

Title (en)
CONSOLIDATION OF MATERIALS USING A SHOCK WAVE

Title (de)
KONSOLIDIEREN VON MATERIALIEN DURCH EINE STOSSWELLE

Title (fr)
CONSOLIDATION DE MATERIAUX PAR ONDES DE CHOC

Publication
EP 1446250 A1 20040818 (DE)

Application
EP 02781323 A 20021119

Priority
• EP 0212942 W 20021119
• FR 0114901 A 20011119

Abstract (en)
[origin: FR2832335A1] A composite body is comprised of a number of layers of different materials, which should be welded to one another while being consolidated at the same time. The aim of the inventive method is to adapt the densities and moduli of elasticity of the different layers through the composition, shape, state and temperature in order to considerably alter the sound velocity when the composite body is penetrated. A shock wave is exerted on one or both sides. This shock wave breaks down into harmonic vibrations that can be added, whereby energy concentrates on the respective boundary surfaces and the connection in and between the layers is ensured.
[origin: FR2832335A1] The simultaneous consolidation and bonding of metallic or ceramic materials in several heterogeneous layers is carried out by a shock wave which is obtained by organizing its reflection, its diffraction and its concentration on the interfaces by differences in the propagation speed in the different layers.

IPC 1-7
B22F 3/087; B01J 3/08; B22F 7/08

IPC 8 full level
B01J 3/08 (2006.01); **B22F 3/087** (2006.01); **B22F 3/14** (2006.01); **B22F 7/04** (2006.01); **C04B 35/645** (2006.01)

CPC (source: EP US)
B01J 3/08 (2013.01 - EP US); **B22F 3/087** (2013.01 - EP US); **B22F 2999/00** (2013.01 - EP US)

Citation (search report)
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FR 2832335 A1 20030523; **FR 2832335 B1 20040514**; EP 1446250 A1 20040818; JP 2005509749 A 20050414; US 2004256441 A1 20041223; WO 03043765 A1 20030530

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