US009410615B2

(12) **United States Patent**
Lindner et al.

(10) **Patent No.: US 9,410,615 B2**
(45) **Date of Patent: Aug. 9, 2016**

(54) **ACTIVATION APPARATUS FOR A TRANSMISSION OF A MOTOR VEHICLE**

(71) Applicant: **Bayerische Motoren Werke Aktiengesellschaft**, Munich (DE)

(72) Inventors: **Matthias Lindner**, Graefelfing (DE); **Thomas Tille**, Munich (DE)

(73) Assignee: **Bayerische Motoren Werke Aktiengesellschaft**, Munich (DE)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 211 days.

(21) Appl. No.: **14/249,824**

(22) Filed: **Apr. 10, 2014**

(65) **Prior Publication Data**

US 2014/0216194 A1 Aug. 7, 2014

Related U.S. Application Data

(63) Continuation of application No. PCT/EP2012/071781, filed on Nov. 5, 2012.

(30) **Foreign Application Priority Data**

Nov. 28, 2011 (DE) 10 2011 087 162

(51) **Int. Cl.**
F16H 59/10 (2006.01)
F16H 61/18 (2006.01)
F16H 59/02 (2006.01)

(52) **U.S. Cl.**
CPC ***F16H 59/105*** (2013.01); ***F16H 61/18*** (2013.01); *F16H 2059/0221* (2013.01); *Y10T 74/2003* (2015.01)

(58) **Field of Classification Search**
CPC F16H 59/105; F16H 2059/0221; F16H 61/18; F16H 59/10
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2002/0166399 A1* 11/2002 Nagasaka et al. 74/335
2007/0082780 A1* 4/2007 Tenbrock et al. 477/34
2012/0022756 A1* 1/2012 Ueno et al. 701/58

FOREIGN PATENT DOCUMENTS

DE 102 08 387 A1 10/2002
DE 10 2005 047 891 A1 4/2007
DE 10 2007 023 281 A1 11/2008
DE 10 2009 031 649 A1 1/2011
DE 10 2009 057 953 A1 6/2011
JP 2007-30762 A 2/2007
JP 2008-155727 A 7/2008
WO WO 2010110098 A1 * 9/2010

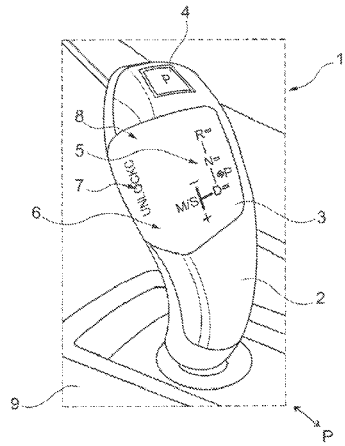
OTHER PUBLICATIONS

International Search Report dated Dec. 18, 2012 with English translation (five (5) pages).
German-language Written Opinion (PCT/ISA/237) dated Dec. 18, 2012 (six (6) pages).
German-language Search Report dated Jun. 26, 2012 with English translation (ten (10) pages).

* cited by examiner

Primary Examiner — Huan Le
(74) *Attorney, Agent, or Firm* — Crowell & Moring LLP

(57) **ABSTRACT**

An activation apparatus is provided for a transmission of a motor vehicle, having a gear selector that is moveable in at least one shift gate for selecting different drive program of the transmission, a control device with which the selection of at least one drive program of the transmission can be locked, and at least two sensors designed for detecting a gear selector activation. The control device is designed for determining the plausibility of signals detected by the sensors and for enabling the selection of the drive program on the basis of the plausibility determination.

16 Claims, 1 Drawing Sheet