

Title (en)
SECURITY ELEMENT HAVING A SUBWAVELENGTH GRATING

Title (de)
SICHERHEITSELEMENT MIT SUBWELLENLÄNGENGITTER

Title (fr)
ÉLÉMENT DE SÉCURITÉ MUNI D'UN RÉSEAU SUB-LONGUEUR D'ONDE

Publication
EP 3331709 B1 20190911 (DE)

Application
EP 16750612 A 20160725

Priority

- DE 102015010191 A 20150806
- EP 2016001291 W 20160725

Abstract (en)
[origin: WO2017021000A1] The invention relates to a security element for producing documents of value, such as banknotes, checks or the like, which has: a dielectric substrate (1), a first periodic line grating structure (2), embedded in the substrate (1), made of a plurality of first grating webs (3) running along a longitudinal direction and arranged in a first plane (L1) having first grating gaps (4) located in between, and a second line grating structure (6) of the same period (d) embedded in the substrate (1) and made of second grating webs (7) running along the longitudinal direction and having second grating gaps (8) located in between, wherein the second line grating structure (6), in relation to the first plane (L1), is located above the first line grating structure (2) in a parallel, second plane (L2), and wherein the second line grating structure (6) is formed so as to be inverted with respect to the first line grating structure (2) such that, in plan view of the first plane (L1), the second grating webs (7) lie above the first grating gaps (4) and the second grating gaps (8) lie above the first grating webs (3), wherein the security element (S) produces a color effect when viewed in transmission (T), and the grating webs (3) of the first line grating structure (2) and the grating webs (7) of the second line grating structure (6) are each formed from a double layer, built up from a layer of highly refractive material (3a, 7a) and a layer of metallic material (3b, 7b).

IPC 8 full level
B42D 25/29 (2014.01); **B42D 25/328** (2014.01); **B42D 25/351** (2014.01); **G07D 7/00** (2016.01)

CPC (source: EP KR)
B42D 25/29 (2014.10 - EP KR); **B42D 25/328** (2014.10 - EP KR); **B42D 25/351** (2014.10 - EP KR); **G07D 7/003** (2017.04 - EP); **G07D 7/12** (2013.01 - KR)

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
WO 2017021000 A1 20170209; CA 2993901 A1 20170209; CN 107949484 A 20180420; CN 107949484 B 20190823; DE 102015010191 A1 20170209; EP 3331709 A1 20180613; EP 3331709 B1 20190911; JP 2018528486 A 20180927; KR 102511203 B1 20230316; KR 20180037970 A 20180413

DOCDB simple family (application)
EP 2016001291 W 20160725; CA 2993901 A 20160725; CN 201680051540 A 20160725; DE 102015010191 A 20150806; EP 16750612 A 20160725; JP 2018526294 A 20160725; KR 20187003796 A 20160725