Title (en)

METHOD AND APPARATUS FOR VIBRATION DAMPING STRUCTURAL ELEMENTS.

Title (de)

VERFAHREN UND VORRICHTUNG ZUR SCHWINGUNGSDÄMPFUNG VON BAUELEMENTEN.

Title (fr)

PROCEDE ET APPAREIL POUR ELEMENTS STRUCTURAUX D'AMORTISSEMENT DES VIBRATIONS.

Publication

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Application

EP 81901037 A 19810304

Priority

US 13192580 A 19800321

Abstract (en)

[origin: WO8102718A1] This invention relates to vibration damping and, more particularly, to reducing the noise produced by, and increase the sonic fatique life of, structural elements. A method and apparatus for vibration damping structural elements, wherein a rigid constraining layer (27) is viscoelastically attached (29) to at least two transverse (normally orthogonal) legs (23, 25a, 25b) of the undamped structural element (21) to be damped. The viscoelastic attachment to a vibrating leg directly damps the vibrations of the leg. In addition, the rigid constraining layer couples the vibrations of the vibrating leg to the viscoelastic attachment to the other leg. As a result, the other leg provides indirect damping. That is, when one of the legs vibrates, the vibration is damped in two ways. First, the viscoelastic material attaching the constraining element to the vibrating leg provides direct damping. Secondly, the constraining element couples the vibrations to the viscoelastic material attached to the other leg, which provides indirect damping. Depending upon the magnitude of the vibration encountered by the structural element, the rigid constraining layer and the viscoelastic material can be segmented (Figures 4 and 5) or extend along the entire length of the structural element, which can be straight or curved. If segmented, the segments can be connected together by rigid links (48a-48d), which may form part of the rigid constraining layer. Also, two rigid constraining elements (57a, 57b) and viscoelastic layers (59a, 59b), one on either side of the structural elements can be included. Further, the rigid constraining element(s) and the viscoelastic material can include apertures (Fig. 5) to allow other structure, brackets or the like to be attached to the damped structural element. While the invention was conceived for use in reducing the noise in the cabin of an aircraft, it is to be understood that the invention can be used in all types of transporation vehicles.

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IPC 8 full level

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- US 3976269 A 19760824 - GUPTA GAUTAM SEN
- DE 2527700 A1 19770120 - AUTOIPARI KUTATO INTEZET

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