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(54) Title: METHOD AND APPARATUS DETERMINING THE ROTOR POSITION OF A PERMANENT-MAGNET MOTOR

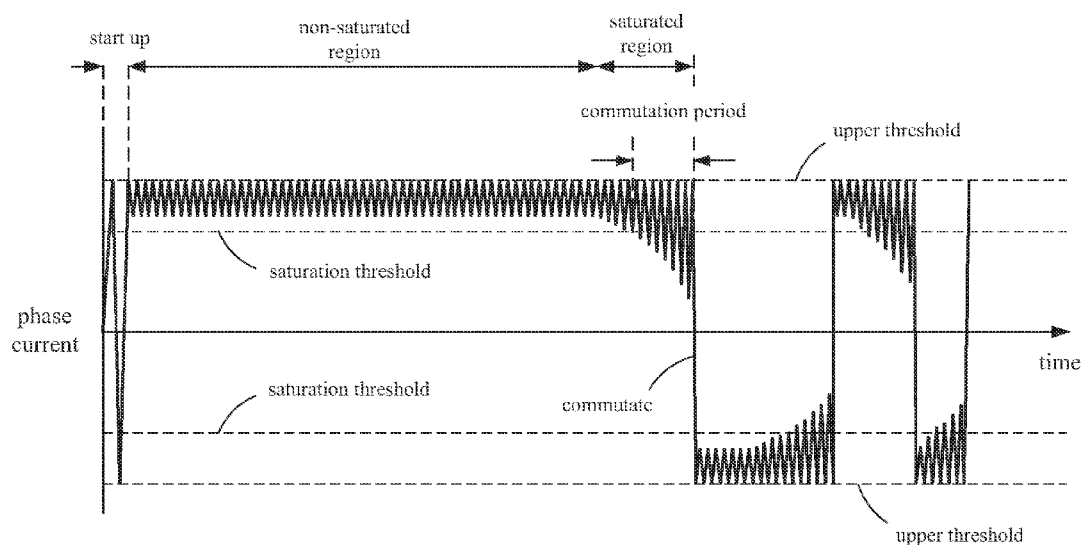


Fig. 3

(57) Abstract: A method of determining the position of a rotor of a brushless permanent-magnet motor. The method comprises exciting and freewheeling a phase winding of the motor, wherein the phase winding is freewheeled when a phase current exceeds an upper threshold and freewheeling comprises one of: (i) freewheeling for a fixed period of time, and (ii) freewheeling until the phase current falls below a lower threshold. The method further comprises measuring a parameter corresponding to one of: (i) the magnitude of the phase current during or at the end of freewheeling when the phase winding is freewheeled for the fixed period of time, and (ii) the time interval between the start and end of freewheeling or the start and end of excitation when the phase winding is freewheeled until the phase current falls below the lower threshold. The measured parameter is then used to define a saturation threshold. The phase winding is subsequently excited and freewheeled in the same manner, and the parameter is measured again in the same manner. The method

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then compares the measured parameter against the saturation threshold, and determines that the rotor is at a predetermined position when the measured parameter is less than the saturation threshold.

INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. H02P6/18
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H02P

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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X	----- US 2013/234633 A1 (BATEMAN CHRISTOPHER JOHN [GB]) 12 September 2013 (2013-09-12) abstract paragraphs [0113] - [0123]; figures 1-4,13	1-6
A	----- US 5 428 522 A (MILLNER ALAN [US] ET AL) 27 June 1995 (1995-06-27) abstract column 9, line 27 - line 54 ----- -/-	1-6



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Name and mailing address of the ISA/

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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INTERNATIONAL SEARCH REPORT

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