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08/372,337 **13 January 1995 (13.01.95)** **US**(71) Applicant: **MINNESOTA MINING AND MANUFACTURING COMPANY [US/US]; 3M Center, P.O. Box 33427, Saint Paul, MN 55133-3427 (US).**(72) Inventors: **MCCUTCHEON, Jeffrey, W.; P.O. Box 33427, Saint Paul, MN 55133-3427 (US). LANDIN, Donald, T.; P.O. Box 33427, Saint Paul, MN 55133-3427 (US).**(74) Agents: **DOWDALL, Janice, L. et al.; Minnesota Mining and Manufacturing Company, Office of Intellectual Property Counsel, P.O. Box 33427, Saint Paul, MN 55133-3427 (US).**(81) Designated States: **CA, JP, KR, MX, SG, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).****Published***Without international search report and to be republished upon receipt of that report.***(54) Title: DAMPED LAMINATES WITH IMPROVED FASTENER FORCE RETENTION, A METHOD OF MAKING, AND NOVEL TOOLS USEFUL IN MAKING****(57) Abstract**

The present invention relates to a vibration damped laminate article having improved force (torque and/or pressure and/or stress) retention, a method of making one article type and novel tools used to make the one article type. The first laminate comprises at least one layer of damping material (88) between at least two substrate layers (86, 90). At least one deformation area (84) is present in the laminate wherein the substrate(s) are plastically deformed such that they are closer than non-deformed areas of the substrate and wherein the damping material has less mass than in a non-deformed area of the article; the deformation areas providing the areas of good force retention, for an attachment device (82) attached thereto. The second laminate, which is not deformed, contains an additive of sufficient modulus, diameter and loading, in a vibration damping layer to provide improved force retention.

