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Maurer

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(54) **METHOD FOR DETECTION AND ENABLING OF AN EVASIVE MANOEUVER IN A VEHICLE WITH AN AUTOMATED MANUAL TRANSMISSION**

USPC 701/41, 51-52, 58, 48; 74/335
See application file for complete search history.

(56) **References Cited**

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U.S. PATENT DOCUMENTS

5,875,680 A * 3/1999 Lorriette 74/335
6,074,020 A 6/2000 Takahashi et al.

(Continued)

FOREIGN PATENT DOCUMENTS

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 120 days.

DE 196 51 760 A1 6/1997
DE 198 13 019 A1 9/1999

(Continued)

OTHER PUBLICATIONS

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(57) **ABSTRACT**

(51) **Int. Cl.**
F16H 61/16 (2006.01)
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A method of detecting and enabling an evasive maneuver in a vehicle with an automated transmission, in which initially the method checks whether the reverse (R) drive is engaged, and checks whether the steering-wheel angle and the steering-wheel angular velocity are valid and in excess of threshold values. If so, a first timer is started and then the method checks to see if the yaw rate and the transverse acceleration of the vehicle exceed threshold values while the first timer is running, and when the yaw rate and the transverse acceleration of the vehicle exceed threshold values while the first timer is running, a driver's wish to carry out an escape turn is recognized and a second timer is started, and both timers have not yet run their course, the speed threshold for permitting engagement of the forward drive (D) is increased to exceed the normal threshold value for permitting engagement of forward drive (D) is a set is positioned.

(52) **U.S. Cl.**
CPC **F16H 59/48** (2013.01); **F16H 61/16** (2013.01); **F16H 61/688** (2013.01); **B60Y 2300/18041** (2013.01); **F16H 59/58** (2013.01); **F16H 2061/165** (2013.01); **F16H 2312/09** (2013.01)

6 Claims, 2 Drawing Sheets

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