

Title (en)
STIFFENED STRUCTURAL MEMBER AND METHOD OF MAKING

Publication
EP 0117119 A3 19871202 (EN)

Application
EP 84300946 A 19840214

Priority
US 46619383 A 19830214

Abstract (en)
[origin: EP0117119A2] A structural member of a precipitation-hardened aluminum alloy suitable for use in high performance aircraft or the like has metal layers with selectively stiffened portions bonded together free of stress anomalies and the like such as might be found in conventionally stiffened, welded structural assemblies. A pattern of bond-preventing material heat-decomposable at a selected temperature is disposed between layers of a precipitation-hardenable aluminum alloy which is adapted to be superplastically deformed or the like when heated to the selected temperature. The metal layers are passed between pressure bonding rolls below the selected temperature to form solid phase metallurgical bonds between the layers and to elongate the bond-preventing pattern to a predetermined extent; the layers are heated below the selected temperature to improve the bonds for hermetically sealing the layers together around the bond-preventing pattern and for reducing stress and strength anomalies in the bond areas; profile molds are aligned with the bond-preventing pattern; the layers are further heated to the selected temperature to decompose the bond-preventing material to establish a selected fluid pressure in a controlled manner between the layers for deforming the layers superplastically or the like into the profile molds and for improving the bonds between the metal layers; and the stiffened member is treated for precipitation-hardening the layer materials.

IPC 1-7
B21D 49/00; **B32B 15/01**

IPC 8 full level
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CPC (source: EP)
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Citation (search report)
• DE 2315030 A1 19731004 - IMP METAL IND KYNOCH LTD
• EP 0077613 A2 19830427 - TEXAS INSTRUMENTS INC [US]
• US 4483478 A 19841120 - SCHULZ DAVID W [US]
• US 2990608 A 19610704 - IVOR MANNING
• US 3377683 A 19680416 - TRANEL LESTER J

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CN114505573A; AT399397B; GB2203068A; GB2203068B

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EP 0117119 A2 19840829; **EP 0117119 A3 19871202**; **EP 0117119 B1 19910717**; CA 1216782 A 19870120; DE 3484803 D1 19910822; JP S59159286 A 19840908

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EP 84300946 A 19840214; CA 445561 A 19840118; DE 3484803 T 19840214; JP 2493884 A 19840213