

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



G00002

(43) International Publication Date
26 September 2002 (26.09.2002)

PCT

(10) International Publication Number
WO 02/075238 A1

- (51) International Patent Classification⁷: **F41H 5/04** (74) Agent: **FETT, Günter**; CPW GmbH, Kasinostrasse 19-21, 42103 Wuppertal (DE).
- (21) International Application Number: PCT/EP02/02550
- (22) International Filing Date: 8 March 2002 (08.03.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
01200979.1 15 March 2001 (15.03.2001) EP
- (71) Applicant (for all designated States except US): **TEIJIN TWARON GMBH** [DE/DE]; Kasinostrasse 19-21, 42103 Wuppertal (DE).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **BÖTTGER, Christian** [DE/DE]; Geschwister-Scholl Strasse 25, 42897 Remscheid (DE). **FELS, Achim** [DE/DE]; Adalbert-Stifter-Weg 8, 42109 Wuppertal (DE). **BAUMGART, Christoph** [DE/DE]; Martin Luther Strasse 11C, 45549 Spöckhövel (DE). **DORLOFF-LUMPE, Bärbel** [DE/DE]; Falkenberg 119, 42113 Wuppertal (DE).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

--- with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



162162

WO 02/075238 A1

(54) Title: PENETRATION-RESISTANT MATERIAL COMPRISING FABRIC WITH HIGH LINEAR DENSITY RATIO OF TWO SETS OF THREADS

(57) Abstract: The invention pertains to a penetration-resistant material comprising at least a double layer of woven fabric, characterized in that the double layer comprises a first layer of fabric composed of a first set of threads comprising 3.5 to 20 threads/cm, having a linear density of at least 210 dtex, and comprising at least 65% of the fabric weight, and a second set of threads comprising 0.5 to 16 threads/cm and having a linear density of at least 50 dtex, with the second set of threads being transverse to the first set of threads, and the ratio of the number of threads/cm of the first set to that of the second set is > 1, and a second layer of fabric composed of a first set of threads comprising 0.5 to 16 threads/cm and having a linear density of at least 50 dtex, and a second set of threads comprising 3.5 to 20 threads/cm, having a linear density of at least 210 dtex, and comprising at least 65% of the fabric weight, with the second set of threads being transverse to the first set of threads, and the ratio of the number of threads/cm of the second set to that of the first set is > 1, and wherein the first and second sets of threads of the first layer have a parallel orientation towards the first and second sets, respectively, of threads of the second layer.