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(54) **Title:** WIND ENERGY GENERATION DEVICE

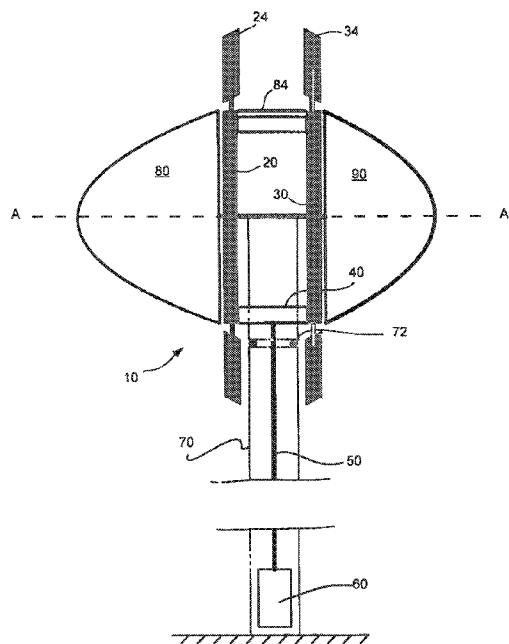


Fig. 1

(57) **Abstract:** Wind turbine devices are presented that use counter rotating rotor assemblies 24, 34 in a horizontal axis wind turbine (HAWT) arrangement. This reduces the torque applied to the HAWT 10 thereby reducing the structural requirements of a wind energy generation system. Additionally, the counter rotating rotor assemblies 24, 34 cooperatively rotate an output shaft 50. In one arrangement, this shaft 50 is a vertical shaft which allows removing power generation equipment 60 from the axis of rotation of a HAWT to a position below the wind turbine and/or located on the ground.



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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)

F03D 1/00, F03D 1/02, F03D 1/04, F03D 11/02, F03D 3/02, F16H 1/46

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords pair, oposite, rotation, rotor, shroud, cone, and deflector

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Y	See page 7, line 25 - page 10, line 7; figures 1-3 .	10-21 ,30 ,32-39
Y	wo 2006-007568 A1 (RICHTER, DONALD, L.) 19 January 2006	10-21 ,30 ,32-39
	See page 7, line 27 - page 8, line 26; figures 1, 2 .	
X	JP 58-193057 U (MITSUBISHI DENKI) 22 December 1983	1-6 ,9 ,40-42
Y	See page 1, claim 1; figure 2 .	10-21 ,30 ,32-39
A	KR 20-0392171 Y1 (WOONHYON CHO) 19 August 2005	1-42
	See page 2, lines 11-51 ; figure 1 .	
A	JP 2005-030374 A (SEISHI) 03 February 2005	1-42
	See page 2, paragraph [0005] ; figure 1 .	

 Further documents are listed in the continuation of Box C See patent family annex

* Special categories of cited documents

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