Title (en)
SECURITY ELEMENT COMPRISING MACROSTRUCTURES

Title (de)
SICHERHEITSELEMENT MIT MAKROSTRUKTUREN

Title (fr)
ELEMENT DE SECURITE COMPORTANT DES MACROSTRUCTURES

Publication
EP 1492678 B1 20090128 (DE)

Application
EP 03720418 A 20030403

Priority
• DE 10216561 A 20020405
• EP 0303483 W 20030403

Abstract (en)
[origin: WO03084766A2] The invention relates to a security element (2) to be glued onto a document (3), which comprises a plastic composite structure (1) and embedded, optically effective structures of a pattern (4). The optically effective structures in subareas (13) of the pattern (4) lie in a reference plane of the composite structure (1) defined by a coordinate axis (x; y) and are molded into a reflective boundary layer. Said boundary layer is embedded between a transparent molding layer and a protective layer of the composite structure (1). At least one subarea (13) has a dimension of larger 0.4 mm and has at least one molded macrostructure (M) in the boundary layer, which macrostructure is an at least partially continuous and differentiated function of the coordinates (x; y). The macrostructure (M) is curved in at least subareas and is no periodic delta function or boxcar function. In the subarea (13), neighboring extreme values of the macrostructure (M) are at least 0.1 mm apart from one another. When the pattern is radiated with light, an optically variable pattern of light reflections is visible on the security element (2) when changing the visual angle.

IPC 8 full level
B42D 15/00 (2006.01); **G02B 5/18** (2006.01); **B42D 15/10** (2006.01); **B44F 1/12** (2006.01); **G09F 3/02** (2006.01)

CPC (source: EP KR US)
B42D 15/0033 (2013.01 - KR); **B42D 15/0053** (2013.01 - KR); **B42D 15/0073** (2013.01 - KR); **B42D 25/328** (2014.10 - EP KR US)

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

DOCDB simple family (publication)
WO 03084766 A2 20031016; **WO 03084766 A3 20040205**; AT E421926 T1 20090215; AU 2003224034 A1 20031020;
AU 2003224034 A8 20031020; CN 1646328 A 20050727; CN 1646328 B 20110330; DE 10216561 A1 20031023; DE 10216561 B4 20100107;
DE 50311142 D1 20090319; DK 1492678 T3 20090504; EP 1492678 A2 20050105; EP 1492678 B1 20090128; ES 2321079 T3 20090602;
JP 2005528634 A 20050922; KR 20040106311 A 20041217; PL 204059 B1 20091231; PL 371280 A1 20050613; PT 1492678 E 20090403;
RU 2004132232 A 20050420; RU 2314931 C2 20080120; SI 1492678 T1 20090831; US 2005163922 A1 20050728; US 7002746 B2 20060221

DOCDB simple family (application)
EP 0303483 W 20030403; AT 03720418 T 20030403; AU 2003224034 A 20030403; CN 03807929 A 20030403; DE 10216561 A 20020405;
DE 50311142 T 20030403; DK 03720418 T 20030403; EP 03720418 A 20030403; ES 03720418 T 20030403; JP 2003581988 A 20030403;
KR 20047015639 A 20030403; PL 37128003 A 20030403; PT 03720418 T 20030403; RU 2004132232 A 20030403; SI 200331579 T 20030403;
US 51011404 A 20041004