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(54) **VEHICLE TRAVEL CONTROLLER**

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(56) **References Cited**

U.S. PATENT DOCUMENTS

5,961,418 A 10/1999 Taniguchi et al.
8,394,001 B2 3/2013 Tsutsui et al.

(Continued)

FOREIGN PATENT DOCUMENTS

JP 10-181388 A 7/1998
JP 2002 227885 8/2002

(Continued)

OTHER PUBLICATIONS

International Search Report Issued Dec. 4, 2012 in PCT/JP2012/078233 Filed Oct. 31, 2012.

(Continued)

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(57) **ABSTRACT**

A running control device of a vehicle including an engine, a brake operation member, and a brake booster, is configured to execute an engine brake running mode performed with the engine coupled to wheels and an inertia running mode performed with an engine brake force made lower than that in the engine brake running mode. The running control device executes first and second inertia running modes. The first inertia running mode is terminated when a brake request amount becomes equal to or greater than a predefined first determination value while the first inertia running mode is performed. The second inertia running mode is terminated and a return to the engine brake running mode is made when the brake request amount becomes equal to or greater than a predefined second determination value larger than the first determination value while the second inertia running mode is performed.

7 Claims, 9 Drawing Sheets

