



US006497966B2

(12) **United States Patent**
Cohen

(10) **Patent No.:** **US 6,497,966 B2**

(45) **Date of Patent:** **Dec. 24, 2002**

(54) **LAMINATED ARMOR**

(76) Inventor: **Michael Cohen**, Kibbutz Kfar Etzion,
Mobile Post North Yehuda 90200 (IL)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/010,003**

(22) Filed: **Dec. 6, 2001**

(65) **Prior Publication Data**

US 2002/0094406 A1 Jul. 18, 2002

(51) **Int. Cl.⁷** **B32B 15/08**; F41H 5/02

(52) **U.S. Cl.** **428/626**; 89/36.01; 89/36.02;
139/420 R; 428/649; 428/650; 428/651;
428/652; 428/653; 428/656; 428/660; 428/681;
428/682; 428/683; 428/684; 428/686; 428/76;
428/433; 428/457; 428/911

(58) **Field of Search** 428/626, 649,
428/650, 651, 652, 653, 656, 660, 681,
682, 683, 684, 686, 76, 433, 457, 911;
139/420 R; 89/36.01, 36.02

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,793,648 A * 2/1974 Dörre et al. 89/36.02

4,061,815 A * 12/1977 Poole, Jr. 428/911

4,529,640 A * 7/1985 Brown et al. 428/911

6,112,635 A * 9/2000 Cohen 89/36.02

FOREIGN PATENT DOCUMENTS

FR 2137195 A * 12/1972
GB 1142689 A * 2/1969

* cited by examiner

Primary Examiner—Robert R. Koehler

(74) *Attorney, Agent, or Firm*—Fulbright & Jarowski L.L.P.

(57) **ABSTRACT**

The invention provides a composite, laminated armor panel (10) for absorbing and dissipating kinetic energy from projectiles (12), the panel (10) comprising a first outwardly-positioned layer (14) made of a hard material selected from a ceramic material and a metal having a Rockwell-C hardness of at least 27, an intermediate layer (16) softer than the first layer (14), made of a material selected from aluminium and metals having a Rockwell-C hardness of less than 27 and a third backing layer (18) of tough woven textile material, wherein the three layers (14,16,18) are laminated together and wrapped on at least four sides in a further tough woven textile material (20) which is bonded to the outer surfaces of the composite, laminated armor panel (10).

7 Claims, 1 Drawing Sheet

