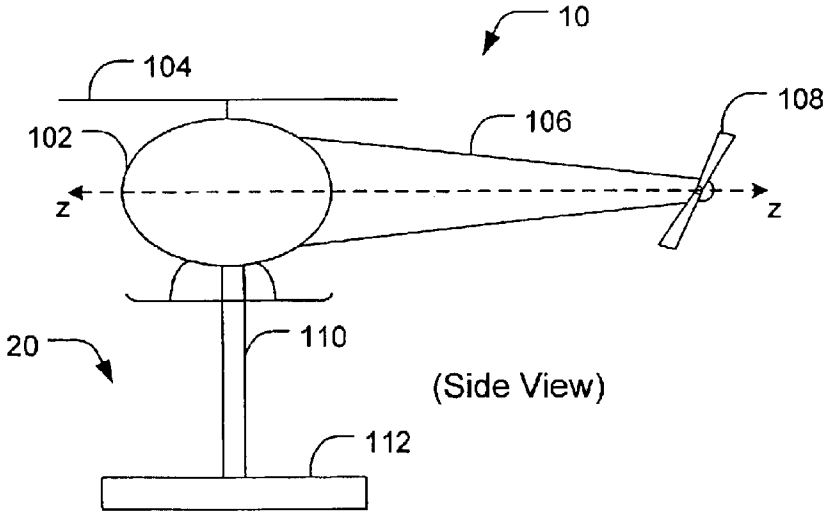


(Front View)

FIG. 1A



(Side View)

FIG. 1B

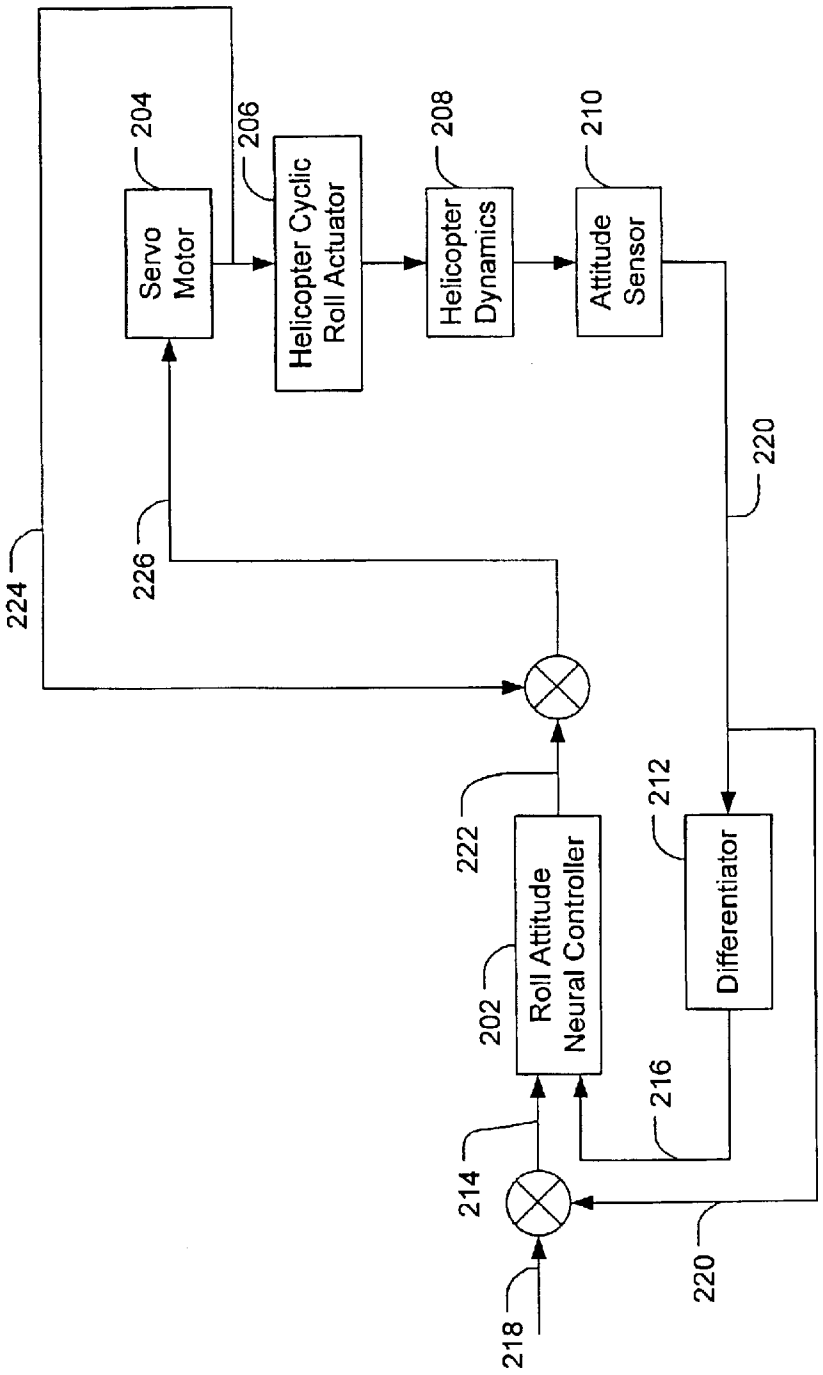


FIG. 2

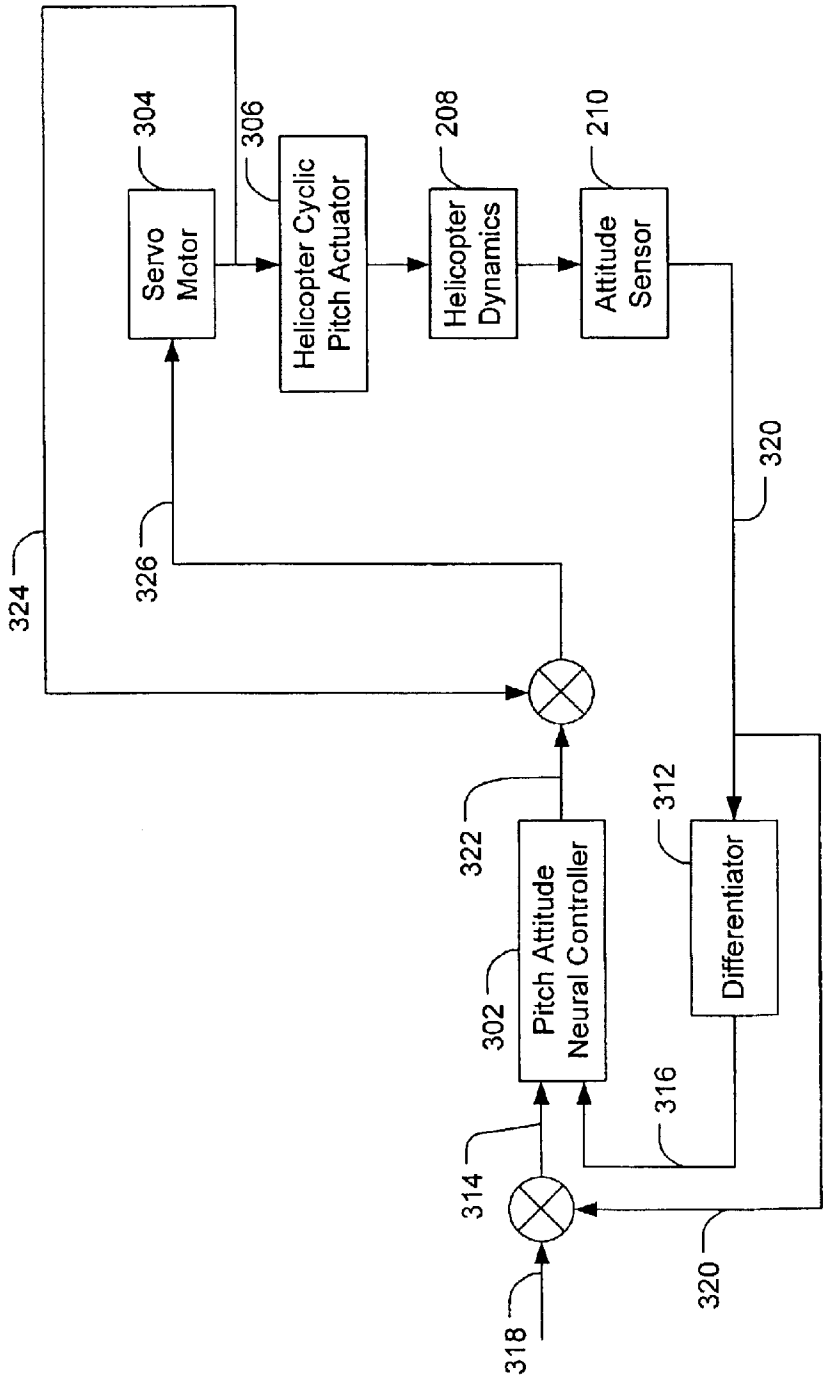


FIG. 3

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