

Title (en)  
Sandwich plate for protection from explosive mines

Title (de)  
Sandwichplatte zum Schutz gegen explosive Minen

Title (fr)  
Plaque composite pour la protection contre les mines terrestres

Publication  
**EP 0897097 A3 20000906 (DE)**

Application  
**EP 98114601 A 19980804**

Priority  
DE 19734950 A 19970813

Abstract (en)  
[origin: EP0897097A2] The sandwich protective plate material has thin metal plates, using a very hard metal with high expansion. The leading hard foam layer (3), towards the effects of a blast, has a bulk density of at least 100 kg/m<sup>3</sup>. A dynamic and pressure-resistant plate (11) is of plastics. The structured components (6) are of a relatively light and stiff material, resistant to bending, with a high plastic take-up, using a metal and/or a plastics and especially an elastomer with carbon or glass fibre reinforcement. The thin limit layers (7,8) are of multi-angle or otherwise shaped and/or corrugated intermediate layers (9) or intermediate bodies which are bonded to give open passage channels (12) or spaces between the limit layers (7,8), or flat part-spaces.

IPC 1-7  
**F41H 5/04**

IPC 8 full level  
**F41H 5/04** (2006.01); **F41H 7/04** (2006.01)

CPC (source: EP)  
**F41H 5/0457** (2013.01); **F41H 7/042** (2013.01)

Citation (search report)  
• [X] US 2405590 A 19460813 - MASON WARREN P  
• [A] US 2733177 A 19560131  
• [A] WO 9617219 A1 19960606 - GIAT IND SA [FR], et al  
• [A] DE 4122876 A1 19930114 - MESSERSCHMITT BOELKOW BLOHM [DE]  
• [A] US 3604374 A 19710914 - MATSON HAROLD E, et al  
• [A] US 5654518 A 19970805 - DOBBS STEVEN K [US]  
• [AD] US 4404889 A 19830920 - MIGUEL ANTHONY S [US]

Cited by  
EP1556662B1; CN104764366A; FR2945338A1; CN105737677A; CN104697404A; AU2004245982B2; DE10250132B4; EP2806245A1; EP2264395A3; CN105667368A; EP1045220A3; CN112538908A; US7926407B1; US7914069B2; DE102014101865A1; WO2004038320A1; WO2011123474A1; WO2004109217A1; WO2010128253A1; WO2006067291A1; US7748307B2; US7849780B1; DE202010016777U1; US8960068B2; US7827897B2; DE202010016776U1; WO2006068605A1; WO2004040228A1; EP2569590B1; EP2806245B1; EP3128283B1

Designated contracting state (EPC)  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)  
**EP 0897097 A2 19990217; EP 0897097 A3 20000906; EP 0897097 B1 20040526;** AT E267998 T1 20040615; DE 19734950 A1 19990225; DE 19734950 C2 19990527; ES 2221100 T3 20041216

DOCDB simple family (application)  
**EP 98114601 A 19980804;** AT 98114601 T 19980804; DE 19734950 A 19970813; ES 98114601 T 19980804