US009638319B2

(12) **United States Patent**
de Visscher

(10) **Patent No.: US 9,638,319 B2**
(45) **Date of Patent: May 2, 2017**

(54) **METHOD FOR CONTROLLING A DUAL CLUTCH TRANSMISSION OF A VEHICLE**

(71) Applicant: **TRANSMISIONES Y EQUIPOS MECÁNICOS, S.A. DE C.V.**, Queretaro (MX)

(72) Inventor: **Nico de Visscher**, Laarne (BE)

(73) Assignee: **TRANSMISIONES Y EQUIPOS MECANICOS, S.A. DE C.V.** (MX)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/627,831**

(22) Filed: **Feb. 20, 2015**

(65) **Prior Publication Data**

US 2015/0233474 A1 Aug. 20, 2015

(30) **Foreign Application Priority Data**

Feb. 20, 2014 (EP) 14156026

(51) **Int. Cl.**

F16H 61/00	(2006.01)
F16H 61/688	(2006.01)
F16H 61/08	(2006.01)
F16H 61/04	(2006.01)

(52) **U.S. Cl.**

CPC ***F16H 61/688*** (2013.01); ***F16H 61/0437*** (2013.01); ***F16H 61/08*** (2013.01); *F16H 2312/08* (2013.01)

(58) **Field of Classification Search**

CPC F16H 61/688; F16H 2061/0407; F16H 2061/0429

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,517,859	A	5/1985	Nagaoka et al.	74/866
2004/0112171	A1*	6/2004	Kuhstrebe	B60W 30/1819 74/730.1
2005/0282683	A1*	12/2005	Tanba	B60W 10/113 477/180
2006/0011004	A1*	1/2006	Sakai	F16H 57/0006 74/340
2006/0236798	A1*	10/2006	Krauss	F16D 48/08 74/325

(Continued)

FOREIGN PATENT DOCUMENTS

DE	100 15 296	8/2001	F16D 48/08
DE	100 48 239	10/2001	F16H 63/46

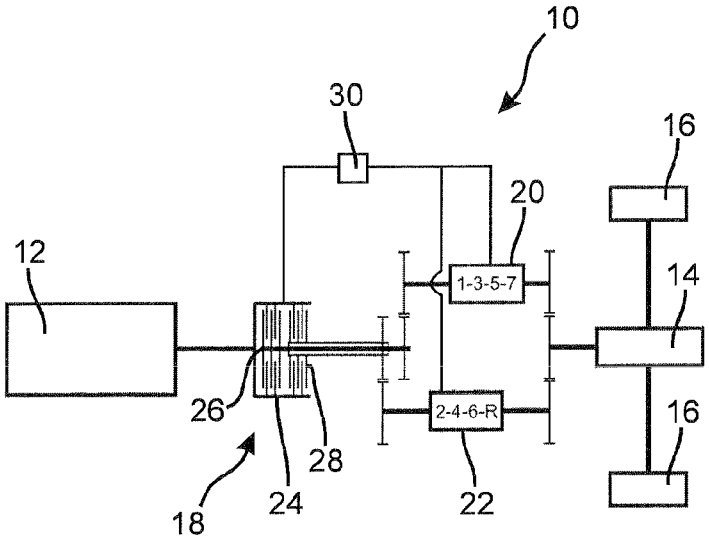
(Continued)

OTHER PUBLICATIONS

Extended European Search report issued in corresponding EPO patent application 14156026.8-1755 dated Aug. 6, 2014 (5 pgs).

Primary Examiner — Tisha Lewis
(74) *Attorney, Agent, or Firm* — Hayes Soloway P.C.

(57) **ABSTRACT**

Provided is a method for controlling a dual clutch transmission of a vehicle with a first clutch associated with a first set of gears and a second clutch associated with a second set of gears. The method includes the steps of a) engaging the first clutch to transmit the torque through one of the associated first set of gears, while the second clutch is not engaged, and b) thereafter engaging, before the first clutch is fully closed, the second clutch at least partially and releasing the first clutch assembly until the first clutch is completely disengaged.

12 Claims, 1 Drawing Sheet