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(71) Applicant (for all designated States except US): **DTI GROUP B.V.** [NL/NL]; Croy 46, NL-5653 LD Eindhoven (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **VAN DRUTEN, Roëll Marie** [NL/NL]; Grasleeuwerik 8, NL-5658 EG Eindhoven (NL). **SERRARENS, Alexander Franciscus Anita** [NL/NL]; Adriaan van Ostadelaan 7, NL-5581 JS Waalre (NL). **VROEMEN, Bas Gerard** [NL/NL]; Melkweg 51, NL-5642 CP Eindhoven (NL).

(74) Agent: **VERHEES, Godefridus Josephus Maria**; De Pinckart 54, NL-5674 CC Nuenen (NL).

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— with international search report (Art. 21(3))

[Continued on next page]

(54) Title: TRANSMISSION SYSTEM

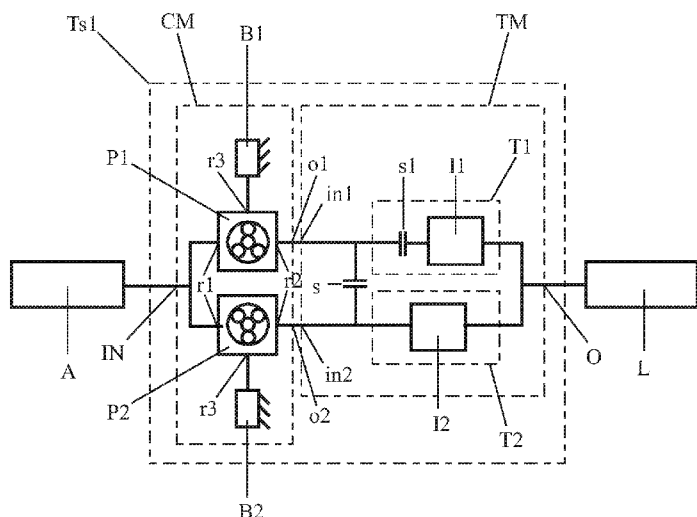


FIG. 1

(57) Abstract: A transmission system Ts1 comprises a clutch module CM having a single input and two outputs, where between the outputs and the input clutch devices B 1 and B2 are located. The transmission system further includes a transmission module TM having two inputs and a single output, the transmission module TM comprising at least two sub-transmissions T1 and T2 where at least a single speed transforming gear or a single transmission clutch is located between an input and an output of each sub-transmission. The two outputs of the clutch module are connected here to the two inputs of the transmission module. Between the input IN and the first output o1 of the clutch module CM is located a first planetary gear set P1, and between the input and the second output o2 is located a second planetary gear set P2. The clutch devices B 1 and B2 are formed by friction brakes and are connected to one of the rotational members of the planetary gear sets.

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

**(88) Date of publication of the international search report:**  
8 November 2012

**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/NL2012/050043

**A. CLASSIFICATION OF SUBJECT MATTER**  
 INV. F16H3/00 F16H37/04 B60K6/48  
 ADD. F16H3/72

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)  
 F16H B60K

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.
X	US 2006/142104 A1 (SALLER MICHAEL [DE]) 29 June 2006 (2006-06-29)	1,2, 15-17, 20,27
Y	the whole document	3,4,6,7
A		24-26
X	TENBERGE P: "Double-Clutch Transmission - Power-Shiftable Winding Transmission", VDI BERICHTE, DUESSELDORF, DE, vol. 1665, 13 March 2002 (2002-03-13), pages 1033-1050, XP009094673, ISSN: 0083-5560 the whole document	1,2, 15-17, 24-26
X	GB 2 186 333 A (AUTOMOTIVE PRODUCTS PLC AUTOMOTIVE PRODUCTS PLC [GB]) 12 August 1987 (1987-08-12)	1,2,27
A	the whole document	24
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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
- "E" earlier application or patent 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

"&" document member of the same patent family

Date of the actual completion of the international search

31 August 2012

Date of mailing of the international search report

19/09/2012

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European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040,  
 Fax: (+31-70) 340-3016

Authorized officer

Vogt-Schilb, Gérard

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/NL2012/050043

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:  
  
3-9, 18
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

International application No  
PCT/NL2012/050043

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 558 283 B1 (SCHNELLE KLAUS-PETER [DE]) 6 May 2003 (2003-05-06)	1,3-5,8, 17,18
Y	the whole document	3,4,6,7
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X	US 2008/064550 A1 (HOLMES ALAN G [US]) 13 March 2008 (2008-03-13)	1,3-9,18
	the whole document	
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X	DE 10 2009 000723 A1 (ZAHNRADFABRIK FRIEDRICHSHAFEN [DE]) 12 August 2010 (2010-08-12)	1,3-7
	the whole document	
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X	DE 10 2008 043732 A1 (ZAHNRADFABRIK FRIEDRICHSHAFEN [DE]) 18 June 2009 (2009-06-18)	1,3,4
	the whole document	
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X	FR 2 906 331 A1 (ANTONOV AUTOMOTIVE EUROP [NL]) 28 March 2008 (2008-03-28)	1,3-6
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X	US 2003/199360 A1 (BIALLAS JEFFREY J [US]) 23 October 2003 (2003-10-23)	1,2
A	the whole document	3,4
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/NL2012/050043

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2006142104	A1	29-06-2006	NONE
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GB 2186333	A	12-08-1987	NONE
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US 6558283	B1	06-05-2003	EP 1126987 A1 29-08-2001
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			EP 2069657 A1 17-06-2009
			FR 2906331 A1 28-03-2008
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			WO 2008037864 A1 03-04-2008
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US 2003199360	A1	23-10-2003	DE 10317144 A1 06-11-2003
			US 2003199360 A1 23-10-2003
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**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1, 2, 15, 17, 20, 24-27(completely); 16(partially)

Dual clutch transmission having two input reduction spur gear stages in series with the dual clutches at both input shafts and providing powershift

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2. claims: 3-9, 18(completely); 17(partially)

Dual clutch transmission having two input reduction planetary gear stages with a braked member at both input shafts

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3. claims: 10-14, 19(completely); 16, 21(partially)

Dual clutch transmission having two input gear stages at both input shafts and comprising a short circuit clutch to connect both input shafts

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4. claims: 21-23, 28

Dual clutch transmission having two input stages at both input shafts and providing powershift by engaging a ratio  $n+2$  using a short circuit clutch

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