

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 3172601 A1 20170531 (DE)

Application
EP 15752915 A 20150714

Priority
• DE 102014010751 A 20140721
• EP 2015001443 W 20150714

Abstract (en)
[origin: CA2951331A1] The invention relates to a security element for producing value documents, such as bank notes, checks, or the like, which security element comprises a dielectric substrate (1), a first line grating structure (2), which is embedded in the substrate (1) and which consists of a plurality of first grating webs (3), which extend in a longitudinal direction and are arranged in a first plane (L1) and are composed of highly refractive material, and a second line grating structure (6), which is embedded in the substrate (1) and which consists of second grating webs (7), which extend in the longitudinal direction and are composed of highly refractive material and are located over the first line grating structure (2) in a parallel second plane (L2) in relation to the first plane (L1), wherein the first grating webs (3) each have a first thickness (t1) and a first width (b) and lie adjacent to each other at a distance (a) so that first grating gaps (4) extending in the longitudinal direction and having a width corresponding to the distance (a) are formed between the first grating webs (3) and the second line grating structure (6) is inverted in relation to the first line grating structure (2), wherein in a top view of the first plane (L1), the second grating webs (7) each have a second thickness (t1) and lie over the first grating gaps (4) and second grating gaps (8), which exist between the second grating webs (7), lie over the first grating webs (3), and the width of the first grating webs (3) and of the second grating gaps (8) and the width of the second grating webs (7) and of the first grating gaps (4) are each below 300 nm, and wherein the security element produces a color effect in transmission observation and the first and the second thickness (t1, t2) are at least 100 nm, preferably at least 150 nm.

IPC 8 full level
G02B 5/18 (2006.01); **G02B 5/20** (2006.01)

CPC (source: CN EP US)
B42D 25/29 (2014.10 - US); **B42D 25/328** (2014.10 - US); **B42D 25/351** (2014.10 - US); **G02B 5/1809** (2013.01 - CN EP US); **G02B 5/1828** (2013.01 - CN EP US); **G02B 5/1866** (2013.01 - EP US); **G02B 5/203** (2013.01 - CN EP US); **G02B 5/1866** (2013.01 - CN)

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

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
DE 102014010751 A1 20160121; AU 2015294637 A1 20170302; CA 2951331 A1 20160128; CN 106574996 A 20170419; EP 3172601 A1 20170531; JP 2017522595 A 20170810; US 2017205547 A1 20170720; WO 2016012084 A1 20160128

DOCDB simple family (application)
DE 102014010751 A 20140721; AU 2015294637 A 20150714; CA 2951331 A 20150714; CN 201580037878 A 20150714; EP 15752915 A 20150714; EP 2015001443 W 20150714; JP 2016574047 A 20150714; US 201515327825 A 20150714