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(71) Applicant (for all designated States except US): **GM GLOBAL TECHNOLOGY OPERATIONS, INC.**
[US/US]; 300 Renaissance Center, P.O. Box 300, Detroit, MI 48265-3000 (US).

(72) Inventor: **RAGHAVAN, Madhusudan**; 6816 Trailview Court, West Bloomfield, MI 48322 (US).

(74) Agent: **CARD, John, M.**; Gm Global Technology Operations, Inc., Legal Staff/MC 482-C23-B21, P.O. Box 300, Detroit, MI 48265-3000 (US).

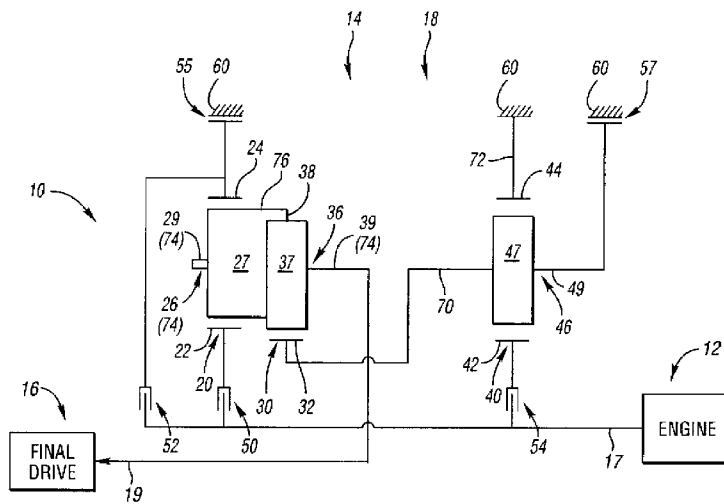
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(54) Title: MULTI-SPEED TRANSMISSIONS WITH A LONG PINION AND FOUR FIXED INTERCONNECTIONS



a

(57) Abstract: The family of transmissions (10) has a plurality of members that can be utilized in powertrains to provide at least six forward speed ratios and one reverse speed ratio. The transmission family members include three planetary gear sets (20, 30, 40) having up to seven torque-transmitting mechanisms and four interconnecting members. The powertrain includes an engine (12) that is selectively or continuously connectable to at least one of the planetary gear members (20, 30, 40) and an output shaft (19) that is continuously connected with another one of the planetary gear members (20, 30, 40). The torque-transmitting mechanisms (50, 52, 54, 55, 57) provide interconnections between various gear members, the input shaft (17) and the transmission housing (60) and are operated in combinations of two to establish at least six forward speed ratios and at least one reverse speed ratio.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/69093

A. CLASSIFICATION OF SUBJECT MATTER
 IPC: **F16H 3/62(2006.01)**

USPC: **475/275**
 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)
 U.S. : 475/275

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)
 EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT


Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,133,697 A (HATTORI) 28 July 1992 (28.07.1992), col. 7, line 46 to col. 8, line 21. Fig. 4-6.	1, 3-14, 16 and 17.
Y	US 5,106,352 A (LEPELLETIER) 21 April 1992 (21.04.1992), Fig. 3, col. 5, line 42 to col. 6, line 5.	2 and 15.
A	US 4,658,672 (MICHAEL) 21 April 1987 (21.04.1987), Fig. 1, col. 3.	2 and 15.
A	US 5,518,465 A (HIRAIWA) 21 May 1996 (21.05.1996), Figs. 1-3.	1-17.

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer Ha D. Ho  Telephone No. 571-272-7091
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