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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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(54) Title: EFFECTIVE VIBRATION DAMPING ACROSS A BROAD TEMPERATURE RANGE

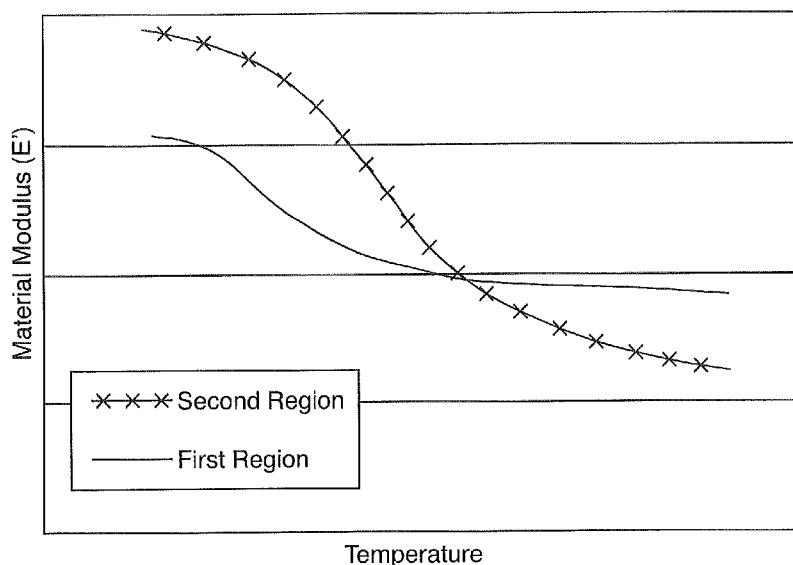


FIG. 1

(57) Abstract: Assemblies, methods and systems useful for reducing the noise and vibration characteristics associated with hollow spaces or cavities of vehicles by positioning damping foam material within and spanning the space between a first substrate surface and a second substrate surface. The damping foam material is comprised of a first region and a second region, wherein the first region has an E' value at -10°C that is lower than the E' value at -10°C of the second region and an E' value at 25°C that is higher than the E' value at 25°C of the second region; and the second region has a variable cross-sectional width.

A. CLASSIFICATION OF SUBJECT MATTER***F16F 15/02(2006.01)i, B60J 5/04(2006.01)i, F16F 9/52(2006.01)i***

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)

F16F 15/02; B32B 5/18; F16F 7/00; B60R 19/02; B23P 11/00; F16F 7/12; B60J 5/00; B60R 5/04; B60R 19/22

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: vibration, noise, damp, modulus

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2010-0314813 A1 (WOJTOWICKI, JEAN-LUC et al.) 16 December 2010 See paragraphs [0118],[0132],[0180] and figures 3-4B,9.	1-3, 10-13, 16
Y	JP 59-006152 A (MAZDA MOTOR CORP.) 13 January 1984 See page 2 and figure 3.	1-3, 10-13, 16
A	JP 08-142758 A (INOAC CORP.) 04 June 1996 See abstract and figure 1.	1-3, 10-13, 16
A	JP 2001-246995 A (TOKAI RUBBER IND. LTD.) 11 September 2001 See abstract and figure 1.	1-3, 10-13, 16



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 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

21 DECEMBER 2012 (21.12.2012)

Date of mailing of the international search report

05 FEBRUARY 2013 (05.02.2013)

Name and mailing address of the ISA/KR

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INTERNATIONAL SEARCH REPORTInternational application No.
PCT/US2012/041322**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.: 4-9,14-15
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:

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 fee, this Authority did not invite payment of any additional fee.
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.:
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

Information on patent family members

International application No.

PCT/US2012/041322

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2010-0314813 A1	16.12.2010	AT 497515 T AU 2007-359124 A1 CA 2699932 A1 CN 101802062 A DE 602007012372 D1 EP 2190910 A1 EP 2190910 B1 ES 2360739 T3 JP 2010-539304 T KR 10-2010-0074144 A MX 2010002465 A WO 2009-036784 A1	15.02.2011 26.03.2009 26.03.2009 11.08.2010 17.03.2011 02.06.2010 02.02.2011 08.06.2011 16.12.2010 01.07.2010 26.03.2010 26.03.2009
JP 59-006152 A	13.01.1984	None	
JP 08-142758 A	04.06.1996	None	
JP 2001-246995 A	11.09.2001	None	