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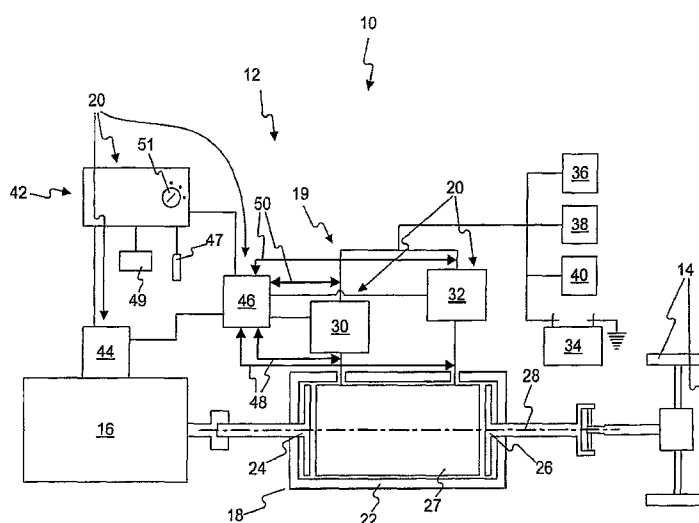
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(57) Abstract: A power system (12) includes a motor/generator (18). The motor/generator may include a housing (22), a first rotor (24) supported at least partially from the housing, and a second rotor (26) supported at least partially from the housing. The second rotor may be mechanically decoupled from the first rotor. The power system may also include a mechanical power source (16) drivingly connected to the first rotor. Additionally, the power system may include power-system controls (20). The power-system controls may be operable to selectively cause the mechanical power source to drive the first rotor while the motor/generator generates electricity with mechanical power the first rotor receives from the mechanical power source. The power-system controls may also be operable to selectively cause the motor/generator to operate as an electric motor to rotate the second rotor. Additionally, the power-system controls may be operable to control torque on the first rotor and torque on the second rotor independently.

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INTERNATIONAL SEARCH REPORT

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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) B60K B60W		
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C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004/026143 A1 (SADARANGANI CHANDUR [SE]) 12 February 2004 (2004-02-12) abstract paragraphs [0010], [0027] - [0029], [0031], [0034] - [0037] claims 1,2,5,6 figures 1,4-8	1-10
X	US 5 909 094 A (YAMADA EIJI [JP] ET AL) 1 June 1999 (1999-06-01) abstract column 8, line 19 - column 9, line 33 column 24, line 55 - column 24, line 61 claim 1 figures 1-3,11,12,16,17 -/--	1-10
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
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A document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. *G* document member of the same patent family		
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Name and mailing address of the ISA/ European Patent Office, P.B. 5618 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer Törgyeges, Szabolcs

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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.
X	DE 44 08 719 C1 (VOLKSWAGEN AG [DE]) 6 July 1995 (1995-07-06) abstract column 2, line 50 - column 2, line 68 column 4, line 19 - column 4, line 56 claims 1,3-10 figures 1-6,8 -----	1-10

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2004026143	A1	12-02-2004	NONE	
US 5909094	A	01-06-1999	JP 3052803 B2	19-06-2000
			JP 9046967 A	14-02-1997
DE 4408719	C1	06-07-1995	CN 1111849 A	15-11-1995
			GB 2287585 A	20-09-1995
			JP 3580593 B2	27-10-2004
			JP 8037762 A	06-02-1996
			US 5675203 A	07-10-1997