

Title (en)
METHOD FOR PRODUCING A HOLOGRAM, AND SECURITY ELEMENT AND A SECURITY DOCUMENT

Title (de)
VERFAHREN ZUR HERSTELLUNG EINES HOLOGRAMMS, SOWIE EIN SICHERHEITSELEMENT UND EIN SICHERHEITSDOKUMENT

Title (fr)
PROCÉDÉ DE PRODUCTION D'UN HOLOGRAMME, ÉLÉMENT DE SÉCURITÉ ET DOCUMENT DE SÉCURITÉ

Publication
EP 3679428 A1 20200715 (DE)

Application
EP 18766203 A 20180905

Priority

- DE 102017120536 A 20170906
- EP 2018073904 W 20180905

Abstract (en)
[origin: WO2019048499A1] The invention relates to a method for producing a hologram (1), in particular a hologram (1) for security elements (1a) and/or security documents (1b). One or more virtual hologram planes (10) are arranged in front of and/or behind one or more virtual models (20) and/or one or more virtual hologram planes (10) are arranged such that they intersect one or more virtual models (20). One or more virtual light sources (30) are arranged on one or more portions of the surface (21) of one or more of the virtual models (20). One or more virtual electromagnetic fields (40) are calculated starting from at least one of the virtual light sources (30) in one or more zones (11) of the one or more virtual hologram planes (10). A virtual total electromagnetic field (41) is calculated in each of the one or more zones (11) on the basis of the sum of two or more, in particular of all of the virtual electromagnetic fields (40) in each zone (11). One or more phase images (50) are calculated from the virtual total electromagnetic fields (41) in the one or more zones (11). An elevation profile (60) of the hologram (1) is calculated from the one or more phase images (50) and the elevation profile (60) of the hologram (1) is incorporated into a substrate (2) in order to provide the hologram (1).

IPC 8 full level
G03H 1/08 (2006.01); **G03H 1/00** (2006.01); **G03H 1/02** (2006.01); **G03H 1/10** (2006.01); **G03H 1/20** (2006.01); **G03H 1/22** (2006.01); **G03H 1/24** (2006.01); **G03H 1/26** (2006.01); **G03H 1/28** (2006.01); **G03H 1/30** (2006.01)

CPC (source: EP US)
B42D 25/305 (2014.10 - EP); **B42D 25/324** (2014.10 - EP US); **B42D 25/328** (2014.10 - EP US); **B42D 25/351** (2014.10 - EP); **G03H 1/0236** (2013.01 - EP); **G03H 1/0808** (2013.01 - EP); **G03H 1/0891** (2013.01 - EP); **G06T 15/50** (2013.01 - US); **G06T 17/10** (2013.01 - US); **G03H 1/0011** (2013.01 - EP); **G03H 1/0244** (2013.01 - EP); **G03H 1/0248** (2013.01 - EP); **G03H 1/0276** (2013.01 - EP); **G03H 1/10** (2013.01 - EP); **G03H 1/20** (2013.01 - EP); **G03H 1/24** (2013.01 - EP); **G03H 1/265** (2013.01 - EP); **G03H 1/28** (2013.01 - EP); **G03H 2001/085** (2013.01 - EP); **G03H 2001/207** (2013.01 - EP); **G03H 2001/2223** (2013.01 - EP); **G03H 2001/2244** (2013.01 - EP); **G03H 2001/2263** (2013.01 - EP); **G03H 2001/2273** (2013.01 - EP); **G03H 2001/2284** (2013.01 - EP); **G03H 2001/2605** (2013.01 - EP); **G03H 2001/266** (2013.01 - EP); **G03H 2001/306** (2013.01 - EP); **G03H 2210/20** (2013.01 - EP); **G03H 2210/30** (2013.01 - EP); **G03H 2210/44** (2013.01 - EP); **G03H 2210/452** (2013.01 - EP); **G03H 2210/454** (2013.01 - EP); **G03H 2210/52** (2013.01 - EP); **G03H 2210/53** (2013.01 - EP); **G03H 2210/55** (2013.01 - EP); **G03H 2222/14** (2013.01 - EP); **G03H 2222/17** (2013.01 - EP); **G03H 2224/00** (2013.01 - EP); **G03H 2250/14** (2013.01 - EP); **G03H 2250/33** (2013.01 - EP); **G03H 2250/42** (2013.01 - EP); **G03H 2260/14** (2013.01 - EP); **G03H 2270/12** (2013.01 - EP); **G03H 2270/21** (2013.01 - EP); **G03H 2270/32** (2013.01 - EP)

Citation (search report)
See references of WO 2019048499A1

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 102017120536 A1 20190307; **DE 102017120536 B4 20231214**; AU 2018327592 A1 20200312; AU 2018327592 B2 20240215; EP 3679428 A1 20200715; JP 2020532767 A 20201112; MA 42220 A1 20191031; MA 42220 B2 20210831; RU 2020112484 A 20211006; RU 2020112484 A3 20211230; US 11679616 B2 20230620; US 2020384791 A1 20201210; US 2023286312 A1 20230914; WO 2019048499 A1 20190314

DOCDB simple family (application)
DE 102017120536 A 20170906; AU 2018327592 A 20180905; EP 18766203 A 20180905; EP 2018073904 W 20180905; JP 2020513732 A 20180905; MA 42220 A 20180411; RU 2020112484 A 20180905; US 201816644832 A 20180905; US 202318141511 A 20230501