

IHMA PATENT NEWSLETTER

Limited circulation patent news bulletin for the Holography Industry

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Published and granted patents

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TABLE OF CONTENTS

Please click on the links (titles) to go to

ABOUT IHMA PATENT NEWSLETTER		page	3
APPLICANTS OF THE MONTH		p.	4
PATENT OF THE MONTH		p.	5 – 6
<u>SECURITY HOLOGRAMS</u>	(20 patents)	p.	7 – 19
<u>SECURITY & OPTICAL EFFECTS</u>	(26 patents)	p.	20 – 38
Various optical effects in Security			
<u>DECORATIVE HOLOGRAMS</u>	(2 patents)	p.	39 – 40
<u>HOLOGRAPHY TECHNIQUE</u>	(5 patents)	p.	41 – 44
<u>HOLOGRAPHY PROCESS</u>	(3 patents)	p.	45 – 46
Manufacturing equipment and process			
<u>RECORDING & MEMORY</u>	(6 patents)	p.	47 – 51
Recording material – Storage medium – Optical disk & process			
<u>DISPLAYS</u>	(39 patents)	p.	52 – 75
Displays devices – Digital holography – TV – Video			
<u>HOLOGRAPHY & MICROSCOPY</u>	(5 patents)	p.	76 – 79
<u>VARIOUS</u>	(10 patents)	p.	80 – 86
TABLES WITH REFERENCES		p.	87 – 92

Click on the title to return to table of contents

Please note that:

- IHMA Patent Newsletter covers the requests for worldwide patents (WO, US, EP, FR, GB, DE, JP, CN, KR, RU...).
- Some patents can be indexed in several categories.
- Some old patents are sometimes introduced in the databases if they have not been included in the previous update.
- The full patent information is in the tables at the end of this document (See TABLES WITH REFERENCES).
- IHMA Patent Newsletter is forwarded at the end of each month and corresponds to the patents appearing during the previous month. If at any time, you do not receive your newsletter in the usual time span, please contact us, as an electronic transmission problem is always possible.

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Click on the title to return to table of contents

1. ANHUI JIUSHUN PHOTOELECTRIC TECHNOLOGY
2. ANHUI ZIJIANG ALUMINIUM SPRAY ENVIRONMENTAL PROT MATERIAL
3. BAE SYSTEMS INFORMATION & ELECTRONIC SYSTEMS INTEGRATION
4. BEIJING DEEPIR TECHNOLOGY
5. BEIJING INSTITUTE OF TECHNOLOGY SHENZHEN RESEARCH INSTITUTE
6. BEIJING KANGTEMAN ELECTRONIC SYSTEMS | BEIJING SPECTRUM YINBAO TECHNOLOGY | TIANJIN YANGGUANG TECHNOLOGY
7. BEIJING UNIVERSITY OF TECHNOLOGY
8. BIOMERIEUX | CNRS - CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE | UJM - UNIVERSITE JEAN MONNET SAINT ETIENNE
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10. BUNDESDRUCKEREI
11. CELLOPTIC
12. CENTER FOR ADVANCED META MATERIALS | POHANG UNIVERSITY OF SCIENCE & TECHNOLOGY POSTECH
13. CHANGSHA VOCATIONAL & TECHNICAL COLLEGE
14. CHANGZHOU JIALIN LIGHTING
15. CHENGDU BANFENLI EXHIBITION SERVICE
16. CHINA BANKNOTE PRINTING & MINT
17. CHINA COAL RESEARCH INSTITUTE
18. CSIR - COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH
19. DAI NIPPON PRINTING
20. DAUGIRDAS JOHN T.
21. DIGILENS
22. DIGILENS | ROCKWELL COLLINS
23. DONGGUAN RUIZHI PHOTOELECTRIC TECHNOLOGY | YANCHENG BRANCH CHINA TOWER
24. DONGGUAN XINRUIYUAN ANTI COUNTERFEITING TECHNOLOGY
25. DUWEI WUHAN DESIGN ENGINEERING
26. EAST CHINA UNIVERSITY OF SCIENCE & TECHNOLOGY
27. FASE
28. FONDATION B COM
29. FTC | OMA Y LEADERS
30. GIESECKE & DEVRIENT CURRENCY TECHNOLOGY
31. GORGEOUS PACKAGING CHUXIONG CITY INDUSTRY
32. GUANGZHOU FENGYE CULTURE TECHNOLOGY
33. GUANGZHOU SENSE NETWORK TECHNOLOGY
34. GUIZHOU NORMAL UNIVERSITY
35. HEFEI UNIVERSITY OF TECHNOLOGY
36. HEFEI UNIVERSITY OF TECHNOLOGY | INTELLIGENT MANUFACTURING INSTITUTE OF HFUT
37. HOLO SOLUTION
38. HON HAI PRECISION INDUSTRY
39. HUECK FOLIEN
40. HUNAN UNIVERSITY
41. IDEMIA FRANCE
42. IMEC-INTERUNIVERSITAIR MICRO ELECTRONICA CENTRUM VZW | VRIJE UNIVERSITEIT BRUSSEL
43. IQ STRUCTURES S R O | IQ STRUCTURES SRO
44. JIANGSU JIAYI PACKAGING TECHNOLOGY
45. JINGMEN CITY DREAM EXPLORATION TECHNOLOGY
46. KEDA XUNFEI SOUTH CHINA ARTIFICIAL INTELLIGENCE RESEARCH INSTITUTE GUANGZHOU
47. KUNMING UNIVERSITY OF SCIENCE & TECHNOLOGY
48. LAIYANG YINTONG PAPER
49. LAO GUOHUA
50. LASER FUSION RESEARCH CENTER CHINA ACADEMY OF ENGINEERING PHYSICS
51. LEYARD PHOTOELECTRIC GROUP SYSTEM INTEGRATION
52. NATIONAL PRINTING BUREAU
53. NAUCHNO PROIZVODSTVENNOE OBEDINENIE KRIPTEN AO NPO KRIPTEN
54. NBST
55. NEO INTERNET
56. NEW YORK UNIVERSITY
57. NOIDA INSTITUTE OF ENGINEERING TECHNOLOGY GREATER NOIDA
58. ORBOTECH
59. PATEL SHILPAN PRAVINCHANDRA
60. POHANG UNIVERSITY OF SCIENCE & TECHNOLOGY POSTECH
61. PREHAR RAJ | PREHAR MANU | VIJAY RAJA | KAPADIA VIKRAM DIGVIJAY | MESSA GIANLUCA STEFANO
62. QINGDAO ENER PACKAGING TECHNOLOGY
63. QINGDAO ORIENT SIGNS
64. RAYTHEON
65. ROBERT BOSCH
66. SAINT GOBAIN GLASS
67. SAMSUNG DISPLAY | SEOUL NATIONAL UNIVERSITY R&D FOUNDATION
68. SHANDONG JINGDING INTELLIGENT TECHNOLOGY
69. SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP
70. SHANGHAI MENGUN HOLOGRAPHIC TECHNOLOGY
71. SHANGHAI SHUANGGE INDUSTRY
72. SHANGHAI TENGTRONG INTELLIGENT TECHNOLOGY
73. SHAOXING HUCAI LASER MATERIAL TECHNOLOGY
74. SHENZHEN INTELLIGENT TECHNOLOGY
75. SHENZHEN LOCHN OPTICS TECHNOLOGY
76. SHENZHEN REALIS MULTIMEDIA TECHNOLOGY
77. SHENZHEN ZHENG TU TECHNOLOGY
78. SICHUAN KUANGZHAI PRINTING | SUINING KUANGZHAI GOVERNMENT PRINTING | WUHAN LIXIN MEILONG MOULD
79. SICHUAN UNIVERSITY
80. SICPA
81. SONY | SONY GROUP
82. SURYS
83. SUZHOU WEIMO ELECTRONIC INFORMATION TECHNOLOGY
84. TONGJI UNIVERSITY
85. TOPPAN PRINTING
86. UNIVERSITY OF ARIZONA
87. USEB
88. VEVEZER
89. VIVIDQ
90. WEI QINGLIN
91. WENZHOU CHENHUI PLASTIC PACKAGING
92. WENZHOU MEDICAL UNIVERSITY
93. WESTFAELISCHE WILHELMS UNIVERSITAET MUENSTER
94. WUHAN HONGXIN TECHNOLOGY SERVICES
95. WUHAN RUI SHITENG ANTI COUNTERFEITING TECHNOLOGY
96. WUHAN UNIVERSITY
97. YANCHENG ZHIKUN PRINTING
98. YANG, CHANG JOON
99. YUNNAN LIGHT & SHADOW INTERACTIVE INTELLIGENT TECHNOLOGY
100. ZHEJIANG KEBITE TECHNOLOGY
101. ZHEJIANG MANDE NEW MATERIAL
102. ZHEJIANG YUSHI PACKAGE MATERIAL

Click on the title to return to table of contents

P34378

SECURITY & OPTICAL EFFECTS' COLUMN

**PRINTING – BANKNOTE – CARD – THREAD – INFRARED –
MAGNETISM – WINDOW**

WO202208098

GIESECKE & DEVRIENT CURRENCY TECHNOLOGY

Inventors: PFEIFFER MATTHIAS | SATTLER TOBIAS

Application Nber / Date: WOEP2021/025243 2021-07-02

Priority Nber / Date / Country: DE102020004091 2020-07-07

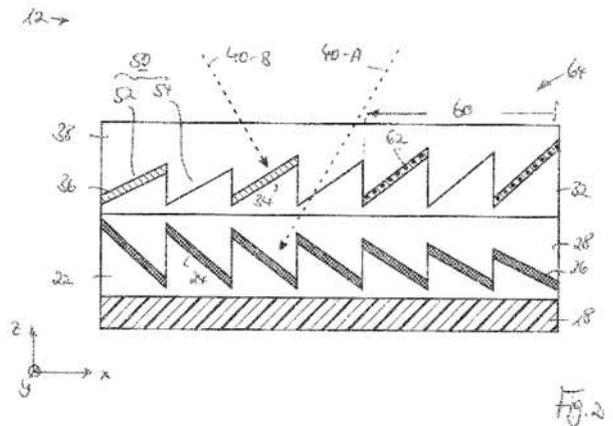
OPTICALLY VARIABLE SECURITY ELEMENT

The invention relates to an optically variable security element (12) for safeguarding valuable objects, the surface area of said security element defining a z-axis perpendicular thereto, comprising a reflective surface region exhibiting at least two images (14-A, 14-B) which are discernible from different viewing directions. The reflective surface region contains two relief structures (24, 34) that are arranged at different vertical levels in the z-direction and form a lower-lying and a higher-lying relief structure, each of which is provided with a reflection-increasing coating (26, 36) that follows the course of the relief. The higher-lying relief structure (34) exhibits a first optically variable effect in a first color, and the lower-lying relief structure (24) can be viewed through the higher-lying reflection-increasing coating or through grid intermediate spaces (54) or recesses in the higher-lying reflection-increasing coating (36) and exhibits a second optically variable effect in a second different color. The security element is provided in an inner coating which is provided over the entire surface or in some regions (60) and comprises at least one machine-readable feature substance (62).

ÉLÉMENT DE SÉCURITÉ OPTIQUEMENT VARIABLE

L'invention se rapporte à un élément de sécurité optiquement variable (12) permettant la protection d'objets de valeur, la surface dudit élément de sécurité définissant un axe z perpendiculaire à ce dernier, comprenant une région de surface réfléchissante présentant au moins deux images (14-A, 14-B) qui sont discernables à partir de différentes directions de visualisation. La région de surface réfléchissante contient deux structures en relief (24, 34) disposées à des niveaux verticaux différents dans la direction z et formant une structure en relief inférieure et supérieure, dont chacune est pourvue d'un revêtement augmentant la réflexion (26, 36) qui suit le tracé du relief. La structure en relief supérieure (34) présente un premier effet optiquement variable dans une première couleur, et la structure en relief inférieure (24) peut être vue à travers le revêtement augmentant la réflexion supérieur ou à travers des espaces intermédiaires de grille (54) ou des évidements dans le revêtement augmentant la réflexion supérieur (36) et présente un second effet optiquement variable dans une seconde couleur différente. L'élément de sécurité est disposé dans un revêtement interne disposé sur toute la surface ou dans certaines régions (60) et comprend au moins une substance caractéristique lisible par machine (62).

CLAIM 1. An optically variable security element for securing valuables, the areal extent of which defines a z-axis perpendicular thereto, having a reflective areal region which exhibits at least two phenomena recognizable from different viewing directions, wherein the reflective surface region contains two relief structures which are arranged in the z direction at different height steps and form a lower-lying relief structure and a higher-lying relief structure which are each provided with a reflection-increasing coating following the relief course, the higher-lying relief structure exhibits a first optically variable effect in a first color, the lower-lying relief structure through the higher-lying reflection-increasing coating itself, or through grid interspaces or gaps in the higher-level reflection and exhibits a second optically variable effect in a second, different color, and the security element is provided with at least one machine-readable feature substance in an internal layer provided over the entire surface or in regions.



Equivalent: DE102020004091A1

Status: Pending

Research Report:

INTERNATIONAL SEARCH REPORT		International application No. PCT/EP2021/025243
A. CLASSIFICATION OF SUBJECT MATTER <i>B42D 25/305</i> (2014.01); <i>B42D 25/324</i> (2014.01); <i>B42D 25/328</i> (2014.01); <i>B42D 25/36</i> (2014.01); <i>B42D 25/369</i> (2014.01); <i>B42D 25/373</i> (2014.01); <i>B42D 25/378</i> (2014.01); <i>B42D 25/382</i> (2014.01); <i>G06K 19/00</i> (2006.01); <i>B42D 25/351</i> (2014.01) According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) B42D; G06K		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2020011391 A1 (GIESECKE DEVRIENT CURRENCY TECH GMBH [DE]) 16 January 2020 (2020-01-16) cited in the application	1,2,4,5,7,10-18
Y	page 7, line 6 - page 8, line 5 page 11, lines 23-27 page 32, lines 11-16; claims; figures	3,6,8,9
X	DE 102007019522 A1 (GIESECKE & DEVRIENT GMBH [DE]) 30 October 2008 (2008-10-30) paragraphs [0008], [0019], [0050] - [0052]; figure 6	1,2,4,5,7,10-18
Y	WO 03053713 A1 (GIESECKE & DEVRIENT GMBH [DE]; KELLER MARIO [DE]; BURCHARD THEO [DE]) 03 July 2003 (2003-07-03) page 3, line 28 - page 4, line 5	3,6,8,9

Click on the title to return to table of contents

PATENT REFERENCE – See the table at the end of this document

P34373

CARD – BIOMETRY

WO202210022

USEB

Priority Date: 06/07/2020

NON-CONTACT PERSONAL AUTHENTICATION CUSTOMER IDENTIFICATION APPARATUS AND METHOD THEREFOR

Disclosed are an apparatus and a method for non-contact personal authentication customer identification on the basis of artificial intelligence facial recognition using an identification card photo and a selfie which have been photographed in real time. A non-contact personal authentication customer identification apparatus, according to an embodiment of the present invention, comprises: an identification card photographing control unit which provides a terminal of a customer requiring personal authentication customer identification with an identification card photographing interface for photographing an identification card; a selfie photographing control unit which provides the terminal of the customer requiring personal authentication customer identification with a selfie photographing interface for photographing a face; and an authentication unit which, when a selfie is generated by the customer photographing the face using the terminal by means of the selfie photographing interface, compares the selfie with a face image of a copy of the identification card and calculates the degree of matching by means of artificial intelligence, determines, on the basis of the calculated degree of matching, forgery or falsification of the copy of the identification card photographed by means of the identification card photographing interface, and performs personal authentication according to the degree of matching calculated by the artificial intelligence and a result of determining the forgery or falsification of the copy of the identification card.



APPAREIL D'IDENTIFICATION DE CLIENT PAR AUTHENTIFICATION PERSONNELLE SANS CONTACT ET PROCÉDÉ ASSOCIÉ

L'invention concerne un appareil et un procédé d'identification de client par authentification personnelle sans contact sur la base d'une reconnaissance faciale par intelligence artificielle à l'aide d'une photo de carte d'identification et d'un autoportrait qui ont été photographiés en temps réel. Un appareil d'identification de client d'authentification personnelle sans contact, selon un mode de réalisation de la présente invention, comprend : une unité de commande de photographie de carte d'identification qui fournit un terminal d'un client nécessitant une identification de client d'authentification personnelle avec une interface de photographie de carte d'identification pour photographier une carte d'identification ; une unité de commande de photographie autoportrait qui fournit, au terminal du client nécessitant une identification de client par authentification personnelle, une interface de photographie autoportrait pour photographier un visage ; et une unité d'authentification qui, lorsqu'un autoportrait est généré par le client photographiant le visage à l'aide du terminal au moyen de l'interface de photographie autoportrait, compare l'autoportrait à une image de visage d'une copie de la carte d'identification et calcule le degré de correspondance au moyen d'une intelligence artificielle, détermine, sur la base du degré de correspondance calculé, un contrefaçon ou une falsification de la copie de la carte d'identification photographiée au moyen de l'interface de photographie de carte d'identification, et effectue une authentification personnelle selon le degré de correspondance calculé par l'intelligence artificielle et un résultat de détermination de la contrefaçon ou de la falsification de la copie de la carte d'identification.

- AA...Non-contact authentication
- BB...Please prepare resident registration card or driver's license for personal identification
- CC... Please put photo of identification card in correct position and photograph according to photographing guidelines
- DD...If focus is off, please touch screen so as to adjust focus, and then photograph
- EE...Please select type of identification card and then touch [Photograph identification card] button
- FF...Resident registration card
- GG... Driver's license
- HH...Photograph identification card

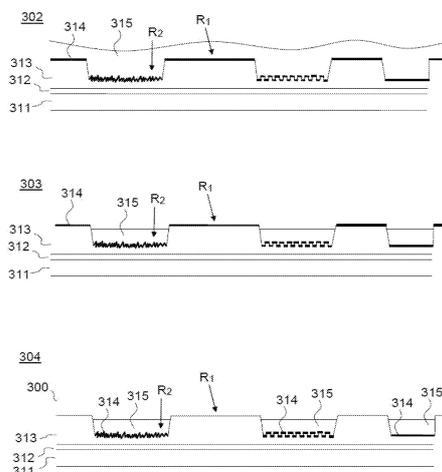
CLAIM 1. An identification card photographing control unit that provides an identification card photographing interface for photographing an identification card to a terminal of a customer requiring identification of the authentication customer; A selfie photographing control unit that provides a selfie photographing interface for facial photographing to a terminal of a customer in need of authentication customer confirmation; and When a selfie photograph is generated by taking a face using a terminal by a customer through the selfie photographing interface, the selfie photograph and a face image of an identification card copy are compared to each other by artificial intelligence, And an authentication unit configured to determine the position and modulation of the identity card copy photographed through the identity card photographing interface on the basis of the calculated consistency, and perform the identity card authentication according to the position and the result of modulation determination calculated by the artificial intelligence.

METHODS FOR MANUFACTURING OPTICAL SECURITY COMPONENTS, OPTICAL SECURITY COMPONENTS AND SECURE OBJECTS EQUIPPED WITH SUCH COMPONENTS

According to one aspect, the method for manufacturing an optical security component according to the present description comprises providing a multilayer film with a support film (311) and a replication layer (313) comprising a structured face (F) with first regions (R1) and second regions (R2) that form recesses relative to the first regions. The method comprises depositing a first reflective layer (314) on the structured face; depositing (302) a covering layer (315) such that an average thickness of the covering layer at the second regions is strictly greater than an average thickness of the covering layer at the first regions; removing (303) a given thickness of the covering layer by etching so as to leave only the first regions exposed; eliminating (304) the first reflective layer from only the first regions, the at least partially micro- or nanostructured second regions forming, with the reflective layer, at least a first pattern having at least a first optical effect.

PROCÉDÉS DE FABRICATION DE COMPOSANTS OPTIQUES DE SÉCURITÉ, COMPOSANTS OPTIQUES DE SÉCURITÉ ET OBJETS SÉCURISÉS ÉQUIPÉS DE TELS COMPOSANTS

Selon un aspect, le procédé de fabrication d'un composant optique de sécurité selon la présente description comprend la fourniture d'un film multicouche avec un film support (311) et une couche de réplication (313) comprenant une face structurée (F) avec des premières régions (R1) et des deuxièmes régions (R2) formant des dépressions par rapport aux premières régions. Le procédé comprend le dépôt sur la face structurée d'une première couche réfléchissante (314); le dépôt (302) d'une couche couvrante (315) telle que une épaisseur moyenne de la couche couvrante au niveau des deuxièmes régions est strictement supérieure à une épaisseur moyenne de la couche couvrante au niveau des premières régions; le retrait (303) par attaque chimique d'une épaisseur donnée de ladite couche couvrante de telle sorte à ne laisser exposées que les premières régions; l'élimination (304) de la première couche réfléchissante sur les seules premières régions, lesdites deuxièmes régions au moins partiellement micro ou nanostructurées formant, avec la couche réfléchissante, au moins un premier motif porteur d'au moins un premier effet optique.



CLAIM 1. A method for manufacturing an optical security component (300) comprising the following steps: providing a multilayer film comprising a support film (311) and a replication layer (313), said replication layer comprising, on a side opposite the side facing the support film, a structured face (F) with first regions (R_i) and at least second regions (R₂) forming depressions with respect to the first regions, such that: said second regions (R₂) of said structured face of the replication layer are at least partially micro-or nanostructured; a minimum level difference at the boundary between each first region and each adjacent second region of the structured face of the replication layer is between about 0.5 pm and about 10 pm; depositing on all of said structured face (F) of the replication layer at least one first reflective layer (314); depositing (302) on all of said first regions and said at least second regions of said structured face of the replication layer provided with said first reflective layer a covering layer (315) such that an average thickness of the cover layer at the second regions of the replication layer is strictly greater than an average thickness of the cover layer at the first regions of the replication layer; removing (303), by etching, a given thickness, substantially constant over the entire surface, of said covering layer, so as to leave exposed only the first regions (R_i) of the replication layer; the removal (304) of said first reflective layer on only the first regions (R_i) of the replication layer, said at least partially micro- or nanostructured second regions (R₂) of the replication layer forming, with the reflective layer, at least one first pattern bearing at least one first optical effect.

MULTIFUNCTION SECURITY ELEMENT

A security element comprises a first transparent film, on which a holographic layer is formed having a holographic surface structure, a reflective layer arranged in contact with the holographic layer having a pattern of non-transparent regions and transparent regions, a color changing layer, and a photoactive layer having dark regions and transparent regions. In first regions, parts of the non-transparent regions of the reflective layer are not overlapped by the dark regions of the photoactive layer. In second regions, the color changing layer is backed by the dark regions of the photoactive layer. In third regions, the transparent regions of the photoactive layer are at least partly in register with the transparent regions of the reflective layer so that the third regions are continuous when passing from patterns outside the non-transparent regions of the reflective layer to patterns outside the dark regions of the photoactive layer. With this arrangement, when viewed in reflected light, a holographic effect is visible in the first regions and simultaneously a color change effect is clearly visible in the second regions. Furthermore, when viewed in transmitted light, a transparency effect is visible in the third regions. Accordingly, a multifunction security element is provided, in which security is improved by combining multiple effects in visual inspection.

ÉLÉMENT DE SÉCURITÉ MULTIFONCTION

La présente invention concerne un élément de sécurité qui comprend un premier film transparent, sur lequel est formée une couche holographique ayant une structure de surface holographique, une couche réfléchissante agencée en contact avec la couche holographique ayant un motif de régions non transparentes et de régions transparentes, une couche changeant de couleur, et une couche photoactive ayant des régions sombres et des régions transparentes. Dans des premières régions, des parties des régions non transparentes de la couche réfléchissante ne sont pas chevauchées par les régions sombres de la couche photoactive. Dans des deuxième régions, la couche changeant de couleur est doublée par les régions sombres de la couche photoactive. Dans des troisième régions, les régions transparentes de la couche photoactive sont au moins partiellement alignées sur les régions transparentes de la couche réfléchissante de telle sorte que les troisième régions soient continues lorsque l'on passe de motifs à l'extérieur des régions non transparentes de la couche réfléchissante à des motifs à l'extérieur des régions sombres de la couche photoactive. Avec cet agencement, lorsqu'on regarde dans une lumière réfléchie, un effet holographique est visible dans les premières régions et, en même temps, un effet de changement de couleur est clairement visible dans les secondes régions. En outre, lorsqu'on regarde dans une lumière transmise, un effet de transparence est visible dans les troisième régions. Par conséquent, la présente invention porte sur un élément de sécurité multifonction, dans lequel la sécurité est améliorée par combinaison de multiples effets lors d'une inspection visuelle.

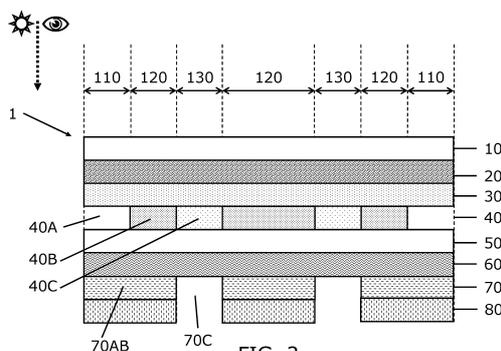


FIG. 2

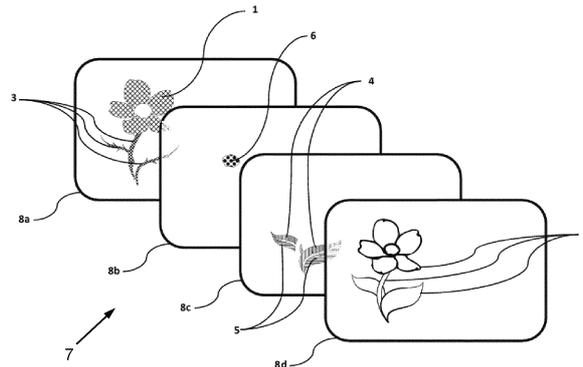
CLAIM 1. A security element (1, 2) comprising: a first transparent film (50), on which a holographic layer (60) is formed having a holographic surface structure, a reflective layer (70) arranged in contact with the holographic layer (60) having a pattern of non-transparent regions (70AB) and transparent regions (70C), a color changing layer (20), and a photoactive layer (40) having dark regions (40B) and transparent regions (40C); wherein when viewed in reflected light, a holographic effect is visible in first regions (110), in which parts of the non-transparent regions (70AB) of the reflective layer (70) are not overlapped by the dark regions (40B) of the photoactive layer (40), and a color change effect is clearly visible in second regions (120), in which the color changing layer (20) is backed by the dark regions (40B) of the photoactive layer (40); and when viewed in transmitted light, a transparency effect is visible in third regions (130), in which the transparent regions (40C) of the photoactive layer (40) are at least partly in register with the transparent regions (70C) of the reflective layer (70) so that the third regions (130) are continuous when passing from patterns outside the non-transparent regions (70AB) of the reflective layer (70) to patterns outside the dark regions (40B) of the photoactive layer (40).

COMPOSITE SECURITY ELEMENT

A security element, e.g. for an ID card (7) or passport, banknote, ticket, etc, comprises a plurality of superposed layers (8a, 8b, 8c, 8d) and a security image or object (1, 2, 3, 4, 5, 6, 7) comprising a plurality of discrete security components, each said discrete security component constituting or providing a portion of the complete security image or object, which portion is less than the whole of the security image or object, wherein each said discrete security component is provided or formed on or within a respective one of the said plurality of superposed layers of the element (7). The layers can be laminated together. The components can be: a security rainbow hologram / DOVID (1); a tactile security feature (2); a 3D holographic optical element (3); an IR visible printing (4); an UV visible printing (5); a colour switch printing (6).

ÉLÉMENT DE SÉCURITÉ COMPOSITE

La présente invention concerne un élément de sécurité, par exemple pour une carte d'identification (7) ou un passeport, un billet de banque, un billet, etc., qui comprend une pluralité de couches superposées (8a, 8b, 8c, 8d) et une image ou un objet de sécurité (1, 2, 3, 4, 5, 6, 7) comprenant une pluralité de composants de sécurité discrets, chacun desdits composants de sécurité discrets constituant ou fournissant une partie de l'image ou de l'objet de sécurité complet, laquelle partie est plus petite que l'ensemble de l'image ou de l'objet de sécurité, chacun desdits composants de sécurité discrets étant disposé ou formé sur une couche respective, ou à l'intérieur d'une couche respective, parmi ladite pluralité de couches superposées de l'élément (7). Les couches peuvent être stratifiées ensemble. Les composants peuvent être : un hologramme/DOVID en arc-en-ciel de sécurité (1) ; une caractéristique de sécurité tactile (2) ; un élément optique holographique 3D (3) ; une impression visible par IR (4) ; une impression visible par UV (5) ; une impression à changement de couleur (6).



CLAIM 1. A security element comprising a plurality of superposed layers and a security image or object comprising a plurality of discrete security components, each said discrete security component constituting or providing a portion of the complete security image or object, which portion is less than the whole of the security image or object, wherein each said discrete security component is provided or formed on or within a respective one of the said plurality of superposed layers of the element.

P34405

PRINTING – BANKNOTE – CARD – RELIEF – LIQUID CRYSTALS

RU2763388

NAUCHNO PROIZVODSTVENNOE OBEDINENIE KRIPTEN AO NPO KRIPTEN

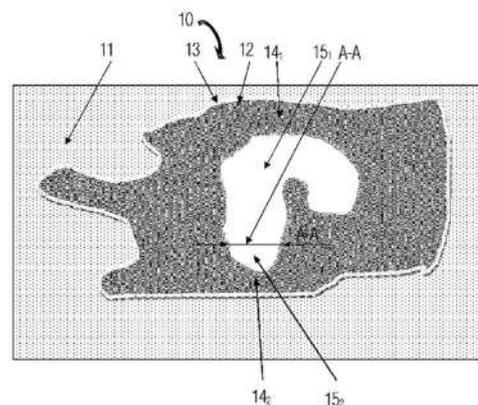
Priority Date: 26/03/2021

MULTILAYER PROTECTIVE OPTICAL DIFFRACTION-POLARIZATION DEVICE, A METHOD FOR MANUFACTURING THE SPECIFIED DEVICE, A PROTECTED PRODUCT CONTAINING THE SPECIFIED MULTILAYER PROTECTIVE OPTICAL DIFFRACTION-POLARIZATION DEVICE

FIELD: counterfeit protection.

SUBSTANCE: invention relates to the field of protection against counterfeiting valuable documents and concerns a multilayer protective optical diffraction-polarization device. The protective device contains two information-bearing elements. The first element is made in the form of at least one diffraction grating and/or a relief hologram with the first pictorial distribution of strokes and with the provision of microcracks located along the strokes. The second element is made in the form of at least one relief hologram with the second pictorial distribution of strokes. The second information-bearing element also contains a solid-state optical anisotropic layer based on the LCD material, made with the possibility of providing a picture of the spatial distribution of optical anisotropy while preserving the spatially-pictorial molecular-oriented ordered state of the LCD material, corresponding to the pattern of the distribution of stroke directions in at least one relief hologram of the opaque metallized diffraction region of the second element and at least one diffraction grating and/or relief hologram in the transparent demetallized optically anisotropic region of the first element.

EFFECT: increase in the accuracy of combining the elements of the device and its improved protective properties.



P34412

PRINTING – CARD

JP2021194833

DAI NIPPON PRINTING

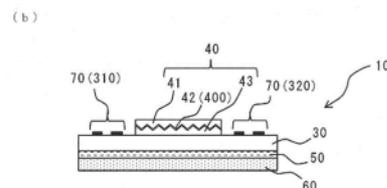
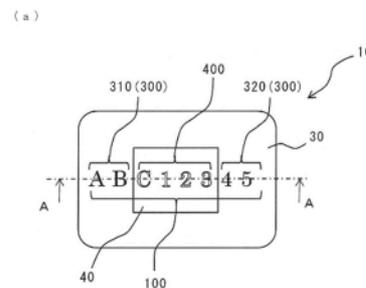
Priority Date: 12/06/2020

SECURITY PRINTED MATERIAL AND CARD AND FLEXAMPLE HAVING SECURITY PRINTED MATERIAL

TOPIC: To provide a security printed material for which authenticity determination is easy while substantially reducing the area of a hologram, and a card and a brochure body provided with the security printed material.

INVENTION: a security printed material 10 including: a base material 30 on which first information 300 is printed; and a hologram formation layer 40 laminated on one surface side of the base material 30 and on which second information 400 is formed visually recognizable as a hologram image, wherein The security printed material 10 combines the first information 300 and the second information 400 to configure at least one piece of combined information 100, and the first information 300 and the second information 400 are recognized as one piece of combined information 100 in a state in which the first information 300 and the second information 400 are discretely arranged.

CLAIM 1. A security printed material, comprising: a base material on which first information is printed; and a hologram forming layer laminated on one surface side of the base material, the hologram forming layer forming layer allowing second information to be visually recognized as a hologram image, wherein The first information and the second information combine to constitute at least one piece of combined information, and the first information and the second information are recognized as one piece of combined information in a discretely arranged state.



P34429

PRINTING – PASSPORT

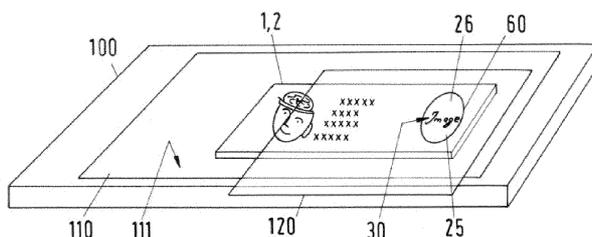
EP3932689

BUNDESDRUCKEREI

Priority Date: 01/07/2020

SECURITY ELEMENT WITH MICROSTRUCTURED SECURITY FEATURE, METHODS OF MANUFACTURE AND VERIFICATION

The invention relates to a novel security element (1), for example in the form of a security document (2), having a microstructured security feature, wherein the security element (1) comprises: a security element body (50), wherein the security element body (50) comprises a security element body (50) extending towards an outer side (5, 6) Of the security element body (50), wherein microstructured identification elements (60, 61, 62) are formed in the interior of the volume region (25) by means of polarized ultrashort pulse laser light. The invention also relates to a method for the production thereof and to a verification method.



CLAIM 1. A security element (1) with microstructured security feature comprising a security element body (50), wherein the security element body (50) comprises a transparent volume region (25) extending to an outer side (5, 6) of the security element body (50), characterized in that in the volume region (25) microstructured marking elements (60, 61, 62) are formed in the interior by means of polarized ultrashort pulse laser light.

P34433

LABEL

CN215577368U

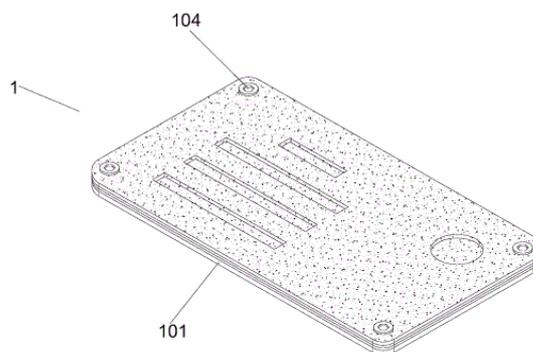
QINGDAO ORIENT SIGNS

Priority Date: 18/08/2021

HOLOGRAPHIC METAL LABEL WITH ANTI-COUNTERFEITING MARK

The utility model relates to the technical field of holographic metal labels, in particular to a holographic metal label with an anti-counterfeiting mark, which comprises a label main body, wherein the label main body comprises a bottom plate, threaded sleeves are arranged at four corners of the bottom plate, a label plate is arranged at the top of the bottom plate, an information bar is arranged at one side of the surface of the label plate, the anti-counterfeiting mark is arranged at the other side of the surface of the label plate, an adhesive plate is arranged at the top of the label plate, a glass plate is arranged at the top of the adhesive plate, through holes are formed at four corners of the surface of the glass plate, locking bolts are arranged at four corners of the top of the glass plate, through the arranged negative magnet and positive magnet, the negative magnet is taken down and placed in an object, then the holographic metal label can be fixed on the surface of the object without damaging the object through the magnetic attraction of the negative magnet and the positive magnet, so that the object is not damaged, the property safety is ensured, and no potential safety hazard exists.

CLAIM 1. The utility model provides a take false proof mark's holographic metal label, includes sign main part (1), its characterized in that: sign main part (1) includes bottom plate (101), be equipped with anodal magnet (103) bottom plate (101), be equipped with negative pole magnet (102) bottom anodal magnet (103), all be equipped with swivel nut (105) in four corners of bottom plate (101) bottom, be equipped with label board (2) at bottom plate (101) top, be equipped with information fence (202) in label board (2) surface one side, be equipped with false proof mark (201) at label board (2) surface opposite side, be equipped with adhesive plate (3) at label board (2) top, be equipped with glass board (4) at adhesive plate (3) top, through-hole (401) have all been seted up at four corners on glass board (4) surface, four corners at glass board (4) top all are equipped with locking bolt (104).



P34437

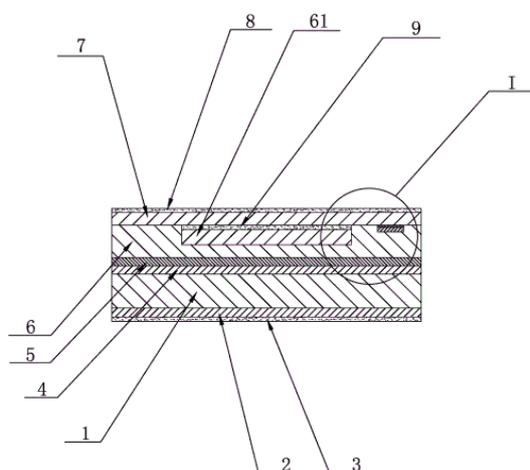
CN215560042U

Priority Date: 23/09/2021

ZHEJIANG YUSHI PACKAGE MATERIAL

ANTI-COUNTERFEITING LASER FILM WITH MULTILAYER STRUCTURE

The utility model discloses an anti-counterfeiting laser film with a multilayer structure, which comprises a substrate layer, wherein a first aluminum-plated layer is fixedly arranged on the lower surface of the substrate layer, an adhesive layer is fixedly arranged on the lower surface of the first aluminum-plated layer, a second aluminum-plated layer is fixedly arranged on the upper surface of the substrate layer, a chromium-plated layer is fixedly arranged on the upper surface of the second aluminum-plated layer, a BOPP anti-counterfeiting information layer is fixedly arranged on the upper surface of the chromium-plated layer, a transparent PET surface layer is fixedly arranged on the upper surface of the BOPP anti-counterfeiting information layer, and a transparent anti-static coating is fixedly arranged on the upper surface of the transparent PET surface layer; the inner bottom surface of the first object containing groove in the upper surface of the BOPP anti-counterfeiting information layer is integrally provided with a holographic pattern laser layer, a transparent silicone oil isolation layer is fixedly arranged on the upper surface of the holographic pattern laser layer, and the upper surface of the transparent silicone oil isolation layer is flush with the upper surface of the BOPP anti-counterfeiting information layer. Above-mentioned technical scheme, structural design is reasonable, anti-fake information is difficult for the oxidation, and antistatic properties is good, anti-fake performance is good and the practicality is good.



CLAIM 1. The utility model provides a multilayer structure's anti-fake laser film, includes substrate layer (1), the fixed first layer of aluminizing (2) that is provided with on the lower surface of substrate layer (1), the fixed adhesive layer (3) that is provided with on the lower surface of first layer of aluminizing (2), its characterized in that: a second aluminum-plated layer (4) is fixedly arranged on the upper surface of the substrate layer (1), a chromium-plated layer (5) is fixedly arranged on the upper surface of the second aluminum-plated layer (4), a BOPP anti-counterfeiting information layer (6) is fixedly arranged on the upper surface of the chromium-plated layer (5), a transparent PET surface layer (7) is fixedly arranged on the upper surface of the BOPP anti-counterfeiting information layer (6), and a transparent anti-static coating (8) is fixedly arranged on the upper surface of the transparent PET surface layer (7); the upper surface local position of BOPP anti-fake information layer (6) is provided with one and first puts the thing recess, first put the interior bottom surface of thing recess on an organic whole be provided with the radium-shine layer of holographic pattern (61), the fixed transparent silicone oil isolation layer (9) that is provided with on the upper surface of the radium-shine layer of holographic pattern (61), the upper surface parallel and level of the upper surface of transparent silicone oil isolation layer (9) and BOPP anti-fake information layer (6).

P34438

PRINTING – BRAND PROTECTION – LUMINESCENCE

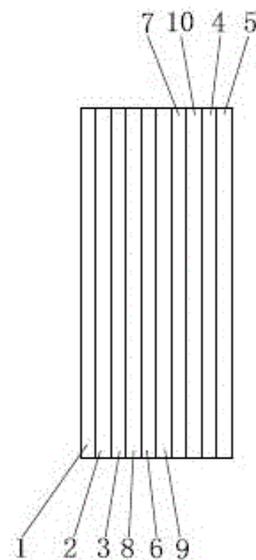
CN215552240U

JIANGSU JIAYI PACKAGING TECHNOLOGY

Priority Date: 17/06/2021

ELECTROCHEMICAL ALUMINUM FOIL WITH ANTI-COUNTERFEITING FUNCTION

The utility model discloses an electrochemical aluminum foil with an anti-counterfeiting function, which comprises: a base film layer, a release layer, a coloring layer, an aluminum plating layer and an adhesive layer; the anti-counterfeiting area is arranged in the specific area of the aluminum foil, the protective layer, the holographic anti-counterfeiting mould pressing layer, the printing layer and the fluorescent layer are arranged in the composite layer of the aluminum foil, the protective layer is divided into the first protective layer and the second protective layer, the holographic anti-counterfeiting mould pressing layer, the fluorescent layer and the printing layer can be protected from being corroded by other layers, and the light-transmitting adhesion effect can be achieved; the fluorescent layer arranged between the holographic anti-counterfeiting mould pressing layer and the printing layer can be distinguished from the color of the dye layer, so that the brightness and the color of the anti-counterfeiting area are improved, and the pictures and texts in the anti-counterfeiting area are clearly displayed.



CLAIM 1. An electrochemical aluminum foil with an anti-counterfeiting function comprises: a base film layer, a release layer, a coloring layer, an aluminum plating layer and an adhesive layer; the anti-counterfeiting printing ink is characterized by also comprising a holographic anti-counterfeiting mould pressing layer and a printing layer which are arranged between the coloring layer and the aluminum plating layer; the colored layer is formed by mixing synthetic resin and dye, a first protective layer is arranged between the colored layer and the holographic anti-counterfeiting mould pressing layer, a fluorescent layer is arranged between the holographic anti-counterfeiting mould pressing layer and the printing layer, and a second protective layer is arranged between the printing layer and the aluminum-plated layer.

P34445

BRAND PROTECTION

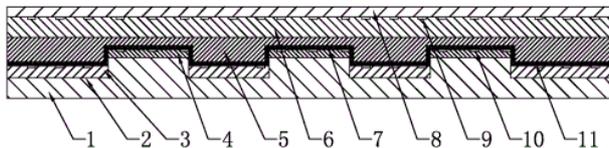
CN215474001U

ZHEJIANG MANDE NEW MATERIAL

Priority Date: 14/09/2021

CIGARETTE PACKET POSITIONING TRANSFER PAPER

The application discloses tobacco bale location transfer paper, including basic unit, mounting groove, it sets up basic unit top, base film one, its setting in the mounting groove, base film two, its setting is at basic unit top, fixed bed, and it sets up at base film one and base film two tops, transfer dope layer, and it sets up at the fixed bed top, wherein, the part of transfer dope layer is printed with holographic indentation, the part at the top of base film one and base film two is equipped with radium-shine picture and text, through the setting of mounting groove and base film one, base film two, makes the setting on the radium-shine picture and text of base film one and base film two tops not be in the coplanar, forms the difference in height, again with the holographic indentation on the transfer coat correspond, has improved the anti-fake rank of location transfer paper, can effectively avoid the phenomenon emergence of fake location transfer paper influence brand reputation.



CLAIM 1. A cigarette packet positioning transfer paper is characterized by comprising: a base layer (1); the mounting groove (2) is arranged on the top of the base layer (1); the base film I (3) is arranged in the mounting groove (2); a second base film (4) arranged on top of the base layer (1); a fixing layer (5) disposed on top of the first base film (3) and the second base film (4); the transfer coating layer (6) is arranged on the top of the fixed layer (5); the transfer coating layer (6) is locally printed with holographic indentations (9), and laser pictures and texts (10) are arranged on the top of the first base film (3) and the second base film (4).

P34452

CN215417256U

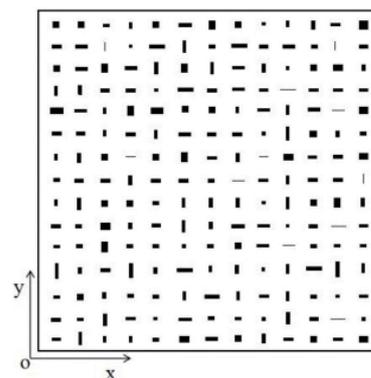
Priority Date: 29/04/2021

WUHAN UNIVERSITY

SILICON CHIP DUAL ANTI-COUNTERFEITING MARK BASED ON SUPER SURFACE MATERIAL

The utility model discloses a silicon chip double anti-counterfeiting mark based on a super surface material. The nano bricks with different sizes can generate different equivalent refractive indexes and can be regarded as different truncated waveguides, so that the nano bricks have mutually independent phase modulation functions in the directions of the long axis and the short axis and provide different phase delays. And constructing the nano-brick array by utilizing the corresponding relation between the size of the nano-bricks and the phase delay amount. When two beams of polarized light with polarization directions along the long axis and the short axis of the nano-brick are incident to the preset nano-brick array, two different high-fidelity holographic images can be observed, and the silicon chip double anti-counterfeiting method is used for realizing silicon chip double anti-counterfeiting. The super-surface nano brick array has an ultrathin structure and an extremely small geometric dimension, can be widely applied to the fields of optical anti-counterfeiting, information encryption and the like, and can be manufactured only by one simple photoetching process step, so that the super-surface nano brick array has the outstanding advantages of high safety, high integration level, flexible design, simplicity in processing and the like.

CLAIM 1. The utility model provides a dual false proof mark of silicon chip based on super surface material which characterized in that: the anti-counterfeiting optical fiber laser comprises a substrate (2) and a nano brick array etched on the substrate (2), wavelength screening and bidirectional phase modulation are carried out on light waves at the same time, two beams of linearly polarized light with polarization directions along the long and short axis directions of the nano bricks are incident, two completely different images with high fidelity and no distortion are generated in a far field, and two holographic images cannot be observed under the condition that the linearly polarized light with other polarization directions is incident, so that the anti-counterfeiting function is realized.



P34459

MANUFACTURING PROCESS

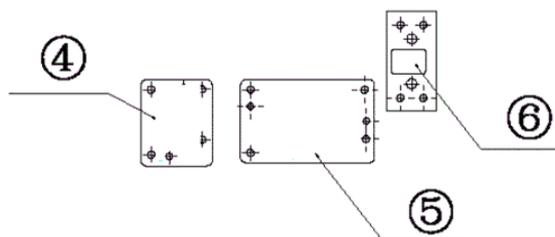
CN215397612U

Priority Date: 03/08/2021

SICHUAN KUANZHAI PRINTING | SUINING KUANZHAI GOVERNMENT PRINTING | WUHAN LIXIN MEILONG MOULD

NOVEL GILT EMBOSING DIE OF PRINTING

The utility model relates to a mould, specifically speaking are novel gilt impressed watermark mould of printing. It includes support (3), characterized by: the hot stamping die is characterized in that a heat insulation layer (2) is fixed on the support (3), a groove (7) is formed in the heat insulation layer (2), a concave-convex plate (1) is fixed on the groove (7), and the concave-convex plate (1) is provided with a hot stamping embossing plate (4), a three-dimensional embossing concave-convex plate (5) and a holographic anti-counterfeiting hot stamping plate (6). The die integrates the functions of concave-convex, embossing and gold stamping, saves the time for repeatedly mounting the plate, improves the yield of products and improves the production efficiency.



CLAIM 1. The utility model provides a novel gilt embossing mold utensil of printing, it includes support (3), characterized by: the hot stamping die is characterized in that a heat insulation layer (2) is fixed on the support (3), a groove (7) is formed in the heat insulation layer (2), a concave-convex plate (1) is fixed on the groove (7), and the concave-convex plate (1) is provided with a hot stamping embossing plate (4), a three-dimensional embossing concave-convex plate (5) and a holographic anti-counterfeiting hot stamping plate (6).

P34466

PRINTING

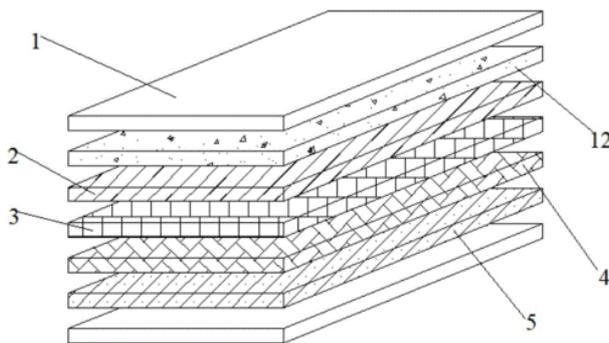
CN215329040U

Priority Date: 08/03/2021

LAIYANG YINTONG PAPER

THERMOSENSITIVE BRONZE ANTI-COUNTERFEITING PAPER

The utility model belongs to the technical field of anti-counterfeiting paper, and particularly relates to heat-sensitive copper plate anti-counterfeiting paper. The utility model can strengthen the hardness of the anti-counterfeiting paper, improve the tearing resistance of the anti-counterfeiting paper, and ensure that the anti-counterfeiting paper has better water-proof, oil-proof, alcohol-proof, anti-friction and high temperature-resistant effects and better anti-counterfeiting effect.



CLAIM 1. The utility model provides a heat-sensitive type copper version anti-fake paper, includes substrate layer (5), its characterized in that, the top complex of substrate layer (5) has anti-fake printing layer (4), the top coating of anti-fake printing layer (4) has polymer coating (3), polymer coating (3) surface is equipped with aluminized layer (11), aluminized layer (11) surface is equipped with holographic image layer (10), the top coating of polymer coating (3) has heat-sensitive coating (2), the top complex of heat-sensitive coating (2) has high temperature resistant layer (12), the top of high temperature resistant layer (12) and the below of substrate layer (5) all compound have silicon oil isolation layer (1).

P34478

PRINTING – BRAND PROTECTION – LUMINESCENCE

CN215246856U

Priority Date: 29/01/2021

GORGEOUS PACKAGING CHUXIONG CITY INDUSTRY

HOLOGRAPHIC LASER CODE-SPRAYING ANTI-COUNTERFEITING STAY WIRE FOR CIGARETTES

The utility model discloses a holographic laser code-spraying anti-counterfeiting stay wire for cigarettes, which comprises a base film dielectric layer; the upper surface of the base film dielectric layer is coated and printed with an invisible ultraviolet fluorescent ink layer; the upper surface of the invisible ultraviolet fluorescent ink layer is carved with a laser code spraying layer through a laser head; and an upper adhesive layer is adhered to the upper surface of the laser code spraying layer. The utility model discloses it is anti-fake that collection ultraviolet discolours, fluorescence is anti-fake and laser physics is anti-fake, has greatly improved the imitation threshold, and anti-fake laser coding information on acting as go-between can present the radium-shine effect of active removal effect and commodity information layer impression dislocation moreover, has uniqueness and can not duplicate nature, and then makes anti-fake more reliable.



CLAIM 1. The utility model provides a holographic laser spouts sign indicating number anti-fake cigarette and acts as go-between which characterized in that: comprises a base film dielectric layer (1); the upper surface of the base film dielectric layer (1) is coated and printed with an invisible ultraviolet fluorescent ink layer (2); the upper surface of the invisible ultraviolet fluorescent ink layer (2) is carved with a laser code spraying layer (3) through a laser head; and an upper glue layer (4) is adhered to the upper surface of the laser code spraying layer (3).

P34479

PRINTING – BRAND PROTECTION

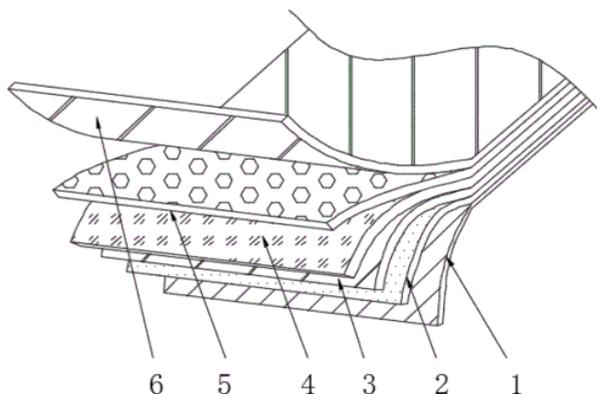
CN215243493U

Priority Date: 08/03/2021

ANHUI ZIJIANG ALUMINIUM SPRAY ENVIRONMENTAL PROT MATERIAL

MULTI-CHANNEL THREE-DIMENSIONAL COLOR DAZZLING LASER ANTI-COUNTERFEITING ALUMINUM-SPRAYED PAPER

The utility model discloses a radium-shine anti-fake aluminium paper that spouts of three-dimensional colored light that dazzles of multichannel relates to packaging material technical field, including the substrate layer, the upper surface adhesion of substrate layer is connected with the metal layer of aluminizing, the upper surface adhesion of the metal layer of aluminizing is connected with first holographic laser layer, the upper surface adhesion of first holographic laser layer is connected with the printing layer, the upper surface adhesion of printing layer is connected with the refraction layer, the upper surface adhesion of refraction layer is connected with the holographic laser layer of second, the refraction layer includes transparent substrate, a plurality of light trap has been seted up to transparent substrate's inside, and transparent substrate's inside mixes there is reflection of light metal granule. The utility model discloses increased printing layer and refraction layer between two sets of holographic laser layers, printing layer person of facilitating the use keys in trade mark, article information and anti-fake mark and spouts the aluminium paper to through the refraction layer, can carry out further refraction with the light on first holographic laser layer.



CLAIM 1. The multichannel three-dimensional colored glare laser anti-counterfeiting aluminum spraying paper comprises a substrate layer (1) and is characterized in that the upper surface of the substrate layer (1) is connected with a metal aluminum plating layer (2), the upper surface of the metal aluminum plating layer (2) is connected with a first holographic laser layer (3), the upper surface of the first holographic laser layer (3) is connected with a printing layer (4), the upper surface of the printing layer (4) is connected with a refraction layer (5), and the upper surface of the refraction layer (5) is connected with a second holographic laser layer (6); refraction layer (5) include transparent substrate (51), a plurality of light trap (52) have been seted up to the inside of transparent substrate (51), and the inside of transparent substrate (51) is mixed there is reflection of light metal particle.

P34482

CN215203934U

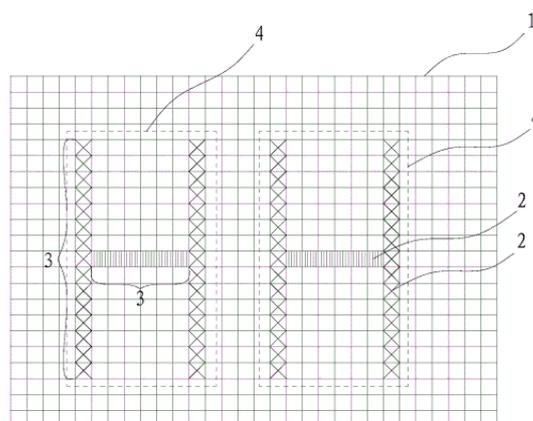
Priority Date: 09/12/2020

SHAOXING HUCAI LASER MATERIAL TECHNOLOGY

LARGE-BREADTH SEAMLESS ANTI-COUNTERFEITING HOLOGRAPHIC PLATE AND MANUFACTURING DEVICE THEREOF

The utility model provides a big breadth does not have anti-fake holographic version of version seam and making devices thereof relates to the holographic anti-fake packaging printing technology field of laser. Adding an encrypted image-text appearance of the image-text logo and a surface relief structure capable of being subjected to mould pressing copying into the holographic plate; using narrow-strip fan-shaped convergent laser beam with a certain space rotation angle to obtain a hologram with a determined diffraction angle on a digital holographic lithography machine, wherein the logos are regularly arranged to form a reproduction hologram at a certain angle; the diffraction block areas with different diffraction angles are distributed in the shapes and the positions of the diffraction block areas according to the trend to form a unit hologram; the utility model discloses anti-fake encrypted holographic version can add the pattern characters in applicant's laser version, prevents to duplicate. The brand of an enterprise can be protected, the market can be protected, and the legal rights and interests of consumers can be protected.

CLAIM 1. The utility model provides a big breadth does not have anti-fake holographic version of version seam, includes holographic version layer, its characterized in that: a plurality of holographic light spots with different diffraction angles are distributed on the holographic plate layer, and the selected image-text mark to be encrypted is formed by the holographic light spots; the holographic light spots form a plurality of diffraction block areas, and the holographic light spots with the same diffraction angle form one diffraction block area, so that the diffraction angle of each diffraction block area is different; the diffraction block areas with different diffraction angles are arranged according to the trend of the selected image-text marks to be encrypted to form a unit hologram according to the respective shapes and positions, and the unit holograms are arranged in a seamless mode in a transverse direction and a longitudinal direction to form a plurality of continuous image-text marks to be encrypted.



P34496

CN113895162

Priority Date: 22/10/2021

WUHAN RUI SHITENG ANTI COUNTERFEITING TECHNOLOGY

PRODUCTION METHOD OF MULTIDIMENSIONAL HOLOGRAPHIC ANTI-COUNTERFEITING ALUMINIZED LASER PAPER

The invention discloses a production method of multidimensional holographic anti-counterfeiting aluminized laser paper, which specifically comprises the following steps: s1, forming a color hologram: the nickel plate is manufactured by manufacturing a plurality of holographic effect images with holographic effects at different angles by utilizing the existing holographic technology and three-dimensional program software, and the manufactured plurality of holographic effect images are output to a film through electronic color separation to be manufactured into a reverse film, and then the film is corroded by a nickel plate to be manufactured into a plurality of mould pressing plates; s2, laser die pressing: the invention relates to the technical field of anti-counterfeiting paper production, in particular to a method for preparing anti-counterfeiting paper by using modified titanium dioxide as a coating material, taking a mould pressing plate for laser mould pressing, and transferring anti-counterfeiting laser information to the mould pressing plate. The production method of the multidimensional holographic anti-counterfeiting aluminized laser paper simplifies the whole manufacturing process, so that the manufacturing process is simple and efficient, the manufacturing cost is reduced, the manufactured laser paper has high image definition, the surface oxidation resistance is strong, and the quality of the laser paper is higher.

P34498

CN113878976

Priority Date: 18/09/2021

BEIJING DEEPIR TECHNOLOGY

LOW-COST HOLOGRAPHIC ANTI-COUNTERFEITING OPTICAL DESIGN MANUFACTURING METHOD AND PLATE MAKING DEVICE THEREOF

The invention discloses a low-cost holographic anti-counterfeiting optical design manufacturing method and a plate making device thereof, S1, importing N images; s2, generating N groups of grating channels; s3, dividing each group of grating channels into a plurality of spaced strips; s4, filling a plurality of bar lines in a plurality of bar blocks of each group of grating channels; s5, setting the width of the strips and the distance between the strips; s6, distributing N image contents to N groups of raster channels; s7, distributing the content of the N images, and correspondingly generating N groups of jump regions, wherein each group of jump regions is filled with a plurality of jump lines; s8, setting the block line angle, the block line distance and the block line thickness of the block lines of the grating channel; s9, setting the jump line angle, the jump line distance and the jump line thickness of the jump line in the jump area; s10, generating a vector line file; s11, importing the vector line file into a laser engraving machine; s12, putting the steel plate to be engraved into a workbench; and S13, shooting the registration marks on the steel plate by using a high-definition camera.

P34507

LABEL

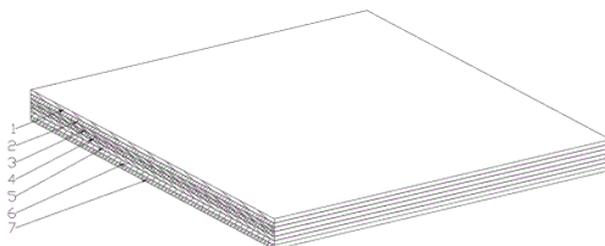
CN113808472

Priority Date: 14/09/2021

SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP

HOLOGRAPHIC LASER VARIABLE VERIFICATION CODE ANTI-COUNTERFEIT LABEL AND MANUFACTURING METHOD AND USING METHOD THEREOF

The invention relates to a holographic laser variable verification code anti-counterfeit label and a manufacturing method and a using method thereof. The variable verification code is directly made into the holographic variable laser verification code, the variable holographic laser verification code corresponds to the two-dimensional code on the label, the variable holographic laser verification code can be hidden according to a certain rule by combining a holographic anti-counterfeiting technology, the reading rule can be obtained by reading the information of the two-dimensional code, so that verification and query are completed, and the effects of preventing transfer and query are really achieved by the holographic variable laser verification code.



CLAIM 1. Holographic laser variable identifying code antifalsification label is characterized in that: the imaging device is characterized in that a first PET film layer (1), a variable digital information layer (2), a second PET film layer (3), an imaging layer (4), an aluminum coating layer (5), a glue coating layer (6) and a silicone oil paper layer (7) are sequentially arranged from top to bottom. The variable digital information layer (2) is provided with a bar code or a black two-dimensional code or a color two-dimensional code or a WeChat code or a DM code, the imaging layer (4) is a holographic laser variable code.

Click on the title to return to table of contents

PATENT REFERENCE – See the table at the end of this document

P34378

PATENT OF THE MONTH
PRINTING – BANKNOTE – CARD – THREAD – INFRARED –
MAGNETISM – WINDOW

WO202208098

Priority Date: 07/07/2020

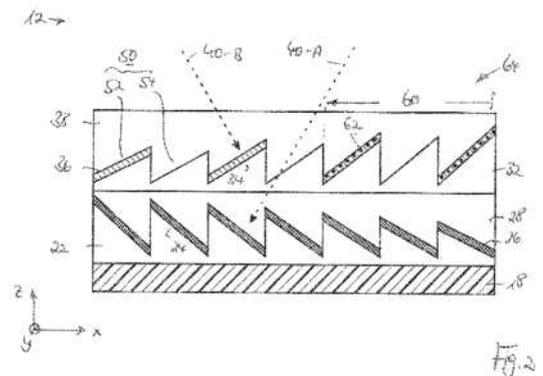
GIESECKE & DEVRIENT CURRENCY TECHNOLOGY

OPTICALLY VARIABLE SECURITY ELEMENT

The invention relates to an optically variable security element (12) for safeguarding valuable objects, the surface area of said security element defining a z-axis perpendicular thereto, comprising a reflective surface region exhibiting at least two images (14-A, 14-B) which are discernible from different viewing directions. The reflective surface region contains two relief structures (24, 34) that are arranged at different vertical levels in the z-direction and form a lower-lying and a higher-lying relief structure, each of which is provided with a reflection-increasing coating (26, 36) that follows the course of the relief. The higher-lying relief structure (34) exhibits a first optically variable effect in a first color, and the lower-lying relief structure (24) can be viewed through the higher-lying reflection-increasing coating or through grid intermediate spaces (54) or recesses in the higher-lying reflection-increasing coating (36) and exhibits a second optically variable effect in a second different color. The security element is provided in an inner coating which is provided over the entire surface or in some regions (60) and comprises at least one machine-readable feature substance (62).

ÉLÉMENT DE SÉCURITÉ OPTIQUEMENT VARIABLE

L'invention se rapporte à un élément de sécurité optiquement variable (12) permettant la protection d'objets de valeur, la surface dudit élément de sécurité définissant un axe z perpendiculaire à ce dernier, comprenant une région de surface réfléchissante présentant au moins deux images (14-A, 14-B) qui sont discernables à partir de différentes directions de visualisation. La région de surface réfléchissante contient deux structures en relief (24, 34) disposées à des niveaux verticaux différents dans la direction z et formant une structure en relief inférieure et supérieure, dont chacune est pourvue d'un revêtement augmentant la réflexion (26, 36) qui suit le tracé du relief. La structure en relief supérieure (34) présente un premier effet optiquement variable dans une première couleur, et la structure en relief inférieure (24) peut être vue à travers le revêtement augmentant la réflexion supérieur ou à travers des espaces intermédiaires de grille (54) ou des évidements dans le revêtement augmentant la réflexion supérieur (36) et présente un second effet optiquement variable dans une seconde couleur différente. L'élément de sécurité est disposé dans un revêtement interne disposé sur toute la surface ou dans certaines régions (60) et comprend au moins une substance caractéristique lisible par machine (62).



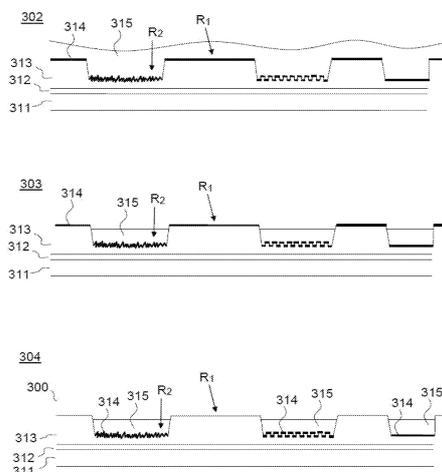
CLAIM 1. An optically variable security element for securing valuables, the areal extent of which defines a z-axis perpendicular thereto, having a reflective areal region which exhibits at least two phenomena recognizable from different viewing directions, wherein the reflective surface region contains two relief structures which are arranged in the z direction at different height steps and form a lower-lying relief structure and a higher-lying relief structure which are each provided with a reflection-increasing coating following the relief course, the higher-lying relief structure exhibits a first optically variable effect in a first color, the lower-lying relief structure through the higher-lying reflection-increasing coating itself, or through grid interspaces or gaps in the higher-level reflection and exhibits a second optically variable effect in a second, different color, and the security element is provided with at least one machine-readable feature substance in an internal layer provided over the entire surface or in regions.

METHODS FOR MANUFACTURING OPTICAL SECURITY COMPONENTS, OPTICAL SECURITY COMPONENTS AND SECURE OBJECTS EQUIPPED WITH SUCH COMPONENTS

According to one aspect, the method for manufacturing an optical security component according to the present description comprises providing a multilayer film with a support film (311) and a replication layer (313) comprising a structured face (F) with first regions (R1) and second regions (R2) that form recesses relative to the first regions. The method comprises depositing a first reflective layer (314) on the structured face; depositing (302) a covering layer (315) such that an average thickness of the covering layer at the second regions is strictly greater than an average thickness of the covering layer at the first regions; removing (303) a given thickness of the covering layer by etching so as to leave only the first regions exposed; eliminating (304) the first reflective layer from only the first regions, the at least partially micro- or nanostructured second regions forming, with the reflective layer, at least a first pattern having at least a first optical effect.

PROCÉDÉS DE FABRICATION DE COMPOSANTS OPTIQUES DE SÉCURITÉ, COMPOSANTS OPTIQUES DE SÉCURITÉ ET OBJETS SÉCURISÉS ÉQUIPÉS DE TELS COMPOSANTS

Selon un aspect, le procédé de fabrication d'un composant optique de sécurité selon la présente description comprend la fourniture d'un film multicouche avec un film support (311) et une couche de réplication (313) comprenant une face structurée (F) avec des premières régions (R1) et des deuxièmes régions (R2) formant des dépressions par rapport aux premières régions. Le procédé comprend le dépôt sur la face structurée d'une première couche réfléchissante (314); le dépôt (302) d'une couche couvrante (315) telle que une épaisseur moyenne de la couche couvrante au niveau des deuxièmes régions est strictement supérieure à une épaisseur moyenne de la couche couvrante au niveau des premières régions; le retrait (303) par attaque chimique d'une épaisseur donnée de ladite couche couvrante de telle sorte à ne laisser exposées que les premières régions; l'élimination (304) de la première couche réfléchissante sur les seules premières régions, lesdites deuxièmes régions au moins partiellement micro ou nanostructurées formant, avec la couche réfléchissante, au moins un premier motif porteur d'au moins un premier effet optique.



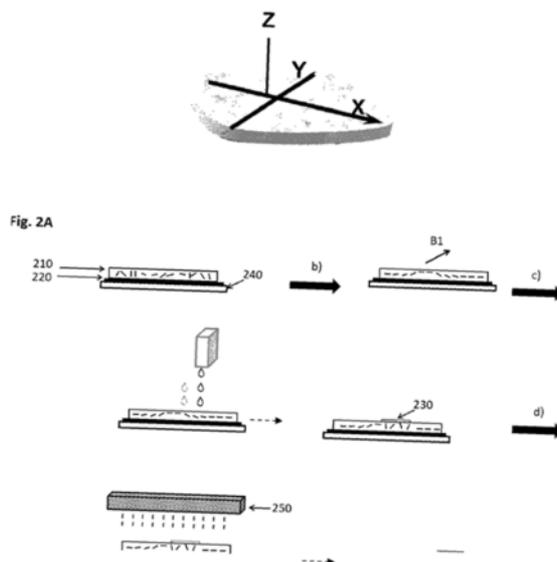
CLAIM 1. A method for manufacturing an optical security component (300) comprising the following steps: providing a multilayer film comprising a support film (311) and a replication layer (313), said replication layer comprising, on a side opposite the side facing the support film, a structured face (F) with first regions (R_i) and at least second regions (R₂) forming depressions with respect to the first regions, such that: said second regions (R₂) of said structured face of the replication layer are at least partially micro- or nanostructured; a minimum level difference at the boundary between each first region and each adjacent second region of the structured face of the replication layer is between about 0.5 pm and about 10 pm; depositing on all of said structured face (F) of the replication layer at least one first reflective layer (314); depositing (302) on all of said first regions and said at least second regions of said structured face of the replication layer provided with said first reflective layer a covering layer (315) such that an average thickness of the cover layer at the second regions of the replication layer is strictly greater than an average thickness of the cover layer at the first regions of the replication layer; removing (303), by etching, a given thickness, substantially constant over the entire surface, of said covering layer, so as to leave exposed only the first regions (R_i) of the replication layer; the removal (304) of said first reflective layer on only the first regions (R_i) of the replication layer, said at least partially micro- or nanostructured second regions (R₂) of the replication layer forming, with the reflective layer, at least one first pattern bearing at least one first optical effect.

METHODS FOR PRODUCING OPTICAL EFFECT LAYERS COMPRISING MAGNETIC OR MAGNETIZABLE PIGMENT PARTICLES

The invention relates to the field of the protection of security documents such as for example banknotes and identity documents against counterfeit and illegal reproduction. In particular, the present invention provides methods for producing optical effect layers (OELs) exhibiting one or more indicia (x30) on a substrate (x20), said method comprising a step of exposing a coating layer (x10) comprising non-spherical magnetic or magnetisable pigment particles to a magnetic field of a magnetic-field generating device so as to orient at least a part of the magnetic or magnetisable pigment particles; a step of applying a top coating composition on top of the coating layer (x10) and in the form of one or more indicia (x30), and a step of at least partially curing the coating layer (x10) and the one or more indicia (x30) with a curing unit (x50).

PROCÉDÉS DE PRODUCTION DE COUCHES À EFFET OPTIQUE COMPRENANT DES PARTICULES PIGMENTAIRES MAGNÉTIQUES OU MAGNÉTISABLES

L'invention concerne le domaine de la protection de documents de sécurité, par exemple des billets de banque et des pièces d'identité, contre la contrefaçon et la reproduction illégale. En particulier, la présente invention concerne des procédés de production de couches à effet optique (CEO) présentant un ou plusieurs indices (x30) sur un substrat (x20), ledit procédé comprenant une étape de soumission d'une couche de revêtement (x10) comprenant des particules pigmentaires magnétiques ou magnétisables non sphériques à un champ magnétique d'un dispositif de génération de champ magnétique de manière à orienter au moins une partie des particules pigmentaires magnétiques ou magnétisables ; une étape d'application d'une composition de revêtement supérieure sur le dessus de la couche de revêtement (x10) et sous la forme d'un ou de plusieurs indices (x30) et une étape de durcissement au moins partiel de la couche de revêtement (x10) et dudit un ou desdits plusieurs indices (x30) par une unité de durcissement (x50).



CLAIM 1. A method for producing an optical effect layer (OEL) exhibiting one or more indicia (x30) on a substrate (x20) comprising the steps of: a) applying on a substrate (x20) surface a radiation curable coating composition comprising non-spherical magnetic or magnetisable pigment particles, said radiation curable coating composition being in a first, liquid state so as to form a coating layer (x10); b) exposing the coating layer (x10) to a magnetic field of a magnetic-field generating device so as to orient at least a part of the magnetic or magnetisable pigment particles; c) subsequently to step b), applying a top coating composition on top of the coating layer (x10), wherein said top coating composition is applied in the form of one or more indicia (x30), and d) partially simultaneously with or subsequently to step c), at least partially curing the coating layer (x10) and the one or more indicia (x30) with a curing unit (x50).

P34390

WO2021256482

Priority Date: 16/06/2020

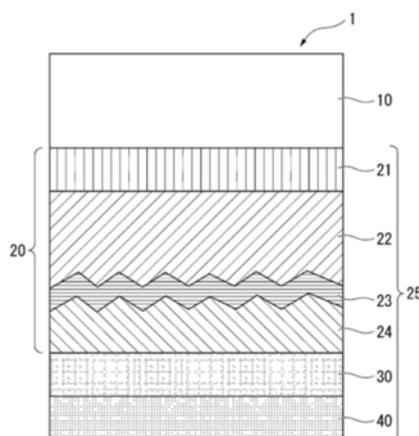
TOPPAN PRINTING

HOT STAMPING FOIL

This hot stamping foil to be transferred to a transfer target by applying a thermal pressure, is provided with: a carrier; a laminated optical decoration body that is formed on a first surface of the carrier and that includes a laminated optical structure; and a backcoat layer formed on a second surface of the carrier. The backcoat layer is a complex of a binder resin having a heat-resisting property of an aromatic compound, and auxiliary particles each having an aliphatic compound as a main component. The surface of the backcoat layer has a dynamic friction coefficient of 0.30 or less and a continuous load type scratch strength of 9.5 g or more.

FEUILLE D'ESTAMPAGE À CHAUD

L'invention concerne une feuille d'estampage à chaud destinée à être transférée sur une cible de transfert par l'application d'une pression thermique, laquelle feuille comprend : un support ; un corps de décoration optique stratifié qui est formé sur une première surface du support et qui comprend une structure optique stratifiée ; et une couche dorsale formée sur une seconde surface du support. La couche dorsale est un complexe d'une résine liante ayant une propriété de résistance à la chaleur d'un composé aromatique, et de particules auxiliaires ayant chacune un composé aliphatique comme composant principal. La surface de la couche dorsale a un coefficient de frottement dynamique de 0,30 ou moins et une résistance aux rayures du type charge continue supérieure ou égale à 9,5 g.



CLAIM 1. A hot stamping foil to be transferred to a transfer target by applying heat and pressure, the hot stamping foil comprising: a carrier including a first surface and a second surface on an opposite side thereof; a laminated optical decorative body including a laminated optical structure formed on the first surface of the carrier; a back coat layer formed on the second surface, which is a surface on which heat and pressure are applied during transfer of the carrier; and Wherein the back coat layer is a composite of a binder resin having an aromatic compound heat resistance and auxiliary particles containing an aliphatic compound as a main component, and the laminated optical decorative body contains a soft resin and a deformation limiting agent and is formed on the laminated optical structure; and An adhesive layer formed on the immersion control layer and bonded to the transfer target, wherein the adhesive layer contains a thermoplastic resin having a glass transition temperature lower than ambient temperature and defines a thickness of the adhesive layer, spacer particles having a particle size larger than the thickness of the adhesive layer, and a portion thereof protruding from the resin component; and Wherein a height at which the auxiliary particles protrude from the binder resin is lower than a height at which the spacer particles protrude from the resin component, and a surface of the back coat layer has a kinetic coefficient of friction of 0.30 or less and a continuous load type scratch strength of 9.5 g or greater.

P34394

WO2021255069

Priority Date: 19/06/2020

SURYS

METHOD FOR AUTHENTICATING AN OPTICALLY VARIABLE ELEMENT

The invention relates to a method for monitoring a candidate optically variable element, comprising: - recording a sequence of at least two individual candidate images of the candidate element by means of a verification device which comprises an optical lens, the sequence being obtained by moving the verification device relative to the candidate element along at least one verification path, characterised in that it also comprises: - selecting a set of N monitoring points in each individual candidate image, each monitoring point comprising a single pixel or a set of paired adjacent pixels, the position of each monitoring point in each individual candidate image being identical and predetermined by a set of coordinates recorded in a memory, - for each individual candidate image, recording the brightness of the pixels of each monitoring point along at least one verification path, - for each monitoring point, comparing the change in brightness of the paired N monitoring points along the verification path under similar lighting conditions; and - transmitting an alarm signal according to the outcome of the comparison.

PROCÉDÉ D'AUTHENTIFICATION D'UN ÉLÉMENT OPTIQUEMENT VARIABLE.

L'invention concerne un procédé de contrôle d'un élément optiquement variable candidat, comprenant : - Enregistrer une séquence d'au moins deux images individuelles candidates dudit élément candidat, par un dispositif de vérification qui comprend un objectif optique, la séquence étant obtenue par un déplacement relatif du dispositif de vérification par rapport audit élément candidat le long d'au moins une trajectoire de vérification, Caractérisé en ce qu'il comprend en outre : - Sélectionner un ensemble de N points de contrôle sur chaque image individuelle candidate, chaque point de contrôle comprenant un unique pixel ou un ensemble de pixels adjacents deux à deux, la position de chaque point de contrôle sur chaque image individuelle candidate étant identique et prédéterminée par un ensemble de coordonnées enregistrées dans une mémoire, - Pour chaque image individuelle candidate, enregistrer la luminosité des pixels de chaque point de contrôle, le long d'au moins une trajectoire de vérification, - Pour chaque point de contrôle, comparer l'évolution de la luminosité des N points de contrôle deux à deux le long de la trajectoire de vérification, dans des conditions d'illumination similaires; et - Emettre un signal d'alarme en fonction du résultat de la comparaison.



CLAIM 1. A method for controlling a candidate optically variable element, comprising steps of: - Recording a sequence of at least two individual candidate images of said candidate optically variable element, by an electronic verification device that comprises an optical objective, the sequence of candidate individual images being obtained by a relative displacement of the electronic verification device with respect to said candidate optically variable element along a set of at least one verification trajectory above the candidate optically variable element and centered thereon, characterized in that it further comprises steps consisting in: - Selecting a set of N control points on each individual candidate image, with N being a natural number whose value is predetermined and greater than or equal to 2, each control point comprising a single pixel or a set of pixels adjacent in pairs, the position of each control point on each individual candidate image being identical and predetermined by a set of coordinates recorded in a memory of the electronic verification device or in a memory accessible to the latter, - For each individual candidate image, record the brightness of the set of pixels of each control point, along said set of at least one verification trajectory, - For each control point, compare the evolution of the brightness of the N control points two by two along the verification trajectory, under similar illumination conditions; and - Emit an alarm signal as a function of the result of the comparison.

P34395

HOLOGRAM – PRINTING – BANKNOTE – CARD – RELIEF – INFRARED – LUMINESCENCE

WO2021254974

IQ STRUCTURES S R O | IQ STRUCTURES SRO

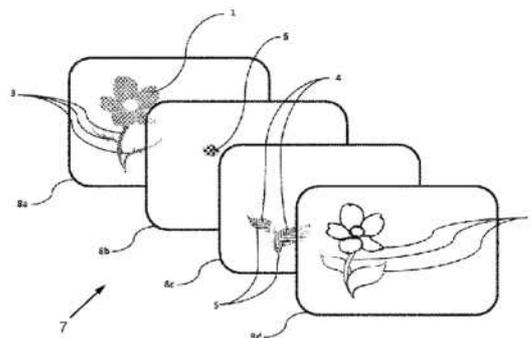
Priority Date: 15/06/2020

COMPOSITE SECURITY ELEMENT

A security element, e.g. for an ID card (7) or passport, banknote, ticket, etc, comprises a plurality of superposed layers (8a, 8b, 8c, 8d) and a security image or object (1, 2, 3, 4, 5, 6, 7) comprising a plurality of discrete security components, each said discrete security component constituting or providing a portion of the complete security image or object, which portion is less than the whole of the security image or object, wherein each said discrete security component is provided or formed on or within a respective one of the said plurality of superposed layers of the element (7). The layers can be laminated together. The components can be: a security rainbow hologram / DOVID (1); a tactile security feature (2); a 3D holographic optical element (3); an IR visible printing (4); an UV visible printing (5); a colour switch printing (6).

ÉLÉMENT DE SÉCURITÉ COMPOSITE

La présente invention concerne un élément de sécurité, par exemple pour une carte d'identification (7) ou un passeport, un billet de banque, un billet, etc., qui comprend une pluralité de couches superposées (8a, 8b, 8c, 8d) et une image ou un objet de sécurité (1, 2, 3, 4, 5, 6, 7) comprenant une pluralité de composants de sécurité discrets, chacun desdits composants de sécurité discrets constituant ou fournissant une partie de l'image ou de l'objet de sécurité complet, laquelle partie est plus petite que l'ensemble de l'image ou de l'objet de sécurité, chacun desdits composants de sécurité discrets étant disposé ou formé sur une couche respective, ou à l'intérieur d'une couche respective, parmi ladite pluralité de couches superposées de l'élément (7). Les couches peuvent être stratifiées ensemble. Les composants peuvent être : un hologramme/DOVID en arc-en-ciel de sécurité (1) ; une caractéristique de sécurité tactile (2) ; un élément optique holographique 3D (3) ; une impression visible par IR (4) ; une impression visible par UV (5) ; une impression à changement de couleur (6).



CLAIM 1. A security element comprising a plurality of superposed layers and a security image or object comprising a plurality of discrete security components, each said discrete security component constituting or providing a portion of the complete security image or object, which portion is less than the whole of the security image or object, wherein each said discrete security component is provided or formed on or within a respective one of the said plurality of superposed layers of the element.

P34400

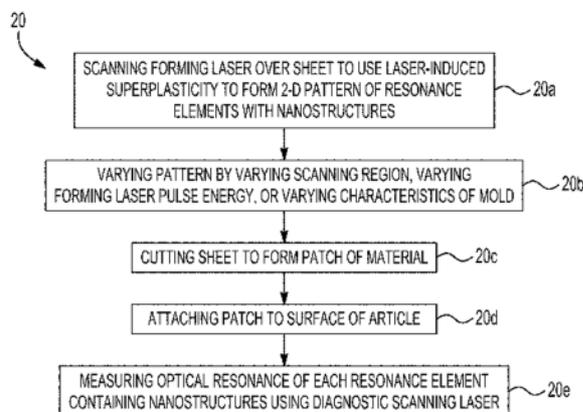
US20210394548

RAYTHEON

Priority Date: 19/06/2020

LOW COST COUNTER COUNTERFEIT TECHNOLOGY

An identification patch having a pattern of plasmonic resonance elements may be used to ensure that an article is counterfeit-proof. The identification patch is formed by laser-induced superplasticity to create a distinctive pattern of resonance elements that each contain a plurality of nanostructures. When the identification patch is irradiated, the pattern of resonance elements produces a unique spectral response that is associated only with the counterfeit-proof article. The counterfeit-proof article may be a metal component or an integrated circuit. The resonant absorption of the plasmonic resonance elements may be measured to verify the authenticity of the article before use of the article.



CLAIM 1. A method for producing a counterfeit-proof article, the method comprising: using a laser-induced superplasticity process to form a two-dimensional pattern of plasmonic resonance elements on a sheet of material, each one of the plasmonic resonance elements being formed of a plurality of nanostructures and configured to produce a distinctive optical response in an electromagnetic spectrum; cutting the sheet to form at least one patch containing a portion of the pattern; and attaching the at least one patch to a surface of the article.

P34404

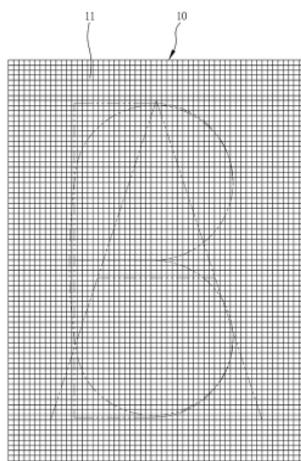
TWM621698

Priority Date: 02/06/2021

HOLO SOLUTION

STRUCTURE OF THE SECURITY DEVICE FOR REFRACTIVE EMBOSSED.

The present invention provides a refractive embossed security structure comprising a carrier, the carrier surface being divided into a plurality of square virtual blocks, each of the square virtual blocks being divided into four spaces in a cross, the four spaces being respectively provided with planes or slopes, the slopes of each of the square virtual blocks being provided with the same or different slopes;



CLAIM 1. A refractive embossed security feature structure comprising a carrier, the carrier surface dividing a plurality of square virtual blocks, each of the square virtual blocks dividing by four spaces in a cross, the four spaces being respectively provided with planes or slopes, the slopes of each of the square virtual blocks being provided with the same or different slopes, whereby the slopes of the same slopes of each of the square virtual blocks produce a light reflecting effect such that a predetermined image appears at a particular viewing angle.

P34407

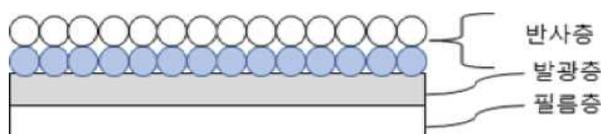
KR20210156505

Priority Date: 18/06/2020

NBST

HUMIDITY AWARE TYPE FORGERY PREVENTION MEANS

The present invention relates to an organic electroluminescent device including a film layer, an emission layer on the film layer, and a reflection layer on the emission layer, wherein the reflection layer and the emission layer having two or more wet discoloration structures have different physical properties from each other, Wherein the reflective layer has a transmittance of 70% or more so that light emission of the light-emitting layer below can be confirmed, and the color when visible light is incident and the color when UV light is incident appear as different color changes depending on the wet content.



CLAIM 1. An organic light-emitting device comprising: a film layer; a light-emitting layer on the film layer; and a reflective layer on the light-emitting layer, wherein the reflective layer and the light-emitting layer having two or more wet discoloration structures have different physical properties from each other, Wherein the reflective layer has a transmittance of 70% or more so that light emission of the light-emitting layer below can be confirmed, and wherein the color when visible light is incident and the color when UV light is incident appear as different color changes depending on the wet content.

P34410

BANKNOTE – CARD

JP2021196530

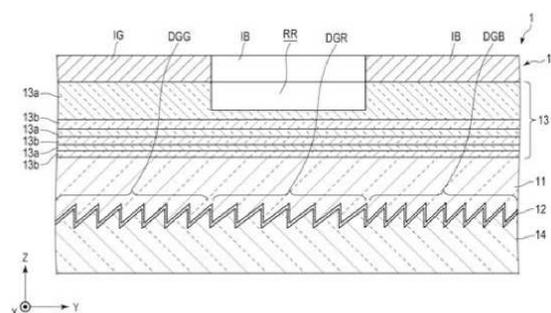
TOPPAN PRINTING

Priority Date: 16/06/2020

DISPLAY

TOPIC: To provide a technique capable of manufacturing a display body that displays an image of a structural color in a short period of time.

INVENTION: a display body (1) according to the present invention includes: a multilayer film (13) including a laminate body including two or more dielectric layers (13 a) and (13 b) having different refractive indices, and having one or more concavities (RR), (RG), and (RB) on one main surface thereof; and a multilayer film (13) having two or more dielectric layers (13 a) and (13 b) each facing the other main surface of the laminate body and having one or more concavities (RR), (RG), and (RB) on one main surface thereof; A reflection surface that, when light in a visible range is incident on the multilayer film 13, causes light emitted from the second main surface to be incident on the second main surface at an incident angle different from the emission angle of the light; and a light-absorbing layer 15 that at least partially covers a region of the first main surface where the one or more concavities RR, RG, and RB are not provided.



CLAIM 1. A multilayer film including a stacked body that includes two or more dielectric layers having different refractive indices and that includes one or more concavities on one main surface; and one or more concavities on the other main surface of the stacked body, the multilayer film being configured to reflect light emitted from the other main surface when light is incident on the multilayer film in a visible range; A reflection surface that causes the light to be incident on the other main surface at an incident angle different from an emission angle of the light; and a light-absorbing layer that at least partially covers a region of the one main surface where the one or more concave portions are not provided.

P34414

PRINTING – CARD – PASSPORT –RELIEF – MICROLENS

JP2021192956

NATIONAL PRINTING BUREAU

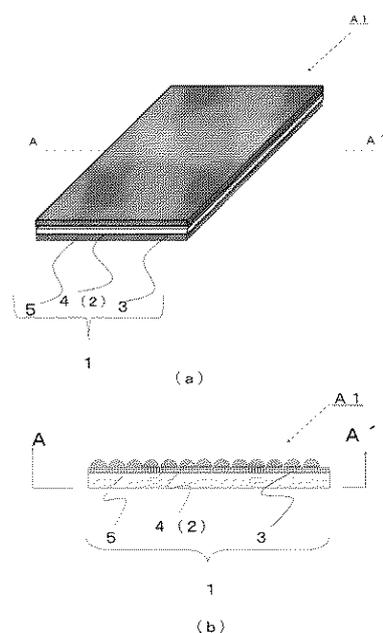
Priority Date: 08/06/2020

LAMINATE

TOPIC: To provide a laminate that suppresses the act of tampering with removing a data page due to fraying of a mesh of a hinge portion or tearing from a location of a hole, and that is capable of preventing reuse due to leaving a mark of tampering even when tampered with.

INVENTION: a laminate having an information part formed by laminating at least a second thermoplastic resin layer laminated on a lower layer of a first thermoplastic resin layer having transparency, and a third thermoplastic resin layer having a network structure on at least a portion of a space between the first thermoplastic resin layer and the second thermoplastic resin layer, wherein The first thermoplastic resin layer includes a lens-forming region in which a plurality of lenses are regularly arranged in at least a portion overlapping with the third thermoplastic resin layer.

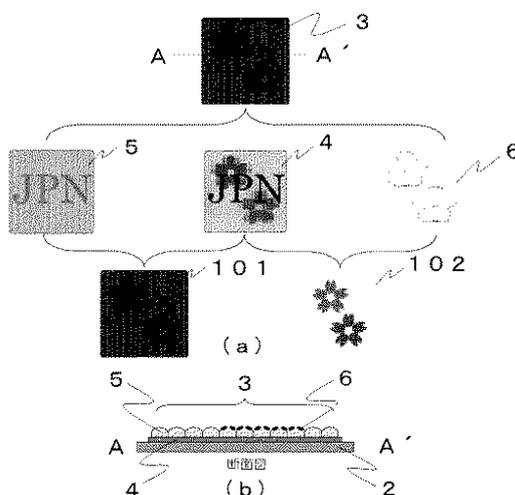
CLAIM 1. A laminate comprising an information part formed by laminating at least a second thermoplastic resin layer laminated on a lower layer of a first thermoplastic resin layer having transparency, and a third thermoplastic resin layer having a network structure in at least a portion of between the first thermoplastic resin layer and the second thermoplastic resin layer, wherein The first thermoplastic resin layer includes a lens-forming region in which a plurality of lenses are regularly arranged in at least a portion overlapping with the third thermoplastic resin layer.



LATENT IMAGE PRINTED MATERIAL

TOPIC: To provide a latent image printed material that imparts rich color to a latent image that appears under specularly reflected light without using a special photoluminescent pigment, and that enables recognition of a meaningful image that differs from the latent image even under diffusely reflected light.

INVENTION: a printed image in which a latent image element group, a semicylindrical element group, and a color layer are laminated is provided on at least a portion of a substrate, wherein the latent image element group includes a plurality of latent image elements arranged therein, the semicylindrical element group includes a first image representing significant information by a difference in area ratio of the semicylindrical elements, the color layer constitutes a gray-scale image by a difference in lightness, and when observed under diffuse reflected light, The latent image printed material is characterized in that a first color image obtained by synthesizing the first image and the gray image is visually recognized, the first color image disappears when observed under specularly reflected light, a second color image including a latent image obtained by synthesizing the color element group and the latent image element group is visually recognized, and the latent image moves and visually recognized when observed at a different observation angle.



CLAIM 1. A printed image formed by laminating a group of latent image elements, a group of semicylindrical elements, and a color layer on at least a portion of a substrate, wherein the group of latent image elements is laminated above the group of semicylindrical elements, A plurality of latent image elements obtained by dividing or compressing a base image, the plurality of latent image elements having optical transparency and being regularly arranged at a predetermined pitch, the semicylindrical element group having light-dark flip-flop properties, and A plurality of raised semicylindrical elements are regularly arranged at a predetermined pitch, the group of semicylindrical elements having a first image in which significant information is represented by first regions and second regions having different area ratios of the semicylindrical elements, The second region has an area ratio higher than that of the first region, and the color layer includes a color element group in which a plurality of color elements having a predetermined color are regularly arranged at positions overlapping with the latent image element group, and a color different from that of the color element group, And a color background portion disposed adjacent to the color element group, the gray scale image representing the significant information by a difference in brightness between a high brightness region superimposed on the first region and a low brightness region superimposed on the second region of the color layer, wherein in the printed image, a color difference E between adjacent colors at a boundary between colors is 30 or less, and When the print image is observed under diffuse reflected light, a first color image obtained by synthesizing the first image and the gray scale image is visually recognized, and when the print image is observed under specular reflected light, the first color image disappears; A second color image including a latent image obtained by synthesizing the color element group and the latent image element group is visually recognized, and further, when the print image is observed at different observation angles, the latent image is moved and visually recognized.

P34418

CARD

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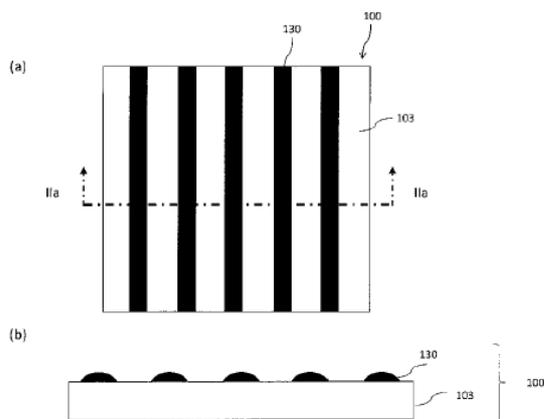
TOPPAN PRINTING

Priority Date: 27/05/2020

PRINTED MATERIAL

TOPIC: To provide a printed material in which a printed line having a convex shape is formed by a simple method and glossiness or the like varies depending on the angle of observation.

INVENTION: a printed material including a printed portion including a plurality of printed lines on a base material, wherein, in a cross section perpendicular to a line length direction of the plurality of printed lines, a line width W of a convex shape and a distance D between an adjacent printed line satisfy $0.08 \leq W/D \leq 20.0$, a line connecting a contact point between one end portion of the plurality of printed lines and the base material and a contact point between the other end portion of the plurality of printed lines and the base material forms an upwardly convex curved line from the base material plane, and a radius of curvature R μm of the curved line satisfies the relationship $5 \leq R \leq 400$.



CLAIM 1. A printed material provided with a printed portion formed from a plurality of printed lines on a substrate, wherein in a cross section perpendicular to a line length direction of the plurality of printed lines, a line width W of a convex shape and a distance D between an adjacent printed line satisfy a relationship of (Formula 1), and $0.08 \leq W/D \leq 20.0$... (Formula 1) a line connecting a contact point between a first end portion of the plurality of printed lines and the base material and a contact point between a second end portion of the plurality of printed lines and the base material is a curved line convex upward from a base material plane, and a radius of curvature Rm of the curved line satisfies the relationship (Formula 2). $5 \leq R \leq 400$ (Formula 2)

P34422

PRINTING – BANKNOTE – RELIEF – MICROLENS

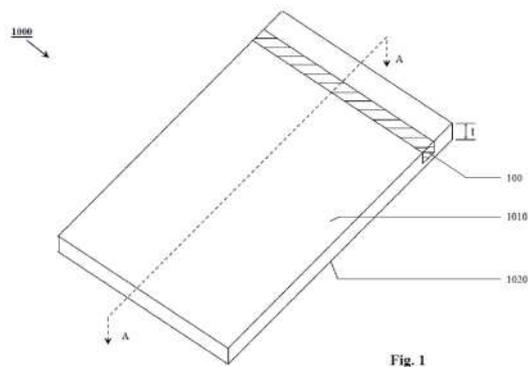
IN202021001345

PATEL SHILPAN PRAVINCHANDRA

Priority Date: 12/01/2020

SECURITY ELEMENTS FOR HIGH SECURITY PAPER

The present invention provides a security element (100) for high security papers, the security element (100) comprising a substrate liner layer (102) including a first liner surface (104) and a second liner surface (106), a first layer (108) provided on the first liner surface (104), the first layer (108) including a first surface (110) and a second surface (112), wherein the first surface (110) is oriented away from the first liner surface (104), and the second surface (112) is in contact with the first liner surface (104) and one or more of a refractive device (510), a retroreflective device (210) and a non-reflective device (310) provided onto the first surface (110) to facilitate the security element (100) to produce one or more visual effects.



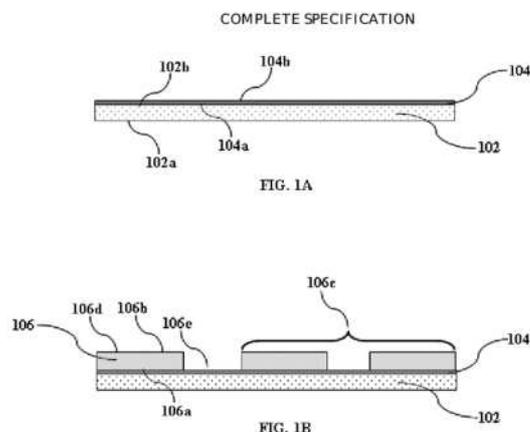
CLAIM 1. A security element (100) for high security papers, the security element (100) comprising: a substrate liner layer (102) including a first liner surface (104) and a second liner surface (106); a first layer (108) provided on the first liner surface (104), the first layer (108) including a first surface (110) and a second surface (112), wherein the first surface (110) is oriented away from the first liner surface (104), and the second surface (112) is in contact with the first liner surface (104); and one or more of a refractive device (510), a retroreflective device (210) and a non-reflective device (310) provided onto the first surface (110), characterized in that: the one or more of a refractive device (510), the retroreflective device (210) and the non-reflective device (310) facilitates the security element (100) to produce one or more visual effects.

IN202021050917

Priority Date: 23/11/2020

PREHAR RAJ | PREHAR MANU | VIJAY RAJA | KAPADIA VIKRAM
DIGVIJAY | MESSA GIANLUCA STEFANO**A METHOD FOR MANUFACTURING A SECURITY ELEMENT / PRODUCT AND A SECURITY ELEMENT / PRODUCT OBTAINED THEREFROM**

A security element/product (100) and a method (200) of manufacturing the same are disclosed. The method (200) includes the steps of providing a polymeric film (102), depositing a metal layer (104) thereon followed by depositing a protective transparent resist mask layer (106) on selected areas of the metal layer (104), defining covered areas (106d) and uncovered areas (106e), removing metal from the uncovered areas (106e) from the metal layer (104) by etching process, depositing a photosensitive layer (108), curing the photosensitive layer (108), irradiating the cured photosensitive layer (108) by UV light from the transparent polyester film side, followed by removing irradiated portion thereof, depositing a polymeric liquid crystal layer (110) and curing to obtain a cured polymeric liquid crystal layer (110) to obtain the security element (100). The security element is secure, and not easy to copy or counterfeit, and the method is simple, and easy to work with.



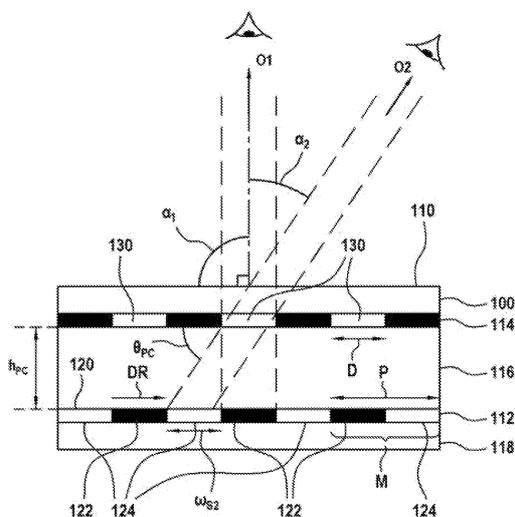
CLAIM 1. A method (200) for manufacturing a security element or security product (100) with colour change effect with patterns configured thereon, the method (200) comprising the following steps: a) providing a polymeric film (102) having a first operative surface (102a) and a second operative surface (102b) opposite to the first operative surface (102a) (202), wherein the polymeric film (102) is transparent; b) depositing by any known methods, a metal layer (104) on full surface of the polymeric film (102) in contact with the second operative surface (102b) of the polymeric film (102), the metal layer (104) having a first operative surface (104a) in contact with the second operative surface (102b) of the polymeric film (102), and a second operative surface (104b) (204); c) printing a protective resist mask (106) on selected areas of the second operative surface (104b) of the metal layer (104), selected areas defining covered areas (106d) and uncovered areas (106e), the protective resist mask (106) having a first operative surface (106a) in contact with the second operative surface (104b) of the metal layer (104) and a second operative surface (106b) (206), wherein the uncovered area (106e) patterns are in the shape or form of text or symbols which includes letters, numbers, pictures, image, photographs, and combinations thereof, wherein the protective resist mask (106) preferably is transparent; d) removing metal from the uncovered areas (106e) from the metal layer (104) by etching process using a chemically acidic or basic solution to obtain an etched metal layer or demetallized layer (104e) defining demetallized areas (104f) (208) on the metal layer (104), wherein the demetallized areas are transparent (104f), and remaining areas which are not etched are opaque or non-transparent due to presence of metal on these areas; e) depositing a photosensitive layer (108) on the full surface obtained after processing of the protective resist mask (106) in above step (d), wherein the photosensitive layer (108) having a first operative surface (108a), and a second operative surface (108b), wherein the first operative surface (108a) is in contact with the second operative surface (106b) of the protective resist mask (106) (210), and on demetallized transparent areas (104f), of the metal layer (104), wherein the photosensitive layer (108) functions as a light absorbing layer; f) curing the photosensitive layer (108) to obtain a cured photosensitive layer (108) (212); g) irradiating the cured photosensitive layer (108) with an ultraviolet light from the side of the first operative surface (102a) of the polymeric film (102) to obtain an irradiated photosensitive layer (108) (214), wherein the ultraviolet light incident onto the photosensitive layer (108) only through de-metallized areas (104f) (108d), which being transparent to ultraviolet light, and ultraviolet light cannot affect the areas of the cured photosensitive layer (108), wherein the metal layer is not demetallized or is non-transparent; h) etching those areas of the irradiated photosensitive layer (108) exposed to the ultraviolet light by using a chemically acidic or basic solution corresponding to the uncovered areas (106e) defining covered areas (108c) and uncovered areas (108d) (216) of the irradiated photosensitive layer (108) so as to achieve transparent areas in metal and photosensitive layers which perfectly register with each other resulting in areas which are transparent from (102) up to (108) both inclusive; i) depositing or transfer coating a polymeric liquid crystal layer (110) over the processed photosensitive layer (108) such that both the covered areas (108c) and the uncovered areas (108d) of the photosensitive layer (108) are covered by the polymeric liquid crystal layer (110) (218) followed by drying the same by hot air to obtain dried polymeric liquid crystal layer (110); j) irradiating the dried polymeric liquid crystal layer (110) with ultraviolet light to obtain an oriented polymeric liquid crystal layer (110), thereby forming a film having a plurality of security elements (100) (220), wherein the security element having the pattern in the shape or form of text, or symbols, wherein the symbols including letters, numbers, pictures, digital images, photographs, and combinations thereof, as a predefined security feature, or as requested by the end user or the customer; k) slitting the film obtained in the above step (j) into a continuous thread of any width, or length or cutting the film into geometrical shapes with different designs and sizes, or punching the film into shapes of different designs and sizes to obtain the security element (100) or product; l) wherein in the so obtained security element (100) colour change effect being observed when the security element is viewed at different viewing angles from the side of coating of the polymeric liquid crystal layer (110), m) wherein the colour change effect being visible only in the portion of the security element where patterns are not configured in the security elements or in the portion area of the security element where metal layer remains along with the photosensitive ink within the security element and the colour change effect being not visible in the transparent area; and n) wherein by changing the composition of the polymeric liquid crystal layer (110), different colour combinations being achieved in the security element.

METHOD OF MANUFACTURING AN OPTICALLY VARIABLE SECURITY DEVICE AND ASSOCIATED SECURITY DEVICE

Method for Making a Security Device with Optical Variability and Associated Security Device The invention essentially concerns a method for making a security device (100), comprising the following steps: - forming a grid (112) comprising an interlacing of at least a section of a first type (122) and a section of a second type (124), - forming a plurality of micro-perforations (130) in a metal layer (114), a transparent optical separator (116) being positioned between the grid (112) and the metal layer (114), at least one micro-perforation (130) being positioned so that: - when the security device is oriented according to a first orientation (O1), said at least one micro-perforation (130) and the section of the first type (122) are superimposed so as to create a first image, and - when the security device is oriented in a second orientation (O2), said at least one micro-perforation (130) and the section of the second type (124) are superposed so as to create a second image.

PROCÉDÉ DE FABRICATION D'UN DISPOSITIF DE SÉCURITÉ À VARIABILITÉ OPTIQUE ET DISPOSITIF DE SÉCURITÉ ASSOCIÉ

Procédé de fabrication d'un dispositif de sécurité à variabilité optique et dispositif de sécurité associé L'invention concerne essentiellement un procédé de fabrication d'un dispositif de sécurité (100), comprenant les étapes suivantes : - formation d'une grille (112) comprenant un entrelacement d'au moins une section d'un premier type (122) et d'une section d'un deuxième type (124), - formation d'une pluralité de micro-perforations (130) dans une couche métallique (114), un séparateur optique (116) transparent étant positionné entre la grille (112) et la couche métallique (114), au moins une micro-perforation (130) étant positionnée de sorte que : - lorsque le dispositif de sécurité est orienté selon une première orientation (O1), ladite au moins une micro-perforation (130) et la section du premier type (122) sont superposées de sorte à créer une première image, et - lorsque le dispositif de sécurité est orienté selon une deuxième orientation (O2), ladite au moins une micro-perforation (130) et la section du deuxième type (124) sont superposées de sorte à créer une deuxième image.



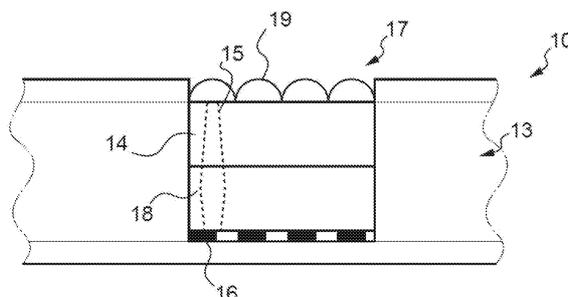
CLAIM 1. A method for manufacturing an optically variable security device (100), comprising the following steps: - forming a grid (112) comprising an interlacing of at least one section of a first type (122) and of at least one section of a second type (124) along at least one distribution direction (DR), - forming (S930), by laserization, a plurality of microperforations (130) in a metal layer (114), a transparent optical separator (116) being positioned between the grid (112) and the metal layer (114), at least one micro-perforation (130) of the plurality of micro-perforations (130) being positioned relative to the grid (112) such that: - when the security device (100) is oriented according to a first orientation (O1), said at least one micro-perforation (130) and a portion of said at least one section of the first type (122) are superimposed so as to create a first image, and - when the security device (100) is oriented in a second orientation (O2), said at least one micro-perforation (130) and a portion of said at least one section of the second type (124) are superposed so as to create a second image.

SECURITY DOCUMENT COMPRISING A SECURITY DEVICE WITH OPTICALLY VARIABLE MATERIAL

The invention relates to a secure document (10) comprising at least one body (13) and a security device (17) embedded in the body, the security device (17) comprising at least one lenticular array (19) and a frame (16) arranged under the lenticular array, a first portion of the frame being visible through the lenticular array at a first viewing angle and a second portion of the frame being visible through the lenticular array at a second viewing angle; the frame (16) including at least one series of alternating light and dark zones, and the security device (17) including a pellet (18) of optically variable material disposed between the frame (16) and the lens array (19).

DOCUMENT SÉCURISÉ COMPORTANT UN DISPOSITIF DE SÉCURITÉ À MATÉRIAU OPTIQUEMENT VARIABLE

L'invention concerne un document sécurisé (10) comportant au moins un corps (13) et un dispositif de sécurité (17) encarté dans le corps, le dispositif de sécurité (17) comportant au moins un réseau lenticulaire (19) et une trame (16) disposée sous le réseau lenticulaire, une première partie de la trame étant visible à travers le réseau lenticulaire sous un premier angle d'observation et une deuxième partie de la trame étant visible à travers le réseau lenticulaire sous un deuxième angle d'observation ; la trame (16) comportant au moins une série de zones alternativement claires et foncées, et le dispositif de sécurité (17) comportant une pastille (18) d'un matériau optiquement variable, disposée entre la trame (16) et le réseau lenticulaire (19).



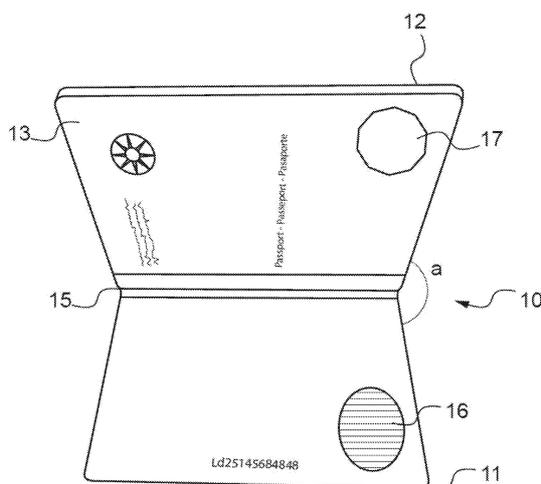
CLAIM 1. Secure Document (10) comprising at least one body (13) and a security device (17) embedded in the body, the security device (17) comprising at least one lenticular array (19) and a frame (16) arranged under the lenticular array, a first portion of the frame being visible through the lenticular array at a first viewing angle and a second portion of the frame being visible through the lenticular array at a second viewing angle, and the secure document (10) being characterized in that the frame (16) comprises at least one series of alternating light and dark zones, and in that the security device (17) comprises a patch (18) comprising an optically variable material, arranged between the frame (16) and the lenticular array (19).

IDENTITY DOCUMENT IN BOOKLET FORMAT COMPRISING A SECURITY DEVICE WITH OPTICALLY VARIABLE MATERIAL

A booklet document (10) having at least a first open configuration and a second open configuration; the document comprising a security device comprising at least one transparent window (17) arranged in a second page (13) and a frame (16) on a support page (11) which comprises at least one series of alternating light and dark zones, and the transparent window (17) comprising at least one patch (18) of an optically variable material and at least one lenticular array (19) covering the patch, and as the booklet document moves from the first open configuration to the second open configuration, the transparent window (17) shifts relative to the frame (16), producing an alternating display of two different images in the transparent window (17).

DOCUMENT D'IDENTITÉ EN FORMAT LIVRET COMPORTANT UN DISPOSITIF DE SÉCURITÉ À MATÉRIAU OPTIQUEMENT VARIABLE

L'invention concerne un document en format livret (10) ayant au moins une première configuration d'ouverture et une deuxième configuration d'ouverture ; le document comportant un dispositif de sécurité comportant au moins une fenêtre transparente (17) disposée dans une deuxième page (13) et une trame (16) sur une page de support (11) qui comporte au moins une série de zones alternativement claires et foncées, et la fenêtre transparente (17) comportant au moins une pastille (18) d'un matériau optiquement variable et au moins un réseau lenticulaire (19) recouvrant la pastille, et lorsque le document en format livret passe de la première configuration d'ouverture à la deuxième configuration d'ouverture, la fenêtre transparente (17) se décale par rapport à la trame (16), produisant un affichage alternatif de deux images différentes dans la fenêtre transparente (17).



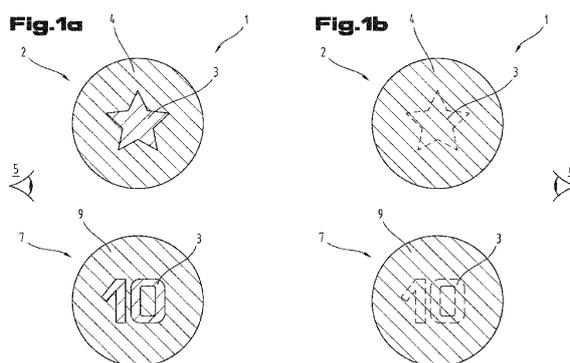
CLAIM 1. A document in booklet format (10) comprising at least three pages connected by a hinge (15), the document having at least a first open configuration and a second open configuration and passing from the first open configuration to the second open configuration by rotation of a first of the three pages, referred to as the support page (11), and a second (13) of the three pages about the hinge, relative to a third of the three pages; the document further including a security device including at least one transparent window (17) arranged in the second page (13), and the document in booklet format being characterized in that it comprises a frame (16) on the support page (11) that comprises at least one series of alternating light and dark areas, and in that the transparent window (17) comprises at least one patch (18) comprising an optically variable material and at least one lenticular array (19) covering the patch, and when the document in booklet format passes from the first open configuration to the second open configuration, the transparent window (17) shifts with respect to the frame (16) of the support page (11), in a direction orthogonal to the hinge (15), producing an alternating display of two different images in the transparent window (17).

SECURITY ELEMENT FOR SECURITIES OR SECURITY PAPERS

The invention relates to a security element (1) for securities or security papers, wherein the security element (1) has a first side (2) and a second side (7) opposite the first side (2) and at least one color-shifting first region (3) that can be perceived when viewed from the first side (2), characterized in that the security element (1) has at least one security element (2) which, when viewed from the first side (2), 6), a colour shift effect being produced in the first region (3) when a viewing angle (5, 6) changes, the first region (3) producing the same colour impression at least one first viewing angle (6), like the second region (4), and wherein the first region (3) has a different colour impression than the second region (4) at at least one second viewing angle (5) different from the first viewing angle (6).

ÉLÉMENT DE SÉCURITÉ POUR TITRES OU PAPIERS DE SÉCURITÉ

L'invention concerne un élément de sécurité (1) pour des papiers de valeur ou des papiers de sécurité. L'élément de sécurité (1) présente une première face (2), une seconde face (7) opposée à la première face (2), et au moins une première région de polarisation de couleur (3) qui peut être perçue lorsqu'elle est vue depuis la première face (2). L'invention est caractérisée en ce que l'élément de sécurité (1) a au moins une seconde région (4) qui génère une impression de couleur lorsqu'elle est vue depuis la première face (2) indépendamment de l'angle de visualisation (5, 6). Lors du changement de l'angle de visualisation (5, 6), un effet de polarisation de couleur est produit dans la première région (3), la première région (3) produisant la même impression de couleur que la seconde région (4) à au moins un premier angle de visualisation (6), et la première région (3) présentant une impression de couleur différente de celle de la seconde région (4) à au moins un second angle de visualisation (5) différent du premier angle de visualisation (6).



CLAIM 1. A security element (1) for papers of value or security papers, wherein the security element (1) has a first side (2) and a second side (7) opposite the first side (2) and at least one color-shifting first region (3) perceptible when viewed from the first side (2), characterized in that the security element (1) has at least one second region (4) generating a viewing angle (5, 6) when viewed from the first side (2), wherein a color shift effect arises when a viewing angle (5, 6) changes in the first region (3), wherein the first region (3) produces the same colour impression at at least one first viewing angle (6) as the second region (4) and wherein the first region (3) has a different colour impression than the second region (4) at at least one second viewing angle (5) different from the first viewing angle (6).

P34428

PRINTING – BANKNOTE – CARD – RELIEF

EP3939801

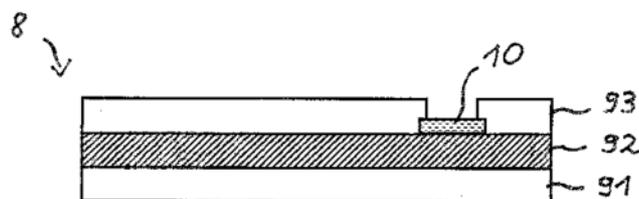
GIESECKE & DEVRIENT CURRENCY TECHNOLOGY

Priority Date: 14/07/2020

VALUABLE DOCUMENT

The invention relates to a value document comprising a paper substrate having a front side and a back side, wherein: the front side of the paper substrate is provided in a region referred to as a foil security element region with a foil security element having a front side and a back side, wherein the front side of the film security element has a reflective embossing pattern based on a reflective embossing pattern that develops an optically variable effect when the film security element is tilted, designated as embossing structure motif; the film security element region is recognizable in the form of a light-dark effect when viewing the rear side of the paper substrate in incident light, wherein the embossing pattern motif is perceptible brightly against a dark background; the film security element region is recognizable only in a uniform gray tone when viewing the back side of the paper substrate in transmitted light.

CLAIM 1. A value document comprising a paper substrate having a front side and a back side,- the front side of the paper substrate is provided in a region referred to as a film security element region with a film security element having a front side and a back side, wherein the front side of the film security element has a motif referred to as an embossed structure motif, which is based on a reflective embossed structure and develops an optically variable effect when the film security element is tilted; - the film security element region is recognizable in the form of a light-dark effect when viewing the reverse side of the paper substrate in incident light, wherein the embossed structure motif is perceptible brightly against a dark background, in particular in multitone form or in the form of a gray scale image; - the film security element region is recognizable only in a uniform gray tone when viewing the back of the paper substrate in transmitted light, so that the viewer perceives a disappearance of the embossed structure motif perceptible brightly from a dark background when changing from incident light viewing to transmitted light viewing of the back of the paper substrate.



P34435

BRAND PROTECTION

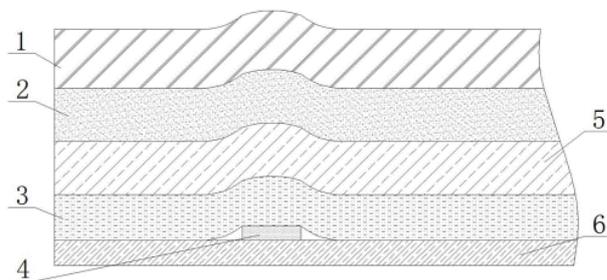
CN215561550U

ANHUI JIUSHUN PHOTOELECTRIC TECHNOLOGY

Priority Date: 28/06/2021

LASER PACKAGING PAPER WITH ANTI-COUNTERFEITING FUNCTION

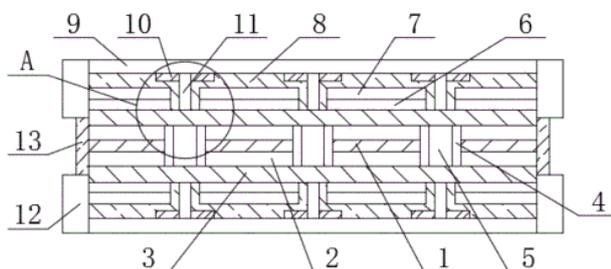
The utility model discloses a laser packing paper with anti-counterfeiting function, which comprises a glass fiber layer, a paper base layer, a metal coating, a laser layer and a protective layer from top to bottom in sequence, wherein an embedded aluminum strip is arranged in a gap between the paper base layer and the glass fiber layer, various anti-counterfeiting patterns can be engraved on the metal coating through the embedded aluminum strip embedded at the lower part of the paper base layer, the metal coating can be expressed through the covered laser layer, the protective layer has good light transmittance, a consumer can distinguish authenticity by observing the anti-counterfeiting patterns, meanwhile, the embedded aluminum strip can be embedded into a required shape according to needs to form a raised anti-counterfeiting pattern, after the paper base layer is jacked up by the raised shape, the thickness of the embedded aluminum strip can be upwards conducted to the surface of the packing paper, so that the consumer can intuitively sense touch and sense the paper, the paper is displayed in various aspects of vision and touch, and the authenticity distinguishing is convenient for the consumer, the anti-counterfeiting effect is better.



CLAIM 1. The utility model provides a radium-shine wrapping paper with anti-fake function which characterized in that: the packaging paper is composed of a glass fiber layer (6), a paper base layer (3), a metal coating (5), a laser layer (2) and a protective layer (1) from top to bottom in sequence, and aluminum strips (4) are buried in gaps between the paper base layer (3) and the glass fiber layer (6).

33UM LASER SHRINKAGE BOOP WIRE DRAWING FILM

The utility model relates to the technical field of cigarette film packaging, in particular to a 33- μm laser shrinkage BOOP (biaxially oriented Polypropylene) wire drawing film which comprises a soft film layer and a hydrogenated petroleum resin layer, wherein the soft film layer is connected with the hydrogenated petroleum resin layer, the hydrogenated petroleum resin layer is connected with a BOOP base film layer, the BOOP base film layer is connected with an amine ester enhancement layer, a homo-polymerized polypropylene glue layer and a laser anti-counterfeiting layer, the laser anti-counterfeiting layer is connected with a transparent thin adhesive layer, the laser anti-counterfeiting layer and the transparent thin adhesive layer are both connected with a zinc oxide layer, the zinc oxide layer is connected with a synthetic silica anti-sticking layer, the zinc oxide layer and the synthetic silica anti-sticking layer are both connected with an erucamide electric layer, the erucamide antistatic electric layer is connected with a transparent ceramic microbead film layer, and the utility model completes the functions of bonding, fixing and limiting the laser anti-counterfeiting layer and preventing infrared interference through the transparent thin adhesive layer, the zinc oxide layer and the BOOP base film layer, is worthy of popularization and application.



CLAIM 1. The utility model provides a radium-shine shrink BOOP drawing wire membrane of 33 μm , includes flexible glue rete (1) and hydrogenated petroleum resin layer (2), its characterized in that: the anti-counterfeiting glue film is characterized in that the top end and the bottom end of the soft glue film layer (1) are fixedly connected with a hydrogenated petroleum resin layer (2), the top end and the bottom outer side of the hydrogenated petroleum resin layer (2) are fixedly connected with a BOOP base film layer (3), the top end and the bottom inner side of the BOOP base film layer (3) are fixedly connected with an amine ester enhancement layer (4) and a homo-polymerized polypropylene glue layer (5), the top end and the bottom outer side of the BOOP base film layer (3) are fixedly connected with a laser anti-counterfeiting layer (6), the top end and the bottom outer side of the laser anti-counterfeiting layer (6) are fixedly connected with a transparent thin adhesive layer (7), the left end and the right end of the laser anti-counterfeiting layer (6) and the transparent thin adhesive layer (7) are fixedly connected with a zinc oxide layer (8), the top end and the bottom outer side of the synthetic silica layer (9) are fixedly connected with an anti-sticking synthetic silica layer (9), and the top and bottom are positioned on the inner side of the synthetic silica layer (9) and are fixedly connected with a copolymerized anti-sticking layer (9) Alkene rete (10), BOOP base film layer (3) outside and the antiseized layer of synthetic silica (9) inboard equal fixedly connected with silicon dioxide antisticking layer (11), both ends outside all contacts fixedly connected with erucamide antistatic layer (12) about zinc oxide layer (8) and the antiseized layer of synthetic silica (9), erucamide antistatic layer (12) top and bottom inboard all contact fixedly connected with transparent ceramic microballon rete (13).

P34456

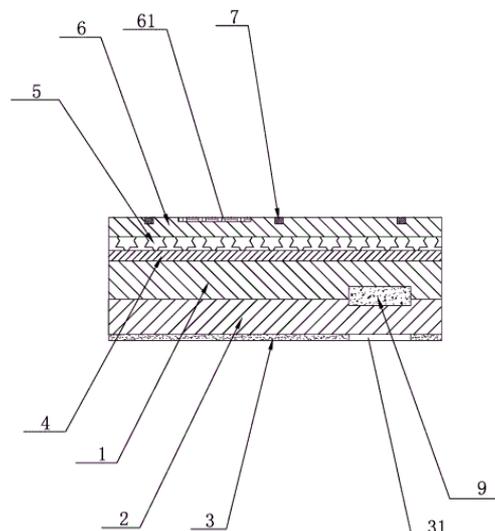
CN215404008U

Priority Date: 24/08/2021

WENZHOU CHENHUI PLASTIC PACKAGING

ANTI-COUNTERFEITING LASER FILM WITH MULTILAYER STRUCTURE

The utility model discloses an anti-counterfeiting laser film with a multilayer structure, which comprises a PET (polyethylene terephthalate) base layer, wherein a transparent ABS (acrylonitrile-butadiene-styrene) engineering plastic reinforcing layer is fixedly bonded on the inner surface of the PET base layer, and a pressure-sensitive adhesive layer is fixedly bonded on the inner surface of the transparent ABS engineering plastic reinforcing layer; fixed bonding has the layer of aluminizing on the surface of PET basic unit, and fixed bonding has the decorative layer on the surface of layer of aluminizing, fixed bonding has transparent surface course on the surface of decorative layer, it puts the thing recess and a plurality of second is put to be provided with a plurality of first thing recesses and a plurality of second on the surface of transparent surface course, the first thing recess of putting is embedded to be provided with first graphite alkene and prevents static strip, and the second is put the embedded strip of preventing static of second graphite alkene that is provided with of thing recess, and first graphite alkene prevents static strip and second graphite alkene and prevents static strip and be connected. Above-mentioned technical scheme, structural design is reasonable, location effect is good, paste convenient operation, the surface is difficult for producing static and the practicality is good.



P34460

PRINTING

CN215397518U

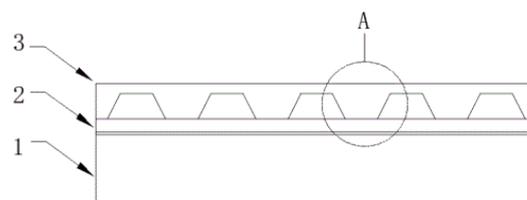
Priority Date: 17/06/2021

DONGGUAN XINRUIYUAN ANTI COUNTERFEITING TECHNOLOGY

LASER TRANSFER PAPER WITH SMOOTH SURFACE AND TRANSVERSE LIGHT BEAM

The utility model discloses a laser transfer paper with a smooth surface and a transverse light beam, which relates to the technical field of printing and comprises a substrate layer, wherein an anti-counterfeiting layer and a protective layer are arranged on the outer surface of the substrate layer, the anti-counterfeiting layer comprises an ink layer covered on the outer surface of the substrate layer, an adhesive layer covered on the outer surface of the ink layer and a metal coating layer arranged on the outer surface of the adhesive layer, the metal coating layer comprises a plurality of metal coating bodies arranged at intervals, the metal coating bodies are arranged in a frustum pyramid shape, the lower bottom surfaces of the metal coating bodies are coated on the outer surface of the adhesive layer, ink display windows are formed at intervals between adjacent metal coating bodies, the protective layer correspondingly covers the upper bottom surfaces of the metal coating bodies, the side surfaces of the metal coating bodies and the ink display windows, the metal coating bodies arranged in the frustum shape can ensure that a user can obtain 3D visual feeling when observing the anti-counterfeiting layer, the attractiveness is effectively improved, and the ink layer can display anti-counterfeiting mark through the ink display windows, the anti-counterfeiting mark is not easy to copy, and the anti-counterfeiting effect is better.

CLAIM 1. The utility model provides a radium-shine transfer paper of plain noodles transverse light post which characterized in that: the anti-counterfeiting protective layer comprises a substrate layer, wherein an anti-counterfeiting layer and a protective layer are arranged on the outer surface of the substrate layer; the anti-counterfeiting layer comprises an ink layer covered on the outer surface of the base layer, an adhesive layer covered on



the outer surface of the ink layer, and a metal coating layer arranged on the outer surface of the adhesive layer; the metal plating layer comprises a plurality of metal plating bodies arranged at intervals, the metal plating bodies are arranged in a prismoid shape, the lower bottom surfaces of the metal plating bodies are plated on the outer surface of the adhesive layer, and ink display windows are formed between adjacent metal plating bodies at intervals; the protective layer correspondingly covers the upper bottom surface of the metal plated body, the side surface of the metal plated body and the ink display window.

P34484

BANKNOTE – MAGNETISM

CN113947173

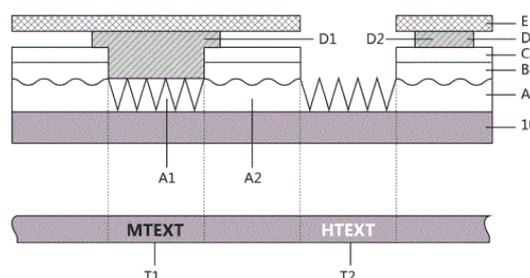
CHINA BANKNOTE PRINTING & MINT

Priority Date: 08/09/2021

MAGNETIC OPTICAL ANTI-COUNTERFEITING ELEMENT AND ANTI-COUNTERFEITING PRODUCT USING SAME

The invention provides a magnetic optical anti-counterfeiting element and an anti-counterfeiting product using the same. The security element comprises: a substrate on which a plurality of adjacent layers are formed; the plurality of layers includes at least one relief structure layer, a magnetic layer, and a functional layer; the relief structure layer comprises at least a first relief structure layer region and a second relief structure layer region of different kinds; the magnetic layer includes at least a first magnetic region and a second magnetic region; a first magnetic region is overlapped on part of the first photovoltaic structure layer region, and the width of the first photovoltaic structure layer region is smaller than that of the first magnetic region; and a second magnetic region is overlapped on part of the second relief structure layer area, and the width of the second relief structure layer area is larger than that of the second magnetic region. The hollow-out area is arranged through the fluctuation structure layer, then the magnetic character area and the transparent hollow-out character area with complete accurate position relation are formed through accurate alignment of the magnetic layer and the hollow-out area, and meanwhile, a magnetic coding sequence is provided.

CLAIM 1. A magneto-optical security element, comprising: a base material (10) on which a plurality of layers adjoining in a vertical direction are formed; the plurality of layers includes: at least one relief structure layer (A), a magnetic layer (D) and a functional layer (E); the relief structure layer (A) is formed on the surface of the substrate (10), and comprises at least a first relief structure layer area (A1) and a second relief structure layer area (A2) which are different in type; the magnetic layer (D) comprises at least a first magnetic region (D1) and a second magnetic region (D2); a first magnetic region (D1) is overlapped on part of the first fused structure layer region (A1), and the width of the first fused structure layer region (A1) overlapped with the first magnetic region (D1) is smaller than the width of the first magnetic region (D1) overlapped thereon; a second magnetic region (D2) is overlapped on part of the second relief structure layer region (a2), and the width of the second relief structure layer region (a2) overlapped with the second magnetic region (D2) is larger than the width of the second magnetic region (D2) overlapped thereon.



a first magnetic region (D1) is overlapped on part of the first fused structure layer region (A1), and the width of the first fused structure layer region (A1) overlapped with the first magnetic region (D1) is smaller than the width of the first magnetic region (D1) overlapped thereon; a second magnetic region (D2) is overlapped on part of the second relief structure layer region (a2), and the width of the second relief structure layer region (a2) overlapped with the second magnetic region (D2) is larger than the width of the second magnetic region (D2) overlapped thereon.

P34492

PRINTING – RELIEF – MICROLENS

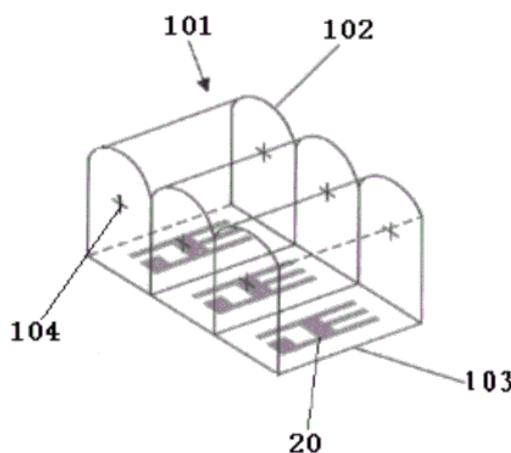
CN113920849

LAO GUOHUA

Priority Date: 21/10/2021

ANTI-COUNTERFEITING MARK AND PREPARATION METHOD THEREOF

The application discloses an anti-counterfeiting mark and a preparation method thereof, wherein the anti-counterfeiting mark comprises an optical microlens grating formed by arranging a plurality of grating units; the grating unit is an optical microlens semi-cylindrical grating unit body; the bottom of the optical microlens grating is provided with an image layer; micro-image marks are printed in each area of the image layer covered by each optical micro-lens; the relative positions of the micro-image marks and the optical axes of the corresponding optical lenses are the same. The method for printing the micro-image mark on the bottom of each optical micro-lens in the optical micro-lens grating is adopted, the anti-counterfeiting mark is hidden when the human eyes are used for directly watching by utilizing the relative angle relation between the position of the micro-image mark arranged at the bottom of the optical micro-lens and the optical axis of the optical micro-lens, and the anti-counterfeiting mark is displayed when the human eyes are used for watching by virtue of the camera, so that whether the anti-counterfeiting mark is the correct anti-counterfeiting mark or not is determined according to the direct watching effect of the human eyes and the indirect watching effect of the camera.



Click on the title to return to table of contents

PATENT REFERENCE – See the table at the end of this document

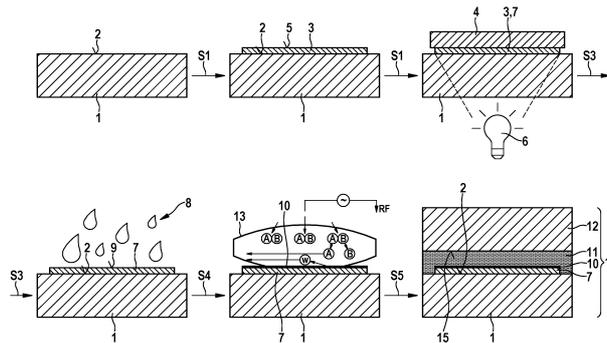
N8369

DE102020117992
 Priority Date: 08/07/2020

BMW - BAYERISCHE MOTOREN WERKE

METHOD FOR INTEGRATING A HOLOGRAM BETWEEN TWO SUBSTRATE DISCS OF A COMPOSITE DISC, IN PARTICULAR A VEHICLE DISC, AND A RESULTING COMPOSITE DISC

The invention relates to a method for integrating a hologram, in particular a holographic optical element, between two substrate discs of a composite disc, in particular a vehicle disc, comprising the following steps: - providing a first substrate disc and producing on the substrate surface thereof a hologram layer with a hologram formed therein; - producing a diffusion barrier layer of glass on a surface of the hologram layer facing away from the first substrate wafer by plasma-enhanced chemical vapor deposition; and - connecting the first substrate wafer to a second substrate wafer by a connecting layer, which is arranged between the substrate surface of the first substrate wafer with the hologram and diffusion barrier layer produced thereon and a substrate surface of the second substrate wafer facing said hologram and diffusion barrier layer, and has a hot-melt adhesive.



CLAIM 1. A method for integrating a hologram, in particular a holographic optical element, between two substrate wafers (1, 12) of a wafer composite (14), in particular a vehicle wafer, comprising the steps of: - providing a first substrate wafer (1) and generating (S1, S2, S3) on the substrate surface (2) thereof of a hologram layer (7) with a hologram formed therein; - producing (S4) a diffusion barrier layer (10) of glass on a surface (9) of the hologram layer (7) facing away from the first substrate wafer (1) by plasma-enhanced chemical vapor deposition; and - connecting (S5) the first substrate wafer (1) to a second substrate wafer (12) by means of a connecting layer (11) which is arranged between the substrate surface (2) of the first substrate wafer (1) with the hologram and diffusion barrier layer (7, 10) and a substrate surface (15) of the second substrate wafer (12) facing the latter and has a hot-melt adhesive.

N8386

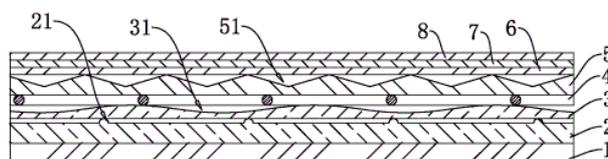
CN215397457U

Priority Date: 18/03/2021

SHANGHAI SHUANGGE INDUSTRY

HOLOGRAPHIC LASER ALUMINIZER

The application relates to a holographic laser aluminizer, which relates to the technical field of aluminizers and comprises a plastic film, wherein an aluminum film layer is arranged on one side of the plastic film in the thickness direction, a pattern surface is arranged on one side of the plastic film in the thickness direction, which is close to the aluminum film layer, and the aluminum film layer is fixed with the pattern surface of the plastic film; a plurality of refraction surfaces are formed on the aluminum film layer at intervals, and the refraction directions of the refraction surfaces face different directions; and a waterproof layer is arranged on one side of the aluminum film layer in the thickness direction, which is far away from the plastic film, and the aluminum film layer is fixed on one side of the waterproof layer in the thickness direction. This application helps promoting the stability of aluminium film layer surface color to make the colour can be observed from all directions easily to the user of service, promote plastic film's aesthetic property, satisfy people user demand's effect.



CLAIM 1. The utility model provides a holographic radium-shine aluminizer, includes plastic film (2), one side of plastic film (2) thickness direction is provided with aluminium membrane layer (5), its characterized in that: a pattern surface (21) is arranged on one side surface of the plastic film (2) close to the aluminum film layer (5) in the thickness direction, and the aluminum film layer (5) is fixed with the pattern surface (21) of the plastic film (2); refraction surfaces (51) are formed on one side surface of the aluminum film layer (5) far away from the plastic film (2) in the thickness direction, a plurality of refraction surfaces (51) are formed on the aluminum film layer (5) at intervals, and the refraction directions of the refraction surfaces (51) face different directions; one side of the aluminum film layer (5) far away from the plastic film (2) in the thickness direction is provided with a waterproof layer (6), and one side of the waterproof layer (6) in the thickness direction is fixed with the aluminum film layer (5).

Click on the title to return to table of contents

PATENT REFERENCE – See the table at the end of this document

N8354

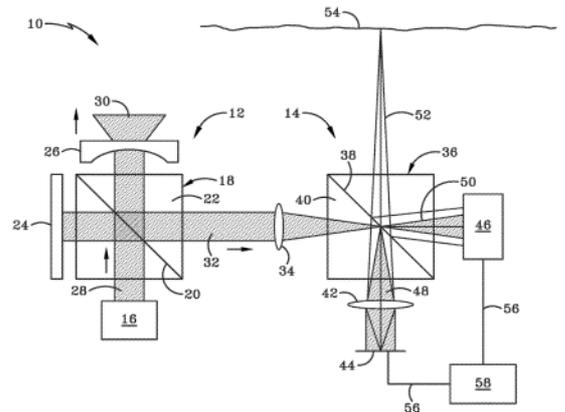
US20220011091

Priority Date: 10/07/2020

**BAE SYSTEMS INFORMATION & ELECTRONIC SYSTEMS
INTEGRATION**

COMPUTATIONAL SHEAR BY PHASE STEPPED SPECKLE HOLOGRAPHY

A method and apparatus for performing shearography where the shear length and direction can be set in image processing, thus allowing all shear sizes to be computed and tested from a single data set, which can be collected in a single pass over a test surface or test object. The present process assures that a single data set can be processed with optimal shear length for multiple target types, thus reducing or eliminating the chance of missing a target detection while additionally enhancing target shape analysis by allowing the calculation of target response versus shear length and shear direction.



CLAIM 1. A method of performing shearography comprising: reflecting a target illumination beam off of a target surface via a transmitter optical component of a shearography system; directing a reference beam from the transmitter optical component to a receiving optical component of the shearography system; receiving a reflected beam from the target surface with the receiving optical component; communicating a data set relating to the reflected beam relative to the reference beam from the receiving optical component to a processor; and processing the data set to generate at least two shear image sets having different shear lengths for each image set.

N8355

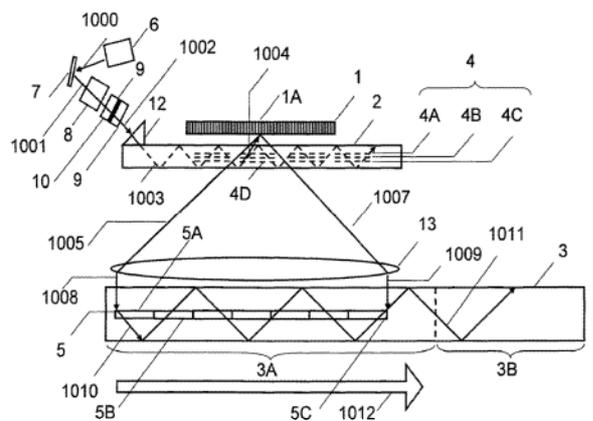
US20210405365

Priority Date: 19/09/2014

DIGILENS | ROCKWELL COLLINS

METHOD AND APPARATUS FOR GENERATING INPUT IMAGES FOR HOLOGRAPHIC WAVEGUIDE DISPLAYS

An image generation device comprises: a spatial light modulator; a source of light; a beam deflector; an illumination waveguide and an image transport waveguide, each waveguide containing at least one switchable grating; and a coupler for directing scanned light into a first set of TIR paths in said illumination waveguide. A switchable grating in the illumination waveguide diffracts light onto said SLM, a switchable grating in said image transport waveguide diffracting image-modulated from the SLM into a waveguide path.



CLAIM 1. An image generation device comprising: an image source configured to project collimated image-modulated light of a first wavelength over a field of view comprising a plurality of portions of the field of view; and a waveguide supporting a plurality of switchable gratings each switchable between a non-diffracting state and a diffracting state and configured to couple said image-modulated light into said waveguide, wherein said plurality of switchable gratings: are configured to switch into their diffracting states in synchronism with the projection of one or more selected portions of said field of view by said image source, in their diffracting states, provide an aperture for coupling light into said waveguide, are configured to provide a different aperture for each said field of view portion, and are recorded in a liquid crystal and polymer holographic recording material.

N8366

EP3929665

Priority Date: 22/06/2020

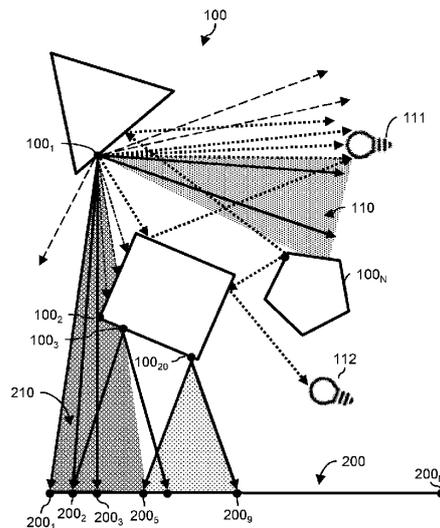
IMEC-INTERUNIVERSITAIR MICRO ELECTRONICA CENTRUM VZW |
VRIJE UNIVERSITEIT BRUSSEL

A METHOD FOR COMPUTING A HOLOGRAPHIC INTERFERENCE PATTERN

The present disclosure relates to a method for computing a holographic interference pattern for a holographic plane comprising pixels of an illuminated three-dimensional, 3D, scene comprising object points representing one or more 3D objects, the method comprising: determining, for a respective object point, a total light component contributed by one or more light sources in the 3D scene; and calculating, for a respective pixel, a complex-valued amplitude based on the total light component of non-occluded object points within a viewing cone of the pixel, thereby deriving the holographic interference pattern. The present disclosure further relates to a computer program product implementing the method, a computer-readable storage medium comprising the computer program product and a data processing system for carrying out the method.

PROCÉDÉ DE CALCUL D'UN MOTIF D'INTERFÉRENCE HOLOGRAPHIQUE

La présente invention concerne un procédé de calcul d'un motif d'interférence holographique pour un plan holographique comprenant des pixels d'une scène tridimensionnelle (3D) éclairée comprenant des points d'objet représentant un ou plusieurs objets 3D, le procédé consistant à : déterminer, pour un point d'objet respectif, une composante de lumière totale fournie par une ou plusieurs sources de lumière dans la scène 3D ; et calculer, pour un pixel respectif, une amplitude à valeur complexe sur la base de la composante de lumière totale de points d'objet non occlus situés à l'intérieur d'un cône de visualisation du pixel, ce qui permet de dériver le motif d'interférence holographique. La présente invention concerne en outre un produit de programme informatique mettant en œuvre le procédé, un support de stockage lisible par ordinateur comprenant le produit de programme informatique, et un système de traitement de données servant à mettre en œuvre le procédé.



CLAIM 1. A method for computing a holographic interference pattern for a holographic plane (200) comprising pixels (2001 - 200N) of an illuminated three-dimensional, 3D, scene (100) comprising object points (1001, ..., 100M) representing one or more 3D objects, the method comprising: - determining (300), for a respective object point (1001, ..., 100M), a total light component contributed by the one or more light sources (111, 112) in the 3D scene (100); - calculating (400), for a respective pixel (2001 - 200N), a complex-valued amplitude based on the total light component of non-occluded object points (1001, ..., 100M) within a viewing cone of the pixel, thereby deriving the holographic interference pattern.

N8399

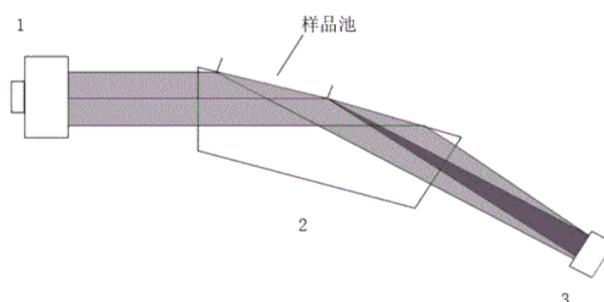
CN113866129

Priority Date: 26/08/2021

BEIJING UNIVERSITY OF TECHNOLOGY

COMMON-PATH DIGITAL HOLOGRAPHIC REFRACTIVE INDEX FULL-FIELD DYNAMIC MEASUREMENT METHOD BASED ON COHERENT LIGHT SOURCE

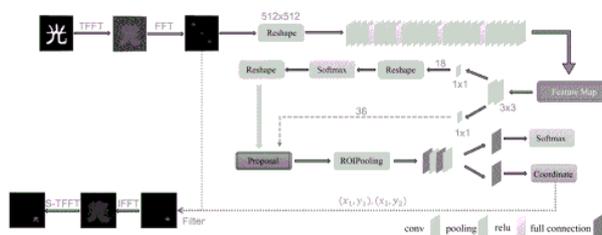
The invention discloses a refractive index full-field dynamic measurement method based on common-path digital holography of a coherent light source, and particularly discloses a refractive index full-field dynamic measurement method realized through common-path total internal reflection holography. Obtaining the frequency spectrum of the hologram through two-dimensional Fourier transform, obtaining the phase after passing through the sample, calculating the complex amplitude distribution at the object plane, and further obtaining the phase after passing through the sample; obtaining the refractive index information of the sample according to the calculated distribution and the total internal reflection angle; the method comprises the steps of designing a Fresnel double total internal reflection prism, recording a hologram by a common-path off-axis Fresnel holography method, and calculating dynamic refractive index change in a sample cell in the Fresnel double reflection prism according to phase change quantity reproduced by the hologram.



CLAIM 1. A refractive index full-field dynamic measurement method based on common-path digital holography of a coherent light source is disclosed, wherein an imaging system light path for realizing the method comprises a fiber laser, a Fresnel double total internal reflection prism and a CCD detector; coherent light emitted from the optical fiber passes through a Fresnel double internal total reflection prism, is subjected to total internal reflection on two surfaces with an included angle of 2 degrees on the prism, is divided into two coherent semicircular light beams with an included angle of 4 degrees, is subjected to refraction, is subjected to interference behind the prism by taking 6 degrees as an off-axis angle, and is recorded on interference fringes through a CCD (charge coupled device) to obtain a hologram; the method is characterized in that: first, a sample-free hologram $I_1(x_1, y_1)$ is obtained; Then placing the sample and recording the hologram $I_2(x_1, y_1)$ (ii) a Calculating the phase difference of evanescent waves passing through air and a sample by using an off-axis holography; according to the phase difference, the refractive index of the sample is calculated by utilizing a Fresnel formula; the calculation process comprises the following four steps; S1 obtaining the hologram I_1 by two-dimensional Fourier transforms (x_1, y_1) The +1 level spectrum is cut and placed at the center position Then the complex amplitude distribution U at the object plane is calculated by transmitting the angular spectrum back to the object planes (x_i, y_i) and further obtaining a phase ϕ_1 after passing through the sample 1; S2 obtaining the hologram I_2 by two-dimensional Fourier transform (x_1, y_1) The +1 level spectrum is intercepted and placed at the central position and then is transmitted back to the object plane through the angular spectrum, and the complex amplitude distribution U at the object plane is calculated (x_i, y_i) and further obtaining a phase ϕ_2 after passing through the sample 2; S3 has a uniform refractive index due to the TIR prism and has a value of n_1 In addition, the refractive index n in air is known n_{air} And total internal reflection incident angle θ_1 When, will ϕ_1 And ϕ_2 Subtracting the difference and the phase change ϕ when the prism undergoes total internal reflection when the theoretical upper interface is n_{air} Add to obtain ϕ_{p1} Wherein: S4 according to calculated ϕ_{p1} The distribution and the total internal reflection angle can obtain the refractive index information of the sample;

FRESNEL HOLOGRAM FREQUENCY DOMAIN GATING FILTERING METHOD BASED ON DEEP LEARNING

The invention discloses a Fresnel hologram frequency domain gating filtering method based on deep learning, which comprises the steps of firstly, generating a frequency spectrogram by performing Fourier transform on an off-axis Fresnel digital hologram through simulation, and taking the generated frequency spectrogram as a sample required by network training; secondly, the feature extraction network realizes the extraction of the main reconstruction information of the holographic image by learning the relation between the zero level and the positive and negative levels of the holographic spectrogram at different angles; and finally, carrying out partial filtering processing on the part containing the effective information, carrying out Fourier inversion to obtain an interference-free hologram, reconstructing the hologram to obtain the hologram only containing the negative level, and carrying out compression quality evaluation on the analog data. The method can generate the hologram without zero order and other interferences, simultaneously improves the compression ratio of the hologram, and solves the problems of difficult real-time reconstruction, poor reconstruction effect and insufficient compression ratio of the hologram. The method has wide application prospect in the fields of holographic three-dimensional display, holographic projection, information safety, digital micro-holography, intelligent transportation, medical treatment and the like.



CLAIM 1. A Fresnel hologram frequency domain gating filtering method based on deep learning is characterized by comprising the following steps: (1) simulating to generate an off-axis Fresnel digital hologram of the picture to be processed, taking a spectrogram generated after Fourier transformation of the off-axis Fresnel digital hologram as a sample required by network training, and labeling the spectrogram of the data set; (2) a multi-angle feature extraction network based on deep learning is introduced to test the network and reconstruct a negative primary hologram so as to extract main reconstruction information of the hologram; the multi-angle feature extraction network based on deep learning comprises three modules: the first module is a deep full convolution network of the network, the second module is a generation candidate area network, and the third module is a classifier module; a deep full convolution module of the network: extracting a feature map in an input image for subsequent generation of a candidate regional network layer and classification and identification; the introducing generates candidate area networks: identifying a target through logistic regression and correcting the identified target passing through the deep full convolution network by utilizing frame regression to obtain an accurate identified area, collecting an input feature map and the identified area by an interested area pooling layer, extracting the feature map of the target area after integrating information, and sending the feature map into a full connection layer; the improved classifier module: judging the category of the target through a full connection layer, outputting coordinates of a negative first-order spectrogram, positioning the target into the spectrogram through output coordinates of a feature extraction network, filtering out positive first-order and zero-order frequency spectrum parts, reserving a negative first-order image, and performing subsequent image reconstruction; (3) and extracting main reconstruction information of the holographic image by adopting a coordinate positioning method to obtain the holographic image only containing negative primary information, and obtaining the reconstructed image through S-FFT.

Click on the title to return to table of contents

PATENT REFERENCE – See the table at the end of this document

N8361

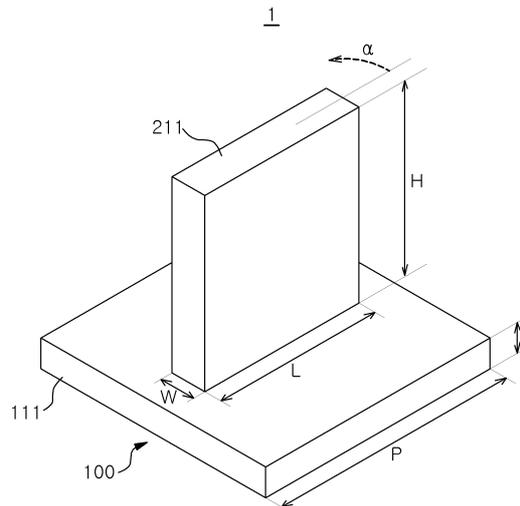
KR20220004464

Priority Date: 03/07/2020

**CENTER FOR ADVANCED META MATERIALS | POHANG UNIVERSITY
OF SCIENCE & TECHNOLOGY POSTECH**

WAVELENGTH-SPLITTING METASURFACE, METHOD FOR MANUFACTURING THE SAME, AND MULTICOLOR HOLOGRAM IMPLEMENTING APPARATUS INCLUDING THE SAME

The present invention relates to a wavelength-splitting metasurface. According to an aspect of the present invention, there is provided a wavelength-splitting metasurface including: a substrate including a plurality of unit cells; and a plurality of structure groups on which nanostructures included in different structure groups are provided in different sizes to be independently phase-adjusted with respect to a plurality of lights having different wavelengths.



CLAIM 1. A wavelength-splitting metasurface, comprising: a substrate including a plurality of unit cells; and a plurality of structure groups in which nanostructures are provided on the unit cells, wherein nanostructures included in different structure groups are provided in different sizes so as to be independently phase-adjustable with respect to a plurality of lights having different wavelengths.

N8377

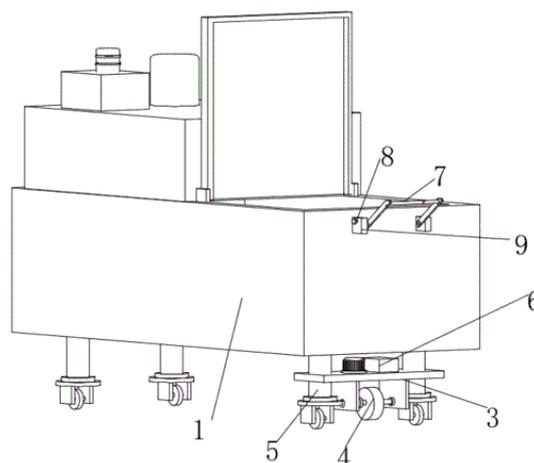
CN215551810U

Priority Date: 01/06/2021

YANCHENG ZHIKUN PRINTING

LASER HOLOGRAPHIC GRATING PATTERN WATER TRANSFER PRINTING BRUSH MANUFACTURING EQUIPMENT

The utility model discloses a laser holographic grating pattern water transfer printing manufacturing device which comprises a holographic watermarking device body, wherein four groups of movable trundles are distributed at four corners of the bottom of the holographic watermarking device body, an object carrying plate is arranged on two groups of movable trundles positioned on the same side, a driving assembly and a storage battery are arranged on the object carrying plate, two groups of mounting blocks are symmetrically arranged at the front end of the holographic watermarking device body, push rods are arranged between the two groups of mounting blocks, a positioning piece is arranged in an inner cavity of the mounting block on the left side, and the positioning piece is connected with the push rods in an inserting mode. The laser holographic grating pattern water transfer printing brush manufacturing equipment is additionally provided with the driving assembly, so that the equipment can be assisted to move, labor is saved, working strength is reduced, the positioning piece and the push rod are arranged, the push rod can be fixed on a proper inclination angle, the whole equipment can be pushed to move conveniently through the push rod, the push rod can be parallel to the front end of the equipment body when the equipment is not used, and occupied space can be reduced.



The laser holographic grating pattern water transfer printing brush manufacturing equipment is additionally provided with the driving assembly, so that the equipment can be assisted to move, labor is saved, working strength is reduced, the positioning piece and the push rod are arranged, the push rod can be fixed on a proper inclination angle, the whole equipment can be pushed to move conveniently through the push rod, the push rod can be parallel to the front end of the equipment body when the equipment is not used, and occupied space can be reduced.

CLAIM 1. The utility model provides a laser holographic grating pattern water transfer printing preparation equipment, includes holographic watermark equipment body (1), its characterized in that: the bottom of holographic watermark equipment body (1) is that four corner distributions have four sets of caster (5) and are located and install on two sets of caster (5) of homonymy and carry thing board (3), it installs drive assembly (4) and battery (6) to carry on thing board (3), it is two sets of installation piece (2) and two sets of to be the symmetry on the front end of holographic watermark equipment body (1) install between installation piece (2) push rod (7), left side setting element (8) are installed to the inner chamber of installation piece (2) just setting element (8) are pegged graft with push rod (7).

N8404

CN113829745

Priority Date: 15/10/2021

BEIJING KANGTEMAN ELECTRONIC SYSTEMS | BEIJING SPECTRUM
YINBAO TECHNOLOGY | TIANJIN YANGGUANG TECHNOLOGY

TRANSFER PRINTING METHOD AND TRANSFER PRINTING SYSTEM FOR HOLOGRAPHIC IMAGE

The embodiment of the invention discloses a transfer printing method and a transfer printing system of a holographic image, wherein the transfer printing method comprises the following steps: providing a holographic image layer comprising at least a transfer layer comprising a holographic image that is peelable from a base film; providing an adhesive layer, and laminating the transfer layer containing the holographic image and capable of being peeled from the base film on the first surface of the adhesive layer, wherein the adhesive layer is in a solid film structure; die cutting is carried out on the attached holographic image layer and the adhesive layer according to the shape of a preset holographic image; and providing a substrate, and coating the second surface of the bonding layer after die cutting on the substrate to finish the transfer printing of the holographic image, so as to obtain the holographic image with high adhesion and clear and intact image.

CLAIM 1. A method of transferring a holographic image, comprising: providing a holographic image layer comprising at least a transfer layer comprising a holographic image that is peelable from a base film; providing an adhesive layer, and laminating the transfer layer containing the holographic image and capable of being peeled from a base film on a first surface of the adhesive layer, wherein the adhesive layer is a solid film structure with double-sided adhesion; die cutting is carried out on the attached holographic image layer and the adhesive layer according to the shape of a preset holographic image; providing a substrate, and coating the second surface of the adhesive layer after die cutting on the substrate.

Click on the title to return to table of contents

PATENT REFERENCE – See the table at the end of this document

N8341

WO202215878

Priority Date: 14/07/2020

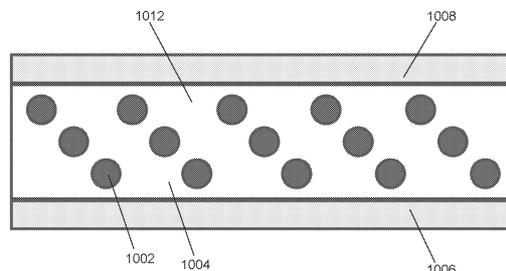
DIGILENS

NANOPARTICLE-BASED HOLOGRAPHIC PHOTOPOLYMER MATERIALS AND RELATED APPLICATIONS

Disclosed herein is a holographic mixture including nanoparticles used to form gratings through holographic exposure. In various embodiments, exposure of the holographic mixture causes the nanoparticles to diffuse to dark fringe regions which creates nanoparticle rich regions and nanoparticle poor regions. Some embodiments include a multi-layer grating which includes a layer formed through the exposed holographic mixture and another layer directly applied above the exposed holographic mixture. The other layer may also be exposed through a holographic recording beam.

MATÉRIAUX PHOTOPOLYMÈRES HOLOGRAPHIQUES À BASE DE NANOPARTICULES ET APPLICATIONS ASSOCIÉES

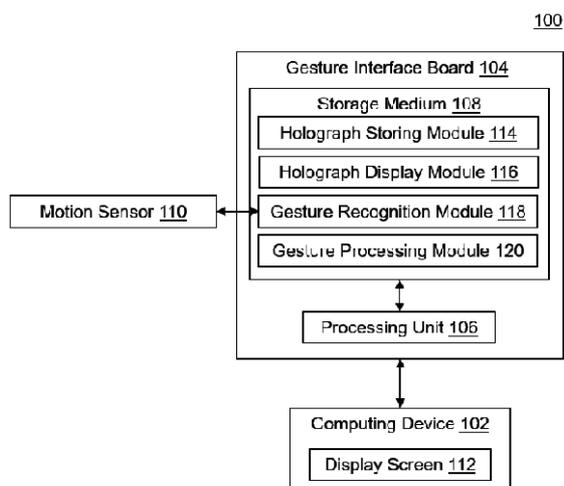
L'invention concerne un mélange holographique comprenant des nanoparticules utilisées pour former des réseaux par exposition holographique. Dans divers modes de réalisation, l'exposition du mélange holographique amène les nanoparticules à se diffuser vers des régions de frange sombre, ce qui crée des régions riches en nanoparticules et des régions pauvres en nanoparticules. Certains modes de réalisation comprennent un réseau multicouche qui comprend une couche formée à travers le mélange holographique exposé et une autre couche directement appliquée au-dessus du mélange holographique exposé. L'autre couche peut également être exposée à travers un faisceau d'enregistrement holographique.



CLAIM 1. A method of forming a grating, the method comprising: providing a starting cell comprising: a bottom substrate; a first removable substrate; and a first holographic material comprising monomers and nanoparticles, wherein the first holographic material is positioned between the bottom substrate and the first removable substrate; exposing the first holographic material with a holographic recording beam so the nanoparticles diffuse into dark fringe regions to create nanoparticle poor regions and nanoparticle rich regions to form a bottom grating; removing the first removable substrate; depositing a second holographic material on top of the exposed first holographic material; positioning a second removable substrate on top of the second holographic material; and exposing the second holographic material with another holographic recording beam to form a top grating.

HOLOGRAPHIC INTERACTION SYSTEM AND METHOD

A holographic interaction system (100) comprising: a computing device (102) adapted to perform computing functions by receiving an input from a user; a gesture interface board (104) configured to enable an exchange of information between the user and the computing device (102) by recognizing a gesture of the user, wherein the gesture interface board (104) comprises: a processing unit (106) for executing programming instructions stored in a storage medium (108), wherein the storage medium (108) comprises: a holograph storing module (114) configured to store holographic images; a holograph display module (116) configured to project the holographic images through a display screen (112) of the computing device (102); a gesture recognition module (118) configured to recognize the gesture of the user using a motion sensor (110); and a gesture processing module (120) configured to execute the computing functions.



CLAIM 1. A holographic interaction system (100) to enable a gesture-based interaction, the system (100) comprising: a computing device (102) adapted to perform computing functions by receiving an input from a user; a gesture interface board (104) configured to enable an exchange of information between the user and the computing device (102) by recognizing a gesture of the user, wherein the gesture interface board (104) comprises: a processing unit (106) configured to execute programming instructions stored in a storage medium (108), wherein the storage medium (108) comprises: a holograph storing module (114) configured to store holographic images, wherein each of the holographic images stores gesture-sensitive visuals related to the computing functions; a holograph display module (116) configured to project the holographic images through a display screen (112) of the computing device (102); a gesture recognition module (118) configured to recognize the gesture of the user using a motion sensor (110); and a gesture processing module (120) configured to execute the computing functions correlated with the gesture-sensitive visuals based on the recognized gesture of the user.

N8365

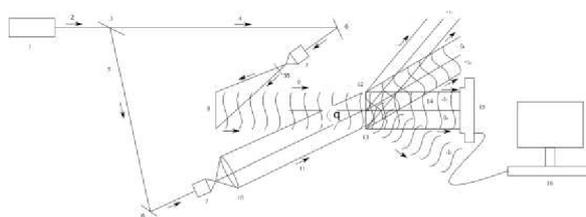
IN202011022303

Priority Date: 27/05/2020

CSIR - COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

METHOD FOR RECORDING WIDE OFF-AXIAL ANGLE DIGITAL HOLOGRAMS WITH ENHANCED FIELD OF VIEW

Present invention discloses a method for recording digital holograms of larger objects. A grating is used to effectively reduce the high spatial frequencies related with wide offaxial angles as well as that associated with the larger size of objects. The grating works on the primary interference fringes generated due to interference of object and reference beams and converts high spatial frequency of these fringes into secondary fringes of lower spatial frequency as schematically shown in Fig 1. This reduced spatial frequency could easily be sampled and recorded with commercially available optoelectronic sensors like CCD and CMOS sensors. This is a comparatively simple and compact setup for realization of enhanced field of view digital holographic system. The method is expected to open up many new applications of digital holographic techniques which are otherwise remain unfeasible due to limited spatial resolution of the available digital hologram recording sensors.



CLAIM 1. A lensless digital holographic system for recording digital holograms with wide offaxial angle and enhanced field of view as shown in Figure 1 comprising- i. at least one laser light source 1 to emit a directional beam 2, ii. at least one variable beam splitter 3 to split beam 2 into transmitted beam 4 and reflected beam 5, iii. mirrors 6 to steer the transmitted and reflected beams 4 and 5 respectively, iv. spatial filter assembly 7 to expand and spatially filter the beams, v. at least one object 8 to be illuminated by expanded and spatially filtered beam 4 generating an object beam 9, vi. at least one lens 10 to optically shape the expanded and spatially filtered beam 5 as reference beam 11 making an off-axial angle q with the object beam 9 to generate primary interference fringes 12, vii. at least one grating 13 placed in the plane of primary interference fringes 12 to generate various grating diffraction orders and to generate secondary set of interference fringes 14 having spatial frequency very less as compared to the spatial frequency of primary interference fringes and the grating, viii. at least one digital sensor 15 placed at appropriate distance and angle from the grating to resolve the spatial frequency of secondary fringes and to record digital hologram of the object ix. a data storage and processing device 16 to store and digitally process the recorded digital hologram. the system is characterized by the features wherein, a) the primary interference fringes 12 formed by superposition of object beam and reference beam enclosing wide off-axial angle are projected on the grating 13, b) grating 13 interacts with the primary interference fringes 12 to generate secondary fringes 14 with reduced spatial frequency resolvable with the digital sensor as digital hologram with enhanced field of view

N8367

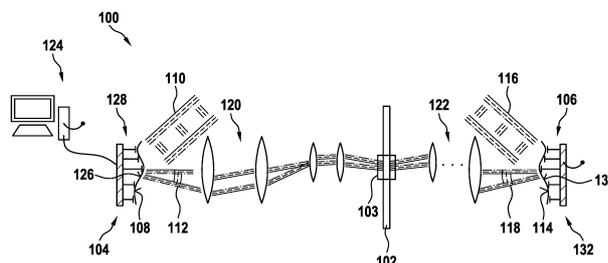
DE102020209026
Priority Date: 20/07/2020

ROBERT BOSCH

EXPOSURE DEVICE FOR RECORDING AT LEAST ONE HOLOGRAM AND METHOD FOR RECORDING AT LEAST ONE HOLOGRAM

The invention relates to an exposure device (100) for recording at least one hologram. For this purpose, the exposure apparatus (100) has a holding device (102) for holding a holographic film, a first reflection element (104) which has a continuous first mirror surface (108), which can be deformed using a first control signal, for converting incident first light beams (110) into first recording wave fronts (112), and a second reflective element (106) having a continuous second mirror surface (114) deformable using a second control signal for converting incident second light beams (116) into second acquisition wavefronts (118). Furthermore, the exposure apparatus (100) has a first optical device (120) for guiding the first recording wavefronts (112) to a first side of the holding device (102) and a second optical device (122) for guiding the second recording wavefronts (118) to a second side of the holding device (102), in order to expose a holographic structure into the holographic film by superimposing the recording wavefronts (112, 118).

CLAIM 1. Exposure apparatus (100) for recording at least one hologram, wherein the exposure apparatus (100) has the following features: a holding device (102) for holding a holographic film (103); a first reflection element (104), which is deformable using a first control signal (512), for converting incident first light beams (110) into first recording wavefronts (112), and a second reflection element (106), comprising a continuous second mirror surface (114) deformable using a second control signal (514) for converting incident second light beams (116) into second acquisition wavefronts (118); and a first optical device (120) for guiding the first recording wavefronts (112) to a first side of the holding device (102) and a second optical device (122) for guiding the second recording wavefronts (118) to a second side of the holding device (102), in order to expose at least one holographic structure of the hologram into the holographic film (103) by superimposing the recording wavefronts (112, 118).



N8408

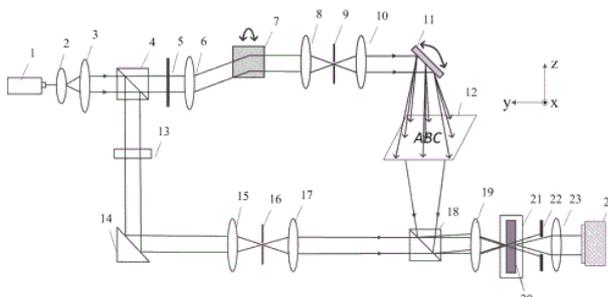
CN113808626
Priority Date: 12/06/2020

BEIJING INSTITUTE OF TECHNOLOGY SHENZHEN RESEARCH
INSTITUTE

METHOD FOR IMPROVING HOLOGRAPHIC STORAGE REPRODUCTION DATA PAGE RESOLUTION BY MULTI-ANGLE ILLUMINATION

The invention relates to a method for improving the resolution ratio of a holographic storage reproduction data page by multi-angle illumination, which comprises a laser, a first lens, a second lens, a first half mirror, a first light chopper, a third lens, an x-direction scanning galvanometer, a fourth lens, a first filter, a fifth lens, a y-direction scanning galvanometer, a storage data page, an optical path compensator, a reflector, a sixth lens, a second filter, a seventh lens, a second half mirror, an eighth lens, a storage medium, a displacement device, a second light chopper, a ninth lens and an imaging detector. The invention can improve the resolution of the data page reproduced by the holographic storage technology, enhance the storage performance of the holographic storage technology and have important application value.

CLAIM 1. A method for improving the resolution of a holographic storage reconstruction data page with multi-angle illumination, comprising: the optical scanning device comprises a laser (1), a first lens (2), a second lens (3), a first half-transmitting half-reflecting mirror (4), a first light chopper (5), a third lens (6), an x-direction scanning vibrating mirror (7), a fourth lens (8), a first filter (9), a fifth lens (10), a y-direction scanning vibrating mirror (11), a data storage page (12), an optical path compensator (13), a reflecting mirror (14), a sixth lens (15), a second filter (16), a seventh lens (17), a second half-transmitting half-reflecting mirror (18), an eighth lens (19), a storage medium (20), a displacement device (21), a second light chopper (22), a ninth lens (23) and an imaging detector (24).



N8403

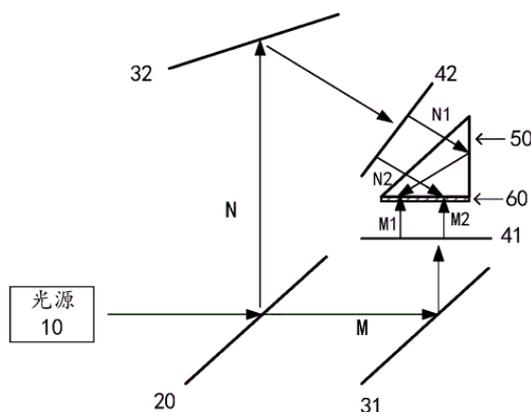
CN113835145

Priority Date: 10/09/2021

SHENZHEN LOCHN OPTICS TECHNOLOGY

HOLOGRAPHIC GRATING MANUFACTURING DEVICE, HOLOGRAPHIC GRATING AND TWO-DIMENSIONAL HOLOGRAPHIC GRATING OPTICAL WAVEGUIDE

The embodiment of the invention provides a holographic grating manufacturing device, a holographic grating and a two-dimensional holographic grating optical waveguide. The manufacturing device comprises a light source, a light splitting unit, a first reflecting unit, a first diaphragm, a second reflecting unit, a second diaphragm, a prism and a holographic dry plate; light of the light source passes through the light splitting unit to form a first light beam and a second light beam; the first light beam is reflected by the first reflecting unit, forms a first sub-light beam and a second sub-light beam through the first diaphragm and irradiates the holographic dry plate; the second light beam is reflected by the second reflecting unit and forms a third sub-light beam and a fourth sub-light beam through the second diaphragm; the third sub-beam is transmitted by the prism and forms interference fringes with the first sub-beam to expose a first area of the holographic dry plate, the fourth sub-beam is reflected by the prism and forms interference fringes with the second sub-beam to expose a second area of the holographic dry plate to form the holographic grating, and the manufacturing device can expose the two areas simultaneously and is high in efficiency of manufacturing the holographic grating.



CLAIM 1. An apparatus for producing a holographic grating, comprising: the holographic optical system comprises a light source, a light splitting unit, a first reflecting unit, a first diaphragm, a second reflecting unit, a second diaphragm, a prism and a holographic dry plate; the light splitting unit is arranged in the light emitting direction of the light source and is used for splitting the light of the light source into a first light beam propagating along a first direction and a second light beam propagating along a second direction; the first reflection unit is arranged in the first direction, the first diaphragm and the first surface of the holographic dry plate are sequentially arranged in the reflection direction of the first reflection unit, and the first diaphragm is used for dividing the first light beam into a first sub-beam and a second sub-beam; the second reflection unit is arranged in the second direction, the second diaphragm and the incidence surface of the prism are sequentially arranged in the reflection direction of the second reflection unit, the second diaphragm is used for dividing the second light beam into a third sub-light beam and a fourth sub-light beam, the prism is used for receiving the third sub-light beam and directly transmitting the third sub-light beam to the emergent surface of the prism, and is used for receiving the fourth sub-light beam, reflecting the fourth sub-light beam by the reflection surface of the prism and outputting the fourth sub-light beam to the emergent surface of the prism; the second surface of the holographic dry plate is arranged adjacent to the emergent surface of the prism, and the holographic dry plate is used for being exposed by interference fringes formed by the first sub-beams and the fourth sub-beams in the first area and being exposed by interference fringes formed by the second sub-beams and the third sub-beams in the second area to form a holographic grating.

Click on the title to return to table of contents

PATENT REFERENCE – See the table at the end of this document

N8345

WO202211006

VEYEZER

Priority Date: 08/07/2020

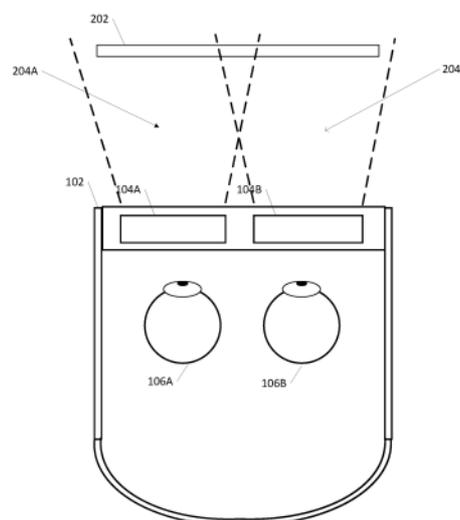
HOLOGRAPHIC REAL SPACE REFRACTIVE SYSTEM

A system, method, and non-transitory computer readable medium for providing a visual examination are provided. A diagnostic module configured to execute on a first computing device communicatively coupled to a head mounted holographic display device worn by a user renders a virtual arrangement displayed within the head mounted holographic display device at an initial simulated distance away from the user. Within the virtual arrangement is an imbedded pattern. A second computing device receives, from leads attached to the user, brain waves of the user. The second computing device displays a visual evoked potential within the brain waves. The visual evoked potential comprises an indication that the user visually identified the imbedded pattern at a second simulated distance away from the user. The visual evoked potential occurs at a focal length of a refractive error of an eye of the user.

SYSTÈME DE RÉFRACTION EN ESPACE RÉEL HOLOGRAPHIQUE

La présente invention concerne un système, un procédé et un support non transitoire lisible par ordinateur permettant de fournir un examen visuel. Un module de diagnostic conçu pour s'exécuter sur un premier dispositif informatique couplé en communication à un dispositif d'affichage holographique monté sur la tête porté par un utilisateur restitue un agencement virtuel affiché à l'intérieur du dispositif d'affichage holographique monté sur la tête à une distance simulée initiale de l'utilisateur. Dans l'agencement virtuel se trouve un motif incorporé. Un second dispositif informatique reçoit, à partir de conducteurs attachés à l'utilisateur, des ondes cérébrales de l'utilisateur. Le second dispositif informatique affiche un potentiel évoqué visuel dans les ondes cérébrales. Le potentiel évoqué visuel comprend une indication que l'utilisateur a identifié visuellement le motif incorporé à une seconde distance simulée de l'utilisateur. Le potentiel évoqué visuel se produit à une distance focale d'une erreur de réfraction d'un œil de l'utilisateur.

CLAIM 1. A method for providing a visual examination, comprising: rendering, via a diagnostic module configured to execute on a first computing device communicatively coupled to a head mounted holographic display device worn by a user, a virtual arrangement displayed within the head mounted holographic display device at an initial simulated distance away from the user, wherein the virtual arrangement comprises a background grid orientated in a first orientation and an imbedded pattern located within the background grid orientated in a second orientation that is different from the first orientation; updating, via the diagnostic module, the rendering of the virtual arrangement within the head mounted holographic display device, wherein the update comprises a virtual movement of the virtual arrangement; receiving, by a second computing device from leads attached to the user, brain waves of the user; displaying, via the second computing device, a visual evoked potential within the brain waves, wherein the visual evoked potential comprises an indication that the user visually identified the imbedded pattern within the virtual arrangement at a second simulated distance away from the user, wherein the visual evoked potential occurs at a focal length of a refractive error of the user.



N8346

WO202208884

Priority Date: 06/07/2020

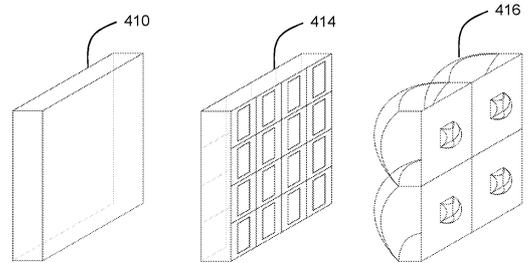
VIVIDQ

HOLOGRAPHIC DISPLAY SYSTEM AND METHOD

A holographic display comprises: an illumination source which is at least partially coherent; a plurality of display elements positioned to receive light from the illumination source and spaced apart from each other, each display element comprising a group of at least two sub-elements; and a modulation system associated with each display element and configured to modulate at least a phase of each of the plurality of sub-elements.

SYSTÈME ET PROCÉDÉ D’AFFICHAGE HOLOGRAPHIQUE

L’invention concerne un dispositif d’affichage holographique qui comprend : une source d’éclairage qui est au moins partiellement cohérente ; une pluralité d’éléments d’affichage positionnés pour recevoir la lumière provenant de la source d’éclairage et espacés l’un de l’autre, chaque élément d’affichage comprenant un groupe d’au moins deux sous-éléments ; et un système de modulation associé à chaque élément d’affichage et conçu pour moduler au moins une phase de chacun de la pluralité de sous-éléments.



N8350

VARIOUS

WO2021259875

Priority Date: 26/06/2020

FONDATION B COM

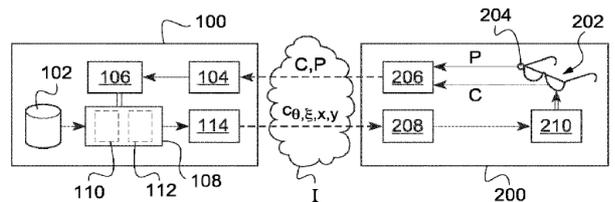
METHOD AND DEVICE FOR RECONSTRUCTING A DIGITAL HOLOGRAM, METHOD FOR DISPLAYING A DIGITAL HOLOGRAM AND ASSOCIATED SYSTEM

A digital hologram is represented by a set of coefficients (cθ, ξ, x, y) respectively associated with a plurality of definition wavelets each defined by a multiplet of coordinates (θ, ξ, x, y) in a multidimensional space. A method for reconstructing the digital hologram in order to display it by means of a display (202), comprises the following steps: - depending on at least one data item (C; P) representative of a characteristic of the display (202), determining a transformation of the multidimensional space; - generating a reconstructed hologram by assigning each coefficient of at least some of the coefficients (cθ, ξ, x, y) to a reconstruction wavelet defined by an image reconstruction multiplet by means of the predetermined transformation of the multiplet of coordinates defining the definition wavelet associated with the coefficient in question (cθ, ξ, x, y). An associated display method, reconstruction device and system are also described.

PROCÉDÉ ET DISPOSITIF DE RECONSTRUCTION D’UN HOLOGRAMME NUMÉRIQUE, PROCÉDÉ D’AFFICHAGE D’UN HOLOGRAMME NUMÉRIQUE ET SYSTÈME ASSOCIÉ

Un hologramme numérique est représenté par un ensemble de coefficients (cθ,ξ,x,y) respectivement associés à une pluralité d’ondelettes de définition définies chacune par un multiplet de coordonnées (θ,ξ,x,y) dans un espace pluridimensionnel. Un procédé de reconstruction de l’hologramme numérique en vue de son affichage au moyen d’un afficheur (202), comprend les étapes suivantes : - en fonction d’au moins une donnée (C; P) représentative d’une caractéristique de l’afficheur (202), détermination d’une transformation dudit espace pluridimensionnel; - génération d’un hologramme reconstruit en attribuant chaque coefficient parmi certains au moins desdits coefficients (cθ,ξ,x,y) à une ondelette de reconstruction définie par un multiplet de reconstruction image par la transformation déterminée du multiplet de coordonnées définissant l’ondelette de définition associée au coefficient concerné (cθ,ξ,x,y). Un procédé d’affichage, un dispositif de reconstruction et un système associés sont également décrits.

CLAIM 1. A method of reconstructing a digital hologram for display by means of a display (202), the digital hologram being represented by a set of coefficients (cθ,ξ,x,y) respectively associated with a plurality of definition wavelets each defined by a multiplet of coordinates (θ,ξ,x,y) in a multidimensional space, comprising the following steps: - as a function of at least one datum (C; P) representative of a characteristic of the display (202), determining (E20) a transformation of said multidimensional space; Generation of a reconstructed hologram by assigning each coefficient from at least some of the said coefficients(cθ,ξ,x,y) to a reconstruction wavelet defined by an image reconstruction multiplet by the determined transformation of the multiplet of coordinates defining the definition wavelet associated with the coefficient concerned (cθ,ξ,x,y).



COMPOSITE PANEL WITH A HOLOGRAPHIC ELEMENT AND METHOD FOR THE PRODUCTION THEREOF

The invention relates to a composite panel (100), at least comprising a first panel (1), a second panel (2), a layer stack arranged in-between, at least comprising the following layers in order from the first panel (1) to the second panel (2): a first thermoplastic intermediate layer (3); a separating layer (5); an adhesive layer (9); a photopolymer layer (4) having at least one holographic element; a carrier layer (7) and a second thermoplastic intermediate layer (6); wherein the carrier layer (7) contains polyethylene terephthalate (PET), polyethylene (PE), polymethyl methacrylate (PMMA), polyvinyl chloride (PVC) and/or cellulose triacetate (TAC) and has a thickness of 20 μm to 100 μm , wherein the carrier layer (7) is arranged directly adjacent to the photopolymer layer (4); the separating layer (5) contains polyethylene terephthalate (PET), polyethylene (PE), polymethyl methacrylate (PMMA), polycarbonate (PC), polyamide (PA), polyvinyl chloride (PVC) and/or cellulose triacetate (TAC) and has a thickness of 10 μm to 300 μm ; and the adhesive layer (9) is arranged directly adjacent to the photopolymer layer (4) and the separating layer (5).

PANNEAU COMPOSITE AVEC UN ÉLÉMENT HOLOGRAPHIQUE ET PROCÉDÉ POUR SA PRODUCTION

L'invention concerne un panneau composite (100), lequel panneau comprend au moins un premier panneau (1), un second panneau (2), un empilement de couches disposé entre ceux-ci, comprenant au moins les couches suivantes, dans l'ordre à partir du premier panneau (1) jusqu'au second panneau (2) : une première couche intermédiaire thermoplastique (3) ; une couche de séparation (5) ; une couche adhésive (9) ; une couche photopolymère (4) ayant au moins un élément holographique ; une couche de support (7) et une seconde couche intermédiaire thermoplastique (6) ; la couche de support (7) contenant du poly(téréphtalate d'éthylène) (PET), du polyéthylène (PE), du poly(méthacrylate de méthyle) (PMMA), du poly(chlorure de vinyle) (PVC) et/ou du triacétate de cellulose (TAC), et ayant une épaisseur comprise entre 20 μm et 100 μm , la couche de support (7) étant disposée directement au voisinage de la couche photopolymère (4) ; la couche de séparation (5) contenant du poly(téréphtalate d'éthylène) (PET), du polyéthylène (PE), du poly(méthacrylate de méthyle) (PMMA), du polycarbonate (PC), du polyamide (PA), du poly(chlorure de vinyle) (PVC) et/ou du triacétate de cellulose (TAC) et ayant une épaisseur comprise entre 10 μm et 300 μm ; et la couche adhésive (9) étant disposée directement au voisinage de la couche photopolymère (4) et de la couche de séparation (5).

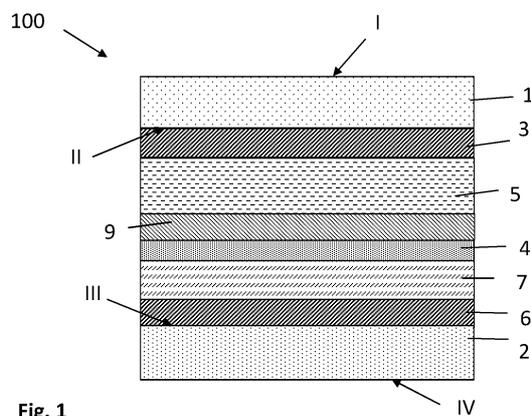


Fig. 1

CLAIM 1. Composite pane (100), at least comprising a first pane (1), a second pane (2), a layer stack arranged therebetween, at least comprising the following layers in the order from the first pane (1) to the second pane (2): a first thermoplastic intermediate layer (3), a release layer (5), an adhesive layer (9), a photopolymer layer (4) with at least one holographic element, a carrier layer (7) and a second thermoplastic intermediate layer (6), wherein the carrier layer (7) comprises polyethylene terephthalate (PET), polyethylene (PE), Polymethyl methacrylate (PMMA), polyvinyl chloride (PVC) and / or Cellulose triacetate (TAC) and has a thickness of 20 m to 100 m, wherein the carrier layer (7) is arranged directly adjacent to the photopolymer layer (4), the separating layer (5) comprises polyethylene terephthalate (PET), polyethylene (PE), Polymethyl methacrylate (PMMA), polycarbonate (PC), polyamide (PA), Polyvinyl chloride (PVC) and / or cellulose triacetate (TAC) and has a thickness of 10 m to 300 m and the adhesive layer (9) is arranged directly adjacent to the photopolymer layer (4) and directly adjacent to the release layer (5).

LAMINATED PANE WITH A HOLOGRAPHIC ELEMENT, AND METHOD FOR PRODUCING THE SAME

Laminated pane (100), at least comprising a first pane (1), a second pane (2) and a stack of layers arranged in between, at least comprising the following layers in the order from the first pane (1) to the second pane (2): a first thermoplastic intermediate layer (3), a separating layer (5), a photopolymer layer (4) with at least one holographic element, a carrier layer (7) and a second thermoplastic intermediate layer (6), wherein - the photopolymer layer (4) has a thickness of 5 μm to 50 μm , - the carrier layer (7) contains polyethylene terephthalate (PET), polyethylene (PE), polymethyl methacrylate (PMMA), polycarbonate (PC), polyamide (PA), polyvinyl chloride (PVC) and/or cellulose triacetate (TAC) and has a thickness of 20 μm to 100 μm , wherein the carrier layer (7) is arranged directly adjacent to the photopolymer layer (4), and - the separating layer (5) contains polyethylene (PE), polyvinyl chloride (PVC) and/or polymethyl methacrylate (PMMA) and has a thickness of 10 μm to 300 μm .

VERRE FEUILLETÉ DOTÉ D'UN ÉLÉMENT HOLOGRAPHIQUE ET PROCÉDÉ DE FABRICATION

Verre feuilleté (100), comprenant au moins : une première vitre (1), une deuxième vitre (2) et, interposé entre ces dernières, un empilement de couches comportant dans l'ordre allant de la première vitre (1) à la deuxième vitre (2) les couches suivantes : une première couche intermédiaire thermoplastique (3), une couche de séparation (5), une couche photopolymère (4) dotée d'au moins un élément holographique, une couche support (7) et une deuxième couche intermédiaire thermoplastique (6), - la couche photopolymère (4) ayant une épaisseur de 5 μm à 50 μm , - la couche support (7) contenant du polyéthylène téréphthalate (PET), du polyéthylène (PE), du polyméthylméthacrylate (PMMA), du polycarbonate (PC), du polyamide (PA), du chlorure de polyvinyle (PVC) et/ou du triacétate de cellulose (TAC) et ayant une épaisseur de 20 μm à 100 μm , la couche support (7) étant disposée de manière directement adjacente à la couche photopolymère (4), - la couche de séparation (5) contenant du polyéthylène (PE), du chlorure de polyvinyle (PVC) et/ou du polyméthylméthacrylate (PMMA) et ayant une épaisseur de 10 μm à 300 μm .

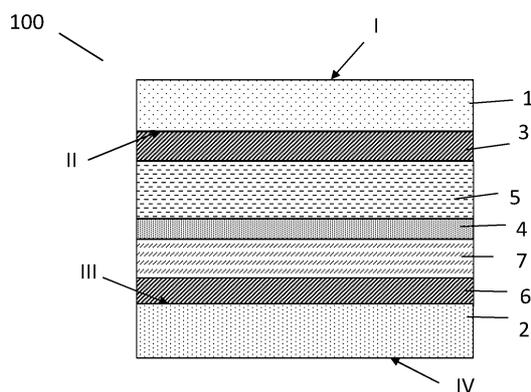


Fig. 1

CLAIM 1. Composite pane (100), at least comprising a first pane (1), a second pane (2), a layer stack arranged therebetween, at least comprising the following layers in the order from the first pane (1) to the second pane (2): a first thermoplastic intermediate layer (3), a separating layer (5), a photopolymer layer (4) with at least one holographic element, a carrier layer (7) and a second thermoplastic intermediate layer (6), wherein the photopolymer layer (4) has a thickness of 5 m to 50 m, the carrier layer (7) contains polyethylene terephthalate (PET), polyethylene (PE), polymethyl methacrylate (PMMA), polycarbonate (PC), polyamide (PA), polyvinyl chloride (PVC) and / or cellulose triacetate (TAC) and has a thickness of 20 m to 100 m, wherein the carrier layer (7) is arranged directly adjacent to the photopolymer layer (4), the separating layer (5) contains polyethylene (PE), polyvinyl chloride (PVC) and / or polymethyl methacrylate (PMMA) and has a thickness of 10 m to 300 m.

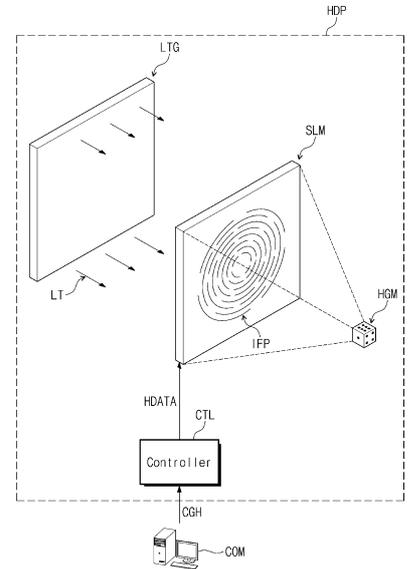
N8357

US20210397130
Priority Date: 17/06/2020

SAMSUNG DISPLAY | SEOUL NATIONAL UNIVERSITY R&DB
FOUNDATION

HOLOGRAM DISPLAY DEVICE AND METHOD OF DRIVING THE SAME

A hologram display device includes a light generator generating light, a spatial light modulator forming an interference pattern to interfere with the light, and a controller providing interference data to the spatial light modulator to form the interference pattern. The spatial light modulator includes a first area in which pixels are arranged in a first pattern, and a second area in which pixels are arranged in a second pattern. The controller includes a data generator generating first interference data for the first area and second interference data for the second area, a compensator generating first correction data based on the first interference data and second correction data by correcting the second interference data, and an output unit generating the interference data based on the first correction data and the second correction data.



CLAIM 1. A hologram display device comprising: a light generator that generates light; a spatial light modulator that forms an interference pattern to interfere with the light; and a controller that provides interference data to the spatial light modulator to form the interference pattern, wherein the spatial light modulator comprises: a first area in which pixels are arranged in a first pattern; and a second area in which pixels are arranged in a second pattern different from the first pattern, and the controller comprises: a data generator that generates first interference data for the first area and second interference data for the second area; a compensator that generates: first correction data based on the first interference data; and second correction data by correcting the second interference data using a first difference value between the first pattern and the second pattern; and an output unit that generates the interference data based on the first correction data and the second correction data.

N8359

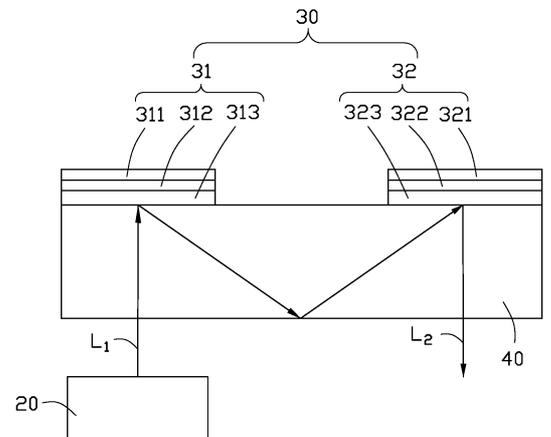
US20210397002
Priority Date: 22/06/2020

HON HAI PRECISION INDUSTRY

HOLOGRAPHIC DISPLAY DEVICE WITH COLOR-SHIFTED ADJUSTMENT

A holographic display device includes a display panel for emitting a first image light and a diffraction component on an optical path of the first image light. The first image light includes first and second colors of light. The diffraction component diffracts the first color light at a first diffraction efficiency and diffracts the second color light at a second diffraction efficiency. The first color light and the second color light after diffraction are mixed together in a second image light for generating holographic images. By emitting the first color light and the second color light in the first image light at the same grayscale value, a ratio of intensities of the first color light and the second color light becomes inversely proportional to a ratio of the first diffraction efficiency and the second diffraction efficiency.

CLAIM 1. A holographic display device comprising: a display panel for emitting a first image light comprising a first color light and a second color light; and a diffraction component on an optical path of the first image light, the diffraction component configured for diffracting the first color light at a first diffraction efficiency and diffracting the second color light at a second diffraction efficiency, the first diffraction efficiency being different from the second diffraction efficiency, the first color light and the second color light diffracted by the diffraction component being mixed to be a second image light for generating holographic images; wherein a ratio of intensity of the first color light to intensity of the second color light in the first image light is inversely proportional to a ratio of the first diffraction efficiency to the second diffraction efficiency if the first color light and the second color light in the first image light is emitted at a same grayscale value, such that the first color light and the second color light in the second image light have a same intensity.



N8360

KR20220006413

Priority Date: 08/07/2020

FTC | OMA Y LEADERS

ROAD CONDITION NOTIFICATION SYSTEM USING LED OR 3 D HOLOGRAM

The technical object of the present invention is to prevent, in advance, an accident of a vehicle being driven and to prevent, in advance, a secondary accident due to a secondary collision at the time of an accident by informing a driver of the vehicle being driven, such as an accident situation of the current road, and the like. the technical object of the present invention is to provide a monitoring device for monitoring a road situation; a reading unit for analyzing an image received from the monitoring device to read a risk factor; A controller configured to prepare differential display contents according to a set distance from the accident site when a dangerous situation is transferred from the reader; and an led or 3 D hologram display installed on the road and configured to output an image according to the information when display information is transferred from the controller.



CLAIM 1. A road condition monitoring device comprising: a monitoring device monitoring a condition on a road; a reading unit analyzing an image received from the monitoring device and reading a dangerous factor; a control unit preparing differential display contents according to a set distance from the accident site when the dangerous condition is transmitted from the reading unit; And an led or 3 D hologram display installed on the road and configured to output an image according to the corresponding information when the display information is transmitted from the controller.

N8362

KR20220000314

Priority Date: 25/06/2020

NEO INTERNET

ROBOT INTERACTION HOLOGRAM DISPLAY SYSTEM AND METHOD

A display device includes a display set, a robot configured to perform movements related to story lines in the set, a hologram display provided in the set and disposed in front of the robot, a first image storage unit including hologram image information, A first robot information storage unit including dynamic information of a first point where a movement of a specific portion of the robot is projected onto the hologram display, a second robot information storage unit including time information of the movement of the specific portion of the robot, A first hologram information storage unit including dynamic hologram image information output at a second point related to a first point of the hologram display in association with dynamic information of the first robot information storage unit, A second hologram information storage unit including output time and output duration information of dynamic hologram image information output at a second point of the hologram display in association with time information of the second robot information storage unit, A robot controller configured to control a movement of the robot, a hologram image controller configured to control an image output to the hologram display, and a system integration controller.

CLAIM 1. A robot configured to perform a movement related to a story line in the set, a hologram display provided in the set and disposed in front of the robot, a first image storage unit including hologram image information, A first robot information storage unit including dynamic information of a first point where a movement of a specific portion of the robot is projected onto the hologram display, a second robot information storage unit including time information of the movement of the specific portion of the robot, A first hologram information storage unit including dynamic hologram image information output at a second point related to a first point of the hologram display in association with dynamic information of the first robot information storage unit, A second hologram information storage unit including output time and output duration information of dynamic hologram image information output at a second point of the hologram display in association with time information of the second robot information storage unit, A robot controller configured to control a movement of the robot, a hologram image controller configured to control an image output from the hologram display, and a system integration controller, wherein when dynamic information and time information of a first point are changed with respect to the robot, the system integration controller stores changed information in a first robot information storage unit and a second robot information storage unit, And the system integration controller stores the dynamic hologram image information and the output time and output duration information of the dynamic hologram image information output at the second point in conjunction with the changed information of the robot in the first hologram information storage unit and the second hologram information storage unit, respectively.



N8363

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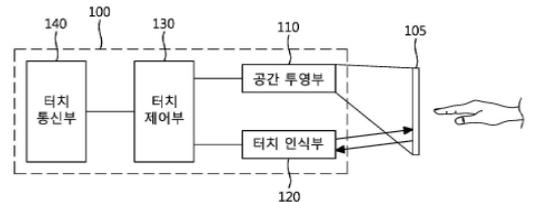
Priority Date: 02/06/2021

YANG, CHANG JOON

HOLOGRAPHIC TOUCH DISPLAY DEVICE AND HOLOGRAPHIC TOUCH OPERATION CONTROL METHOD

A hologram touch display apparatus and a hologram touch operation control method are provided. The hologram touch display apparatus includes a spatial projector configured to project a keypad hologram including a plurality of key buttons on a wireless plane, a controller configured to emit light into the keypad hologram, receive light reflected by a touch operation of the user from the keypad hologram to sense a touch position of the user with respect to the keypad hologram, A touch recognition unit configured to identify keypad touch information of the user according to the touch position; and a touch control unit configured to control an external device connected through a network based on the keypad touch information.

CLAIM 1. An apparatus comprising: a space projecting unit configured to project a keypad hologram having a plurality of keybuttons on an air; a light emitting unit configured to emit light into the keypad hologram and receive light reflected from the keypad hologram by a touch operation of the user to sense a touch position of the user with respect to the keypad hologram, A touch recognition unit configured to identify keypad touch information of the user according to the touch position; a touch control unit configured to control an external device connected through a network based on the keypad touch information to operate; and a controller configured to control the spatial projection unit, And a housing unit for installing the touch control unit, the housing unit comprising: a main panel for placing the space projection unit, the touch recognition unit, and the touch control unit therein; a dark panel installed inside the main panel to maintain the inside of the main panel in a dark room state; And a reflective panel installed at one side of the main panel to reflect and show the keypad hologram to the user, wherein the dark panel is formed such that one surface of the dark panel protrudes into a thin hole shape in a direction opposite to the reflective panel.



N8364

RECORDING & MEMORY

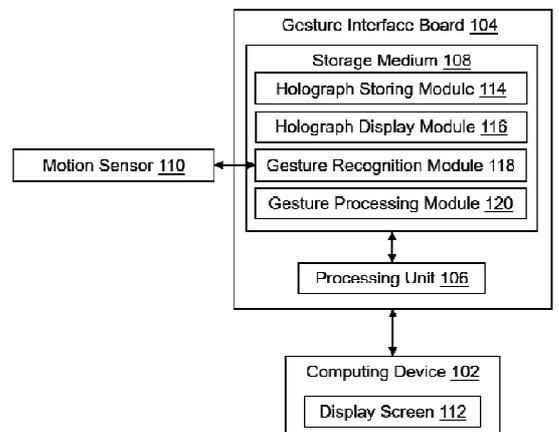
IN202111054639

Priority Date: 26/11/2021

NOIDA INSTITUTE OF ENGINEERING TECHNOLOGY GREATER NOIDA

HOLOGRAPHIC INTERACTION SYSTEM AND METHOD

A holographic interaction system (100) comprising: a computing device (102) adapted to perform computing functions by receiving an input from a user; a gesture interface board (104) configured to enable an exchange of information between the user and the computing device (102) by recognizing a gesture of the user, wherein the gesture interface board (104) comprises: a processing unit (106) for executing programming instructions stored in a storage medium (108), wherein the storage medium (108) comprises: a holograph storing module (114) configured to store holographic images; a holograph display module (116) configured to project the holographic images through a display screen (112) of the computing device (102); a gesture recognition module (118) configured to recognize the gesture of the user using a motion sensor (110); and a gesture processing module (120) configured to execute the computing functions.



CLAIM 1. A holographic interaction system (100) to enable a gesture-based interaction, the system (100) comprising: a computing device (102) adapted to perform computing functions by receiving an input from a user; a gesture interface board (104) configured to enable an exchange of information between the user and the computing device (102) by recognizing a gesture of the user, wherein the gesture interface board (104) comprises: a processing unit (106) configured to execute programming instructions stored in a storage medium (108), wherein the storage medium (108) comprises: a holograph storing module (114) configured to store holographic images, wherein each of the holographic images stores gesture-sensitive visuals related to the computing functions; a holograph display module (116) configured to project the holographic images through a display screen (112) of the computing device (102); a gesture recognition module (118) configured to recognize the gesture of the user using a motion sensor (110); and a gesture processing module (120) configured to execute the computing functions correlated with the gesture-sensitive visuals based on the recognized gesture of the user.

N8368

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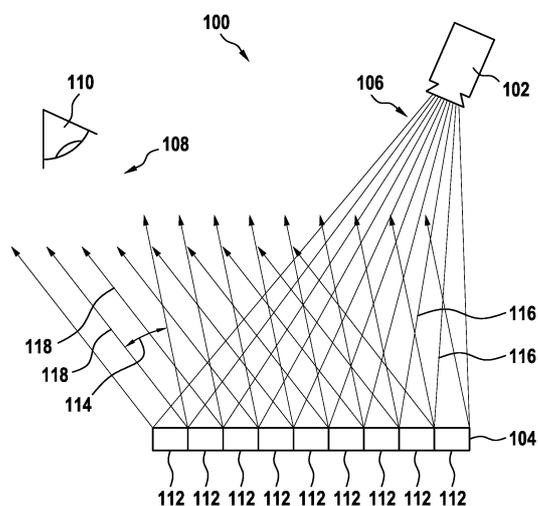
Priority Date: 20/07/2020

ROBERT BOSCH

HOLOGRAPHIC PROJECTION SURFACE FOR A PROJECTION DEVICE AND PROJECTION DEVICE

The invention relates to a holographic projection surface (104) for a projection device (100), wherein the projection surface (104) comprises a plurality of volume holographic microelements (112) for deflecting a light beam (106) into a viewing area (108). Each of the plurality of microelements (112) has a curved volume lattice structure.

CLAIM 1. Holographic projection surface (104) for a projection device (100), wherein the projection surface (104) has a plurality of volume-holographic microelements (112) for deflecting a light beam (106) into a viewing region (108), characterized in that each of the plurality of microelements (112) comprises a curved volume grid structure (200).



N8370

CN215581489U

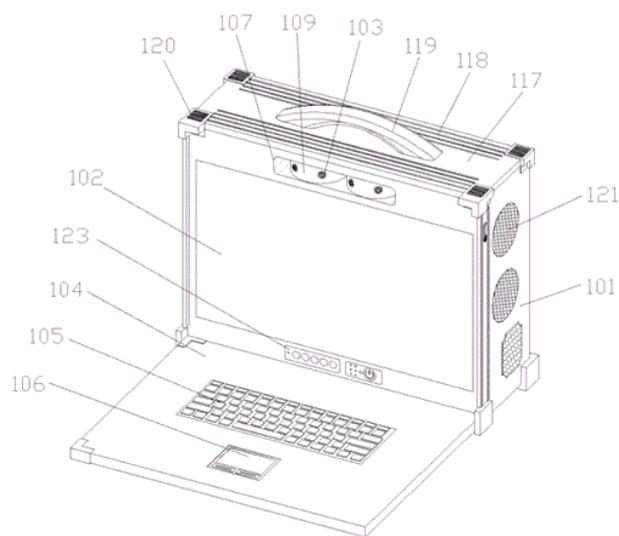
Priority Date: 10/08/2021

SHENZHEN ZHENG TU TECHNOLOGY

PORTABLE HOLOGRAPHIC THREE-DIMENSIONAL INTERACTIVE IMAGING EQUIPMENT

The utility model discloses portable holographic three-dimensional interactive imaging equipment, which relates to the technical field of virtual image interaction and comprises a case, wherein a display is installed on the case, one side of the case, which is provided with the display, is provided with a mounting groove, the mounting groove is positioned above the display, two rotating shafts are installed in the mounting groove, each rotating shaft is sleeved with a rotating disc, each rotating disc is provided with two motion capture cameras, and one side of the case is provided with an emergency power supply; every the spacing groove has all been seted up on the carousel, two mount pads are installed to the spacing inslot, every travel switch is all installed in the mount pad, every the notch has all been seted up to mount pad one side, install two gag lever posts in the mounting groove. The utility model can replace the required motion capture camera, and simultaneously, the design of the integrated machine body increases the stability, and the emergency power supply can be used under the condition of power failure.

CLAIM 1. The utility model provides a portable holographic three-dimensional mutual development equipment which characterized in that: the display device comprises a case (101), wherein a display (102) is installed on the case (101), a mounting groove (107) is formed in one side, where the display (102) is installed, of the case (101), the mounting groove (107) is located above the display (102), two rotating shafts (108) are installed in the mounting groove (107), a rotating disc (109) is sleeved on each rotating shaft (108), two motion capture cameras (103) are installed on each rotating disc (109), and an emergency power supply (124) is installed on one side of the case (101); every spacing groove (111) have all been seted up on carousel (109), install two mount pads (112) in spacing groove (111), every travel switch (113) all install in mount pad (112), every notch (115) have all been seted up to mount pad (112) one side, install two gag lever post (110) in mounting groove (107), cup joint and be fixed with cushion ring (114) on gag lever post (110), cup joint and be fixed with magnetic ring (116) on cushion ring (114).



N8371

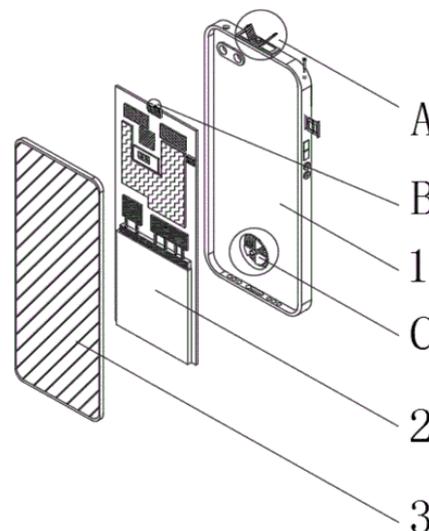
CN215581253U

Priority Date: 21/08/2021

SHENZHEN INTELLIGENT TECHNOLOGY

SMART PHONE WITH HOLOGRAPHIC IMAGE PROJECTION

The utility model discloses a smart phone with holographic image projection, which relates to the technical field of science and technology, in particular to a smart phone with holographic image projection. This smart mobile phone with holographic image projection, through the setting of projection setting and external device, when the user needs holographic image projection, at first the operation cell-phone makes the image jet out from the camera in the projection setting, secondly pass the lens cap in the external device and outwards disperse, and then change the angle of speculum, make the ray cross, just can demonstrate holographic image's projection, solved the problem that people want to experience this kind of technique and still need specific place just can realize.



CLAIM 1. Smart phone with holographic image projection, including shell (1), its characterized in that: the inner wall fixedly connected with chip board (2) of shell (1), a side fixedly connected with fluorescent screen (3) of chip board (2), the last fixed surface of chip board (2) is connected with projection arrangement (4), device (5) are put outward to the middle part fixedly connected with of shell (1) a side, heat sink (6) are installed through the through-hole of setting up to one side of shell (1) inner wall, the middle part fixedly connected with support (7) of shell (1) surface.

N8372

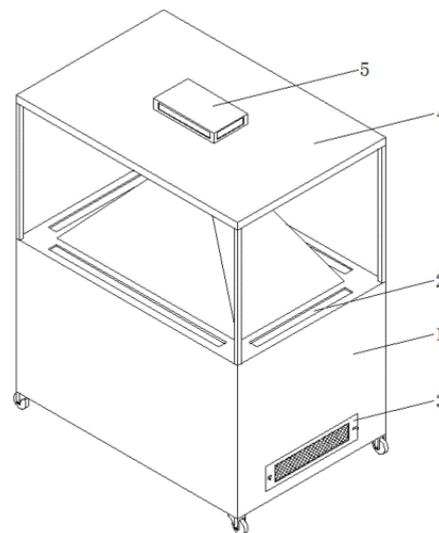
CN215577612U

Priority Date: 08/06/2021

CHENGDU BANFENLI EXHIBITION SERVICE

HOLOGRAPHIC EFFECT IMAGE DISPLAY DEVICE

The utility model discloses a holographic effect image display device, which comprises a holographic projection display cabinet and a top plate horizontally fixed above the holographic projection display cabinet; roof top face is equipped with the hair-dryer, roof bottom face is equipped with the air cock with the hair-dryer intercommunication, the air cock is equipped with a plurality of and all is located holographic projection show cupboard upper check glass's the outside, the inlet scoop has all been seted up to the avris of holographic projection show cupboard top end face, the both sides wall bottom that holographic projection show cupboard is relative is equipped with the mounting panel, sets up the air exit with the inside intercommunication of holographic projection show cupboard on the mounting panel, and air exit internally mounted has the fan, just the one end that the air exit is located holographic projection show cupboard inside is connected with the fretwork box, and the air purifying agent is equipped with to fretwork box inside. The holographic effect image display device is reasonable in structure, good in dust removal effect, strong in practicability and easy to popularize.



CLAIM 1. A holographic effect image display device comprises a holographic projection display cabinet (1) and a top plate (4) horizontally fixed above the holographic projection display cabinet (1); the method is characterized in that: roof (4) top face is equipped with hair-dryer (5), roof (4) bottom face is equipped with air cock (6) with hair-dryer (5) intercommunication, air cock (6) are equipped with a plurality of and all are located holographic projection show cupboard (1) and go up the outside that check kept off glass, inlet scoop (2) have all been seted up to the avris of holographic projection show cupboard (1) top face, the both sides wall bottom that holographic projection show cupboard (1) is relative is equipped with mounting panel (3), sets up air exit (7) with holographic projection show cupboard (1) inside intercommunication on mounting panel (3), and air exit (7) internally mounted has fan (8), just air exit (7) are located the inside one end of holographic projection show cupboard (1) and are connected with fretwork box (10), and air purifying agent is equipped with to fretwork box (10) inside.

N8373

CN215576125U

Priority Date: 30/08/2021

LEYARD PHOTOELECTRIC GROUP SYSTEM INTEGRATION

HOLOGRAPHIC PANORAMIC PROJECTION DISPLAY SYSTEM

The utility model discloses a holographic panoramic projection display system, relates to the technical field of projection, and aims to solve the problem of weak stereoscopic impression of images in the holographic panoramic projection technology, and the technical scheme is as follows: the device comprises a data processing module, wherein the data processing module is connected with a light source unit; the light source unit is sequentially connected with a video processing module, an image processing module and an audio processing module, and the video processing module, the image processing module and the audio processing module are connected with a holographic synthesis module. The system optimizes the pixel effect of the material through the light source unit, improves the ornamental comfort level of the material, processes the audio frequency of the material through the audio frequency processing module, improves the three-dimensional sense of sound, enables audiences to be personally on the scene, integrates the processing data of the video processing module and the image processing module through the holographic synthesis module, and improves the fluency and the three-dimensional sense of the actions of characters or objects under the holographic technology.

CLAIM 1. A holographic panoramic projection display system, characterized by: the device comprises a data processing module, wherein the data processing module is connected with a light source unit; the light source unit is sequentially connected with a video processing module, an image processing module and an audio processing module, the video processing module, the image processing module and the audio processing module are connected with a holographic synthesis module, and the holographic synthesis module is connected with a holographic reproduction module.

N8374

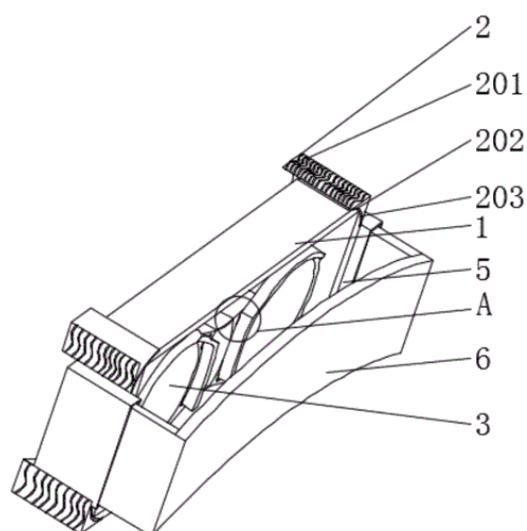
CN215575938U

Priority Date: 31/07/2021

GUANGZHOU SENSE NETWORK TECHNOLOGY

MUTUAL DISPLAY SCREEN OF HOLOGRAPHIC VR INTELLIGENCE

The utility model provides a holographic VR intelligent interactive display screen, which relates to the technical field of VR and comprises an eyeshade, wherein anti-falling mechanisms are arranged at four corners of the eyeshade, an inner eyeshade is arranged in the middle of the eyeshade, a protection mechanism is arranged at the outer wall end of the inner eyeshade, fixing plates are arranged on two sides of the eyeshade, and the inner wall of each fixing plate is connected with a rubber strip. According to the utility model, the anti-falling mechanisms are arranged at the four corners of the eye shield, so that a user can conveniently fix the eye shield in the clamping grooves of the eye shield through the clamping strips of the protection plates, the four corners of the eye shield can be conveniently protected, the eye shield is prevented from shaking when the eye shield is worn and moving, the eye shield falls underground and is directly damaged, the protection mechanisms are arranged on the inner wall of the inner eye frame, when the user wears the holographic VR intelligent interactive display screen, the periphery of the eye is easily subjected to the condition of friction damage, and the movable silica gel strips are arranged on the outer surface of the inner eye frame and are used for protecting the periphery of the eye, so that the practicability and convenience are effectively brought to the user.



CLAIM 1. The utility model provides an interactive display screen of holographic VR intelligence, includes eye-shade (1), its characterized in that: the four corners of eye-shade (1) are installed and are prevented falling mechanism (2), eye-shade (3) in the mid-mounting of eye-shade (1), and the outer wall end of interior eye-shade (3) installs protection mechanism (4), fixed plate (5) are installed to the both sides of eye-shade (1), and the inner wall connection of fixed plate (5) has rubber banding (6).

N8375

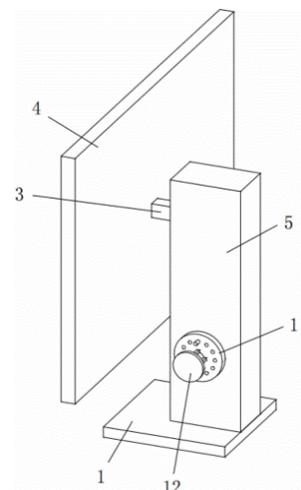
CN215569135U

Priority Date: 29/06/2021

SHANDONG JINGDING INTELLIGENT TECHNOLOGY

MR-BASED DISPLAY OF HOLOGRAPHIC FAULT TREE

The utility model discloses a holographic fault tree display based on MR, which comprises a base, an angle adjusting mechanism and a fixing mechanism, wherein the upper end of the base is vertically and fixedly connected with a supporting frame, the side wall of the supporting frame is provided with a holographic display body for carrying out holographic display on a fault tree by using MR technology, the utility model is provided with the angle adjusting mechanism, a first gear drives a swinging rod to adjust the pitching angle of the holographic display body, meanwhile, the force of a user for rotating a hand wheel is reduced by the first gear, a second gear, a third gear and a fourth gear, the swinging precision of the holographic display body is improved, the user can conveniently carry out pitching angle adjustment on the holographic display body, the fixing mechanism is also arranged, the hand wheel is fixed by a limiting rod and a limiting groove, the holographic display body is prevented from swinging in the using process, the normal use of the holographic display body is ensured.



N8376

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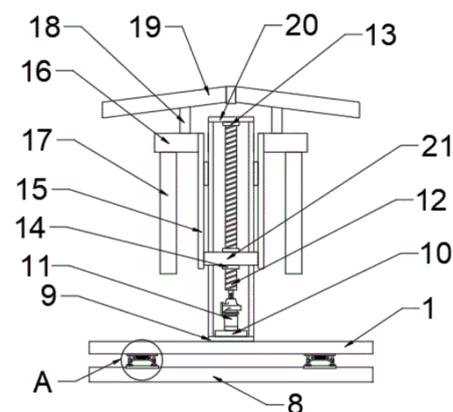
Priority Date: 01/06/2021

GUANGZHOU FENGYE CULTURE TECHNOLOGY

MULTI-ANGLE DISPLAY DEVICE FOR HOLOGRAPHIC IMAGING

The utility model relates to the technical field of display devices and discloses a multi-angle display device for holographic imaging, which comprises a floor, wherein a first connecting plate is installed at the lower end of the floor, a telescopic column is connected to the lower end of the first connecting plate, a fixing plate is placed at the lower end of the telescopic column, a base is installed at the lower end of a second connecting plate, a transmission column is connected to the middle of the telescopic column, a shell is connected to the upper end of the floor, a connecting column is arranged inside the shell, a motor is installed at the upper end of the connecting column, a first fixing plate is connected to the upper end of a threaded column, an internal threaded column is placed in the middle of the threaded column, an annular supporting column is arranged on the outer layer of a lifting plate, a semicircular holographic imaging plate is installed at the lower end of an annular supporting plate, and a fixing column is connected to the upper end of the annular supporting plate. This a multi-angle display device for holographic imaging can go up and down, can carry out multi-angle annular show, has the antidetonation function, can keep out the rainwater.

CLAIM 1. A multi-angle display device for holographic imaging, comprising a floor (1), characterized in that: the floor is characterized in that a first connecting plate (2) is installed at the lower end of the floor (1), a telescopic column (3) is connected to the lower end of the first connecting plate (2), a fixed plate (4) is placed at the lower end of the telescopic column (3), a second connecting plate (5) is arranged at the lower end of the fixed plate (4), a base (8) is installed at the lower end of the second connecting plate (5), a transmission column (6) is connected to the middle of the telescopic column (3), a spring (7) is arranged at the right end of the transmission column (6), a shell (9) is connected to the upper end of the floor (1), a connecting column (10) is arranged inside the shell (9), a motor (11) is installed at the upper end of the connecting column (10), a threaded column (12) is arranged at the upper end of the motor (11), a first fixed plate (13) is connected to the upper end of the threaded column (12), and a top plate (20) is placed at the upper end of the first fixed plate (13), an internal threaded column (14) is placed in the middle of the threaded column (12), a lifting plate (21) is installed at the upper end of the internal threaded column (14), an annular supporting column (15) is arranged on the outer layer of the lifting plate (21), an annular supporting plate (16) is arranged at the left end of the annular supporting column (15), a semicircular holographic imaging plate (17) is installed at the lower end of the annular supporting plate (16), a fixing column (18) is connected to the upper end of the annular supporting plate (16), and a rain shielding plate (19) is arranged at the upper end of the fixing column (18).



N8378

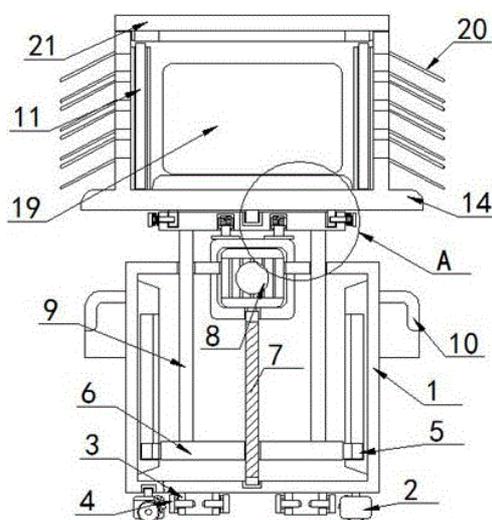
CN21552272U

Priority Date: 20/07/2021

YUNNAN LIGHT & SHADOW INTERACTIVE INTELLIGENT TECHNOLOGY

PROJECTOR WITH WATERPROOF STRUCTURE FOR HOLOGRAPHIC LARGE-SCALE WATER CURTAIN PROJECTION

The utility model discloses a projector with a waterproof structure for holographic large-scale water curtain projection, which comprises: the lower end of the projector base is provided with a universal wheel, the lower end of the projector base is provided with an installation plate, and a fastening screw penetrates through the installation plate; the first sliding blocks are in sliding connection with the projector base through grooves formed in the projector base, and are symmetrically distributed around the center of the lifting plate; and rotating the screw rod, and connecting the lifting plate with the threaded hole formed in the lifting plate. This large-scale water curtain projection of holographically has projecting apparatus of waterproof construction, through the removal of lifting the board, realizes removing the position of placing the case, and rotates through the position to placing the case to can adjust the height and the projection direction of projecting apparatus, make the application range of device wider, and can effectually carry out waterproofly through waterproof board and filter in the ventilation.



CLAIM 1. A projector with a waterproof structure for a holographic large-scale water curtain projector is characterized by comprising: the lower end of the projector base is provided with a universal wheel, the lower end of the projector base is provided with an installation plate, and a fastening screw penetrates through the installation plate; the first sliding blocks are in sliding connection with the projector base through grooves formed in the projector base, and are symmetrically distributed around the center of the lifting plate; the rotating screw rod is connected with the lifting plate through a threaded hole formed in the lifting plate, and the rotating screw rod and the projector base form a rotating mechanism through a bearing installed on the projector base; the motor is placed on the projector base, and the output end of the motor is connected with the rotating screw rod; the connecting rod penetrates through the upper end of the projector base and is arranged on the lifting plate; a handle mounted on an outer surface of the projector base; the bearing plate is arranged at the upper end of the connecting rod, a circular groove is formed in the bearing plate, and the circular groove and the rotating plate are attached to each other; place the case, the lower extreme is installed the rotor plate, just place and install the waterproof board on the case.

N8379

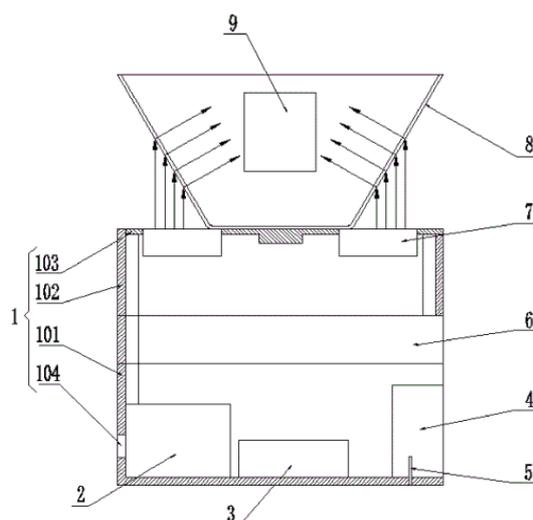
CN215495815U

Priority Date: 11/06/2021

CHANGZHOU JIALIN LIGHTING

HOLOGRAPHIC IMAGE ATMOSPHERE LAMP

The utility model discloses a holographic image atmosphere lamp, which adopts the technical scheme that: the storage battery is arranged on the rear side inside the shell, the front end of the storage battery is connected with the touch panel drive, the front end of the touch panel drive is connected with the touch type central control mainboard, and the bottom of the touch type central control mainboard is provided with an SD card slot; the middle of the shell is provided with a gradual change type LED horse race lamp, an LED screen is fixedly arranged above the inside of the shell, light transmission plates are fixedly connected to the periphery of the surface of the shell, holographic projection is formed by the LED screen in the atmosphere lamp, and the formed image is replaced by the touch type central control mainboard; the shell comprises a bottom shell, a connecting shell, a transparent plate and a USB interface, wherein the connecting shell is arranged above the bottom shell, the connecting shell and the bottom shell are respectively fixed on the upper side and the lower side of the gradual change type LED horse race lamp, and a top plate is fixedly arranged at the top of the connecting shell; the transparent plate forms a projection imaging area and can be used as a small night lamp.



CLAIM 1. The utility model provides a holographic image atmosphere lamp, includes casing (1), battery (2), touch pad drive (3) and touch-type central control mainboard (4), its characterized in that: a storage battery (2) is arranged on the rear side inside the shell (1), a touch panel driver (3) is connected to the front end of the storage battery (2), a touch type central control main board (4) is connected to the front end of the touch panel driver (3), and an SD card slot (5) is formed in the bottom of the touch type central control main board (4); gradual change formula LED horse race lamp (6) are installed to the centre of casing (1), and the inside top fixed mounting of casing (1) has LED screen (7), and the upper surface of casing (1) is provided with four light-passing board (8), and light-passing board (8) all set up to 45 slopes to the outside, and four light-passing board (8) evenly encircle and set up in casing (1) top.

N8380

CN215494533U

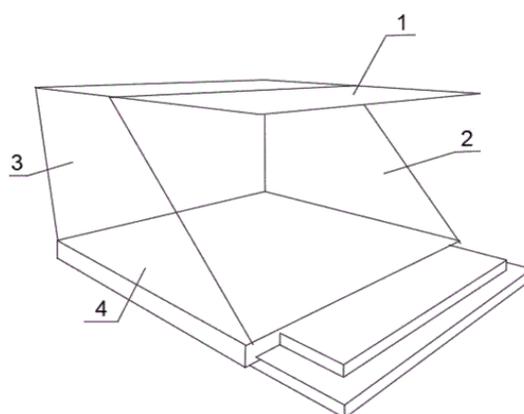
Priority Date: 29/09/2021

SHANGHAI TENGRONG INTELLIGENT TECHNOLOGY

180-DEGREE HOLOGRAPHIC AND L-SCREEN NAKED EYE 3D IMMERSIVE SPACE

The utility model discloses a 180-degree holographic and L-screen naked eye 3D immersive space, and relates to the field of multimedia space application and display. The utility model comprises the following steps: 180-degree holographic imaging structure: the holographic imaging device comprises a first LED screen arranged at the top in a space and used for holographic imaging and a holographic imaging film connected between the rear end of the first LED screen and the bottom in the space; 1 curtain bore hole 3D immersive projection structure: the LED screen comprises a second LED screen arranged on the back wall in the space and a third LED screen arranged on the bottom surface in the space, and an included angle of 90 degrees is formed between the second LED screen and the third LED screen to form an L screen; the starting end of the third LED screen is flush with the starting end of the first LED screen, and the bottom of the holographic imaging film is connected with the starting end of the third LED screen. The utility model combines the advantages of holography and immersive projection, has the holographic 3D floating effect, creates the immersive projection atmosphere, has three-dimensional pictures and has strong sense of space reality.

CLAIM 1. 180-degree holographic and L-screen naked eye 3D immersive space, which is characterized by comprising the following steps of; 180-degree holographic imaging structure (a): the holographic imaging device comprises a first LED screen (1) arranged at the top in a space and used for holographic imaging and a holographic imaging film (2) connected between the rear end of the first LED screen (1) and the bottom in the space; 1 curtain bore hole 3D immersive projection structure (B): the LED screen comprises a second LED screen (3) arranged on the back wall in the space and a third LED screen (4) arranged on the bottom surface in the space, wherein an included angle between the second LED screen (3) and the third LED screen (4) is 90 degrees to form an L screen; the starting end of the third LED screen (4) is flush with the starting end of the first LED screen (1), and the bottom of the holographic imaging film (2) is connected with the starting end of the third LED screen (4).



N8381

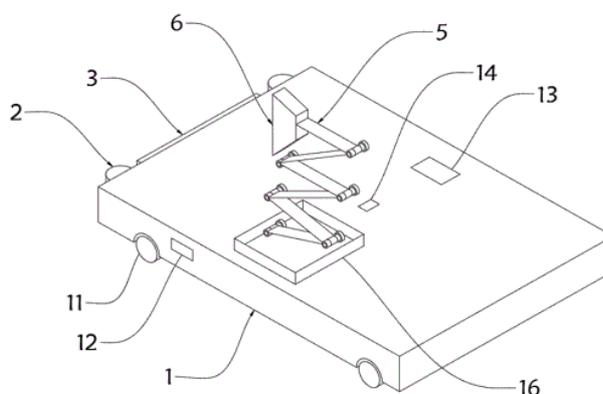
CN215441583U

Priority Date: 02/02/2021

CHANGSHA VOCATIONAL & TECHNICAL COLLEGE

HOLOGRAPHIC PROJECTION ARRANGEMENT OF PORTABLE DANGER WARNING SIGN

The utility model relates to the technical field of danger warning equipment, in particular to a holographic projection device of a movable danger warning sign, which comprises a sliding plate, wherein a plurality of wheels are installed at the bottom of the sliding plate, a containing groove is installed at the top of the sliding plate, a danger reflector is installed at the front part of the sliding plate, danger warning lamps are installed at two sides of the danger reflector, the inside of the sliding plate is of a hollow structure, a core control circuit board is installed in the middle of the inner side of the sliding plate, a supporting mechanism is installed at the top of the containing groove, and a holographic projection device is installed at the top end of the supporting mechanism. This but holographic projection arrangement of movable danger warning sign's supporting mechanism can support holographic projection arrangement fixedly, and can make things convenient for angle regulation to guarantee that the projected sign washes visibly, make things convenient for the vehicle at the back to discern, and can drive the device motion through the sliding plate, thereby be convenient for remove it to rear assigned position department, reduce the potential safety hazard.



N8382

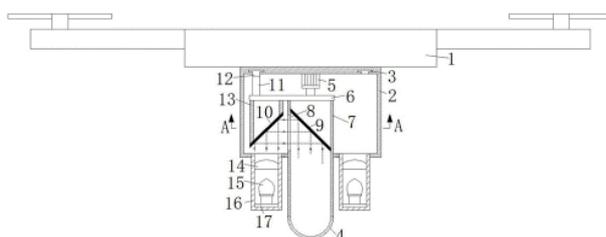
CN215436965U

Priority Date: 10/09/2021

ZHEJIANG KEBITE TECHNOLOGY

UNMANNED AERIAL VEHICLE PERFORMANCE DEVICE BASED ON HOLOGRAPHIC PROJECTION

The utility model discloses an unmanned aerial vehicle performance device based on holographic projection, which comprises an unmanned aerial vehicle body, wherein a box body is arranged below the unmanned aerial vehicle body, the bottom surface of the box body is fixedly connected with a plurality of sleeves, LED lamps are arranged inside the sleeves, a second mounting plate is arranged inside the box body, the bottom surface of the second mounting plate is fixedly connected with a hollow column and a mounting column, a first reflector is fixedly connected between the inner walls of the hollow columns, and a second reflector is fixedly connected with the bottom surface of the mounting column. In the utility model, when the color of light needs to be changed, the starting motor rotates by a certain angle to enable the first reflector to aim at different LED lamps, the second reflector reflects the light of the LED lamps through the first reflector and the second reflector and finally penetrates out of the light-transmitting plate, and the unmanned aerial vehicle can change the color of the light, thereby reducing the movement of the unmanned aerial vehicle and reducing the risk of falling caused by mutual collision.



CLAIM 1. The utility model provides an unmanned aerial vehicle performance device based on holographic projection, includes unmanned aerial vehicle body (1), its characterized in that: the bottom surface of the unmanned aerial vehicle body (1) is fixedly connected with a box body (2), the bottom surface of the box body (2) is fixedly connected with a plurality of sleeves (16) at equal intervals along the circumferential direction, the bottom surface of the inner wall of the sleeve (16) is fixedly connected with a first mounting plate (17), the upper surface of the first mounting plate (17) is fixedly connected with an LED lamp (15), the bottom surface of the inner wall of the box body (2) is fixedly connected with a motor (5), the tail end of an output shaft of the motor (5) is fixedly connected with a second mounting plate (6), the bottom surface of the second mounting plate (6) is fixedly connected with a hollow column (7), a first reflective mirror (9) is fixedly connected between the inner walls of the hollow columns (7), the bottom surface of the second mounting plate (6) is fixedly connected with a mounting column (13), the bottom surface of the mounting column (13) is fixedly connected with a second reflective mirror (10).

N8383

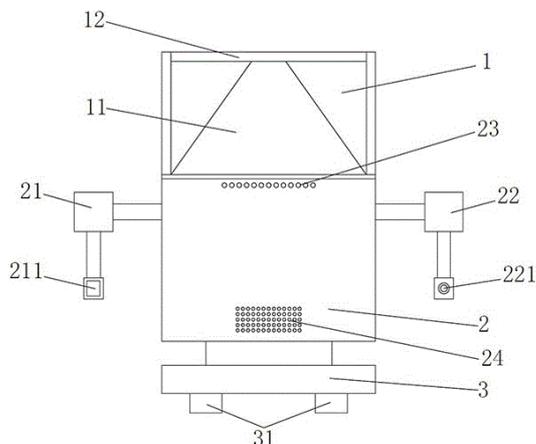
CN215433711U

Priority Date: 11/08/2021

KEDA XUNFEI SOUTH CHINA ARTIFICIAL INTELLIGENCE RESEARCH INSTITUTE GUANGZHOU

HOLOGRAPHIC PROJECTION INTERACTIVE ROBOT

The utility model relates to a holographic projection interactive robot. The holographic projection system comprises a holographic projection part, a host part and a moving part, wherein the holographic projection part comprises an imaging structure and a display device, an image displayed by the display device is projected to the imaging structure to be displayed, the host part is provided with a first mechanical arm and a second mechanical arm, the first mechanical arm is provided with an IC card identification device, the second mechanical arm is provided with a two-dimensional code identification scanning device, the host part is provided with a microphone array and a loudspeaker, and a control processor and a voice recognizer are arranged inside the host part. Compared with the prior art, the interactive robot has the advantages that the holographic projection part is arranged, so that the interactive robot can show a high-simulation holographic projection expression to a user, the simulation degree of the interactive robot is improved, and the human-computer interaction effect is finally improved.



CLAIM 1. Holographic projection interactive robot, its characterized in that: from last to including holographic projection portion (1), host computer portion (2) and removal portion (3) down in proper order, holographic projection portion (1) is including formation of image structure (11) and locate display device (12) of formation of image structure (11) top, the image that display device (12) show is thrown extremely show on formation of image structure (11), one side of host computer portion (2) is provided with first arm (21), the free end of first arm (21) is provided with IC-card recognition device (211), the opposite side of host computer portion (2) is provided with second arm (22), the free end of second arm (22) is provided with two-dimensional code discernment scanning device (221), the front of host computer portion (2) is provided with microphone array (23) and speaker (24), the bottom of removal portion (3) is provided with mobile device (31), the inside of host computer portion (2) is provided with control processor and speech recognition ware, control processor respectively with display device (12), first arm (21), IC card recognition device (211), second arm (22), two-dimensional code discernment scanning device (221), microphone array (23), speaker (24), mobile device (31) and speech recognition ware electricity is connected.

N8384

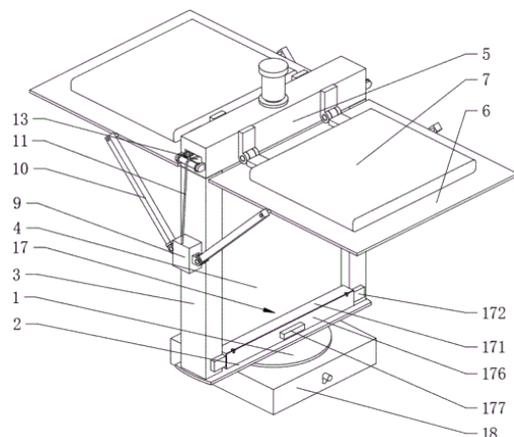
CN215417319U

Priority Date: 29/07/2021

GUIZHOU NORMAL UNIVERSITY

HOLOGRAPHIC SCREEN DISPLAY DEVICE OF TOURISM PROPAGANDA

The utility model discloses a holographic screen display device for travel propaganda, and relates to the technical field of display devices. The technical key points are as follows: including the mounting panel, the mounting panel both ends are connected with the support column, be connected with holographic screen body between the support column, holographic screen body upside is equipped with the horizontal pole, the both sides on the perpendicular ground of horizontal pole all are equipped with the backup pad, the backup pad articulates in the horizontal pole, support column sliding connection has first slider, the backup pad articulates there is the bracing piece, the bracing piece articulates in first slider, first slider is connected with the cable, the cable is connected with the rack, the horizontal pole has been seted up and has been run through the groove, rack sliding connection has the gear in running through the groove, the meshing has the gear between two racks, the horizontal pole is connected with the motor, the output of motor is connected in the gear. The utility model has the advantages of sun-shading function, good display effect and long service life of the screen.



N8385

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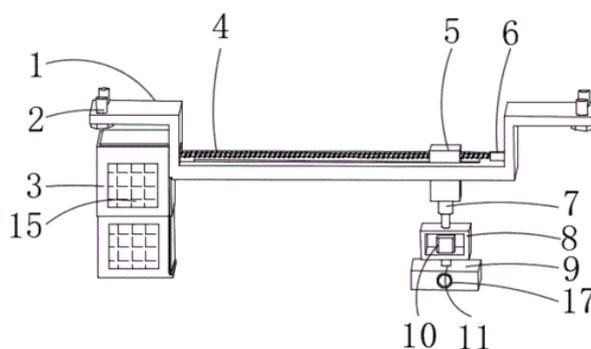
Priority Date: 19/01/2021

WEI QINGLIN

HOLOGRAPHIC PROJECTION EQUIPMENT BASED ON LINUX SYSTEM

The utility model provides holographic projection equipment based on a Linux system, which belongs to the technical field of holographic projection, and comprises a supporting plate, wherein a groove is formed in the upper surface of the supporting plate, a moving block is movably connected to one side of the groove, the inner wall of the moving block is movably connected with a lead screw, one end of the lead screw is fixedly connected with a driving motor, one end, far away from the driving motor, of the lead screw is movably connected with a fixed block, the lower surface of the moving block is fixedly connected with an electric push rod, one end of the electric push rod is fixedly connected with a frame, and the inner wall of the frame is fixedly connected with a rotating motor; this holographic projection equipment based on Linux system moves the projecting apparatus and hides dirt shrink incasement, removes the position through the observation window, avoids bumping when removing, closes it through flexible door, when using, gets off the chamber door, moves out, with the case contract into can, convenient and fast has avoided the dust to get into and has influenced the projection effect.

CLAIM 1. Holographic projection device based on a Linux system, comprising a support plate (1), characterized in that: a groove (12) is arranged on the upper surface of the supporting plate (1), a moving block (5) is movably connected with one side of the groove (12), the inner wall of the moving block (5) is movably connected with a screw rod (4), one end of the screw rod (4) is fixedly connected with a driving motor (6), one end of the screw rod (4) far away from the driving motor (6) is movably connected with a fixed block (14), the lower surface of the moving block (5) is fixedly connected with an electric push rod (7), one end of the electric push rod (7) is fixedly connected with a frame (8), the inner wall of the frame (8) is fixedly connected with a rotating motor (10), one end of the rotating motor (10) penetrates through the frame (8) and is fixedly connected with the connecting rod (11), one end of the connecting rod (11) is fixedly connected with a projector (9), and one side of the supporting plate (1) is fixedly connected with a dust shielding contraction box (3).



N8387

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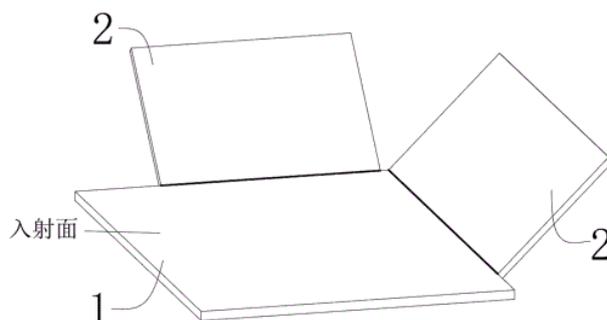
Priority Date: 23/02/2021

JINGMEN CITY DREAM EXPLORATION TECHNOLOGY

REFLECTIVE GEOMETRIC HOLOGRAPHIC SCREEN WITH FIELD ANGLE

The utility model relates to the technical field of optical display, and discloses a reflective geometric holographic screen with field angles, which comprises a reflective geometric holographic screen, wherein at least one field angle mirror is arranged around the edge of the reflective geometric holographic screen, and the field angle mirror and the incident surface of the reflective geometric holographic screen form an included angle theta which is larger than or equal to 90 degrees and smaller than or equal to 160 degrees. The utility model can realize the obvious enlargement of the display window with relatively low cost, and simultaneously can increase the mechanical strength of the reflection type geometric holographic screen and improve the stability.

CLAIM 1. The utility model provides a take opening angle reflection type geometry holographic screen, includes reflection type geometry holographic screen (1), its characterized in that: at least one field angle mirror (2) is arranged around the edge of the reflection type geometry holographic screen (1), and the field angle mirror (2) forms an included angle with the incident surface of the reflection type geometry holographic screen (1) at an angle theta which is more than or equal to 90 degrees and less than or equal to 160 degrees.



N8388

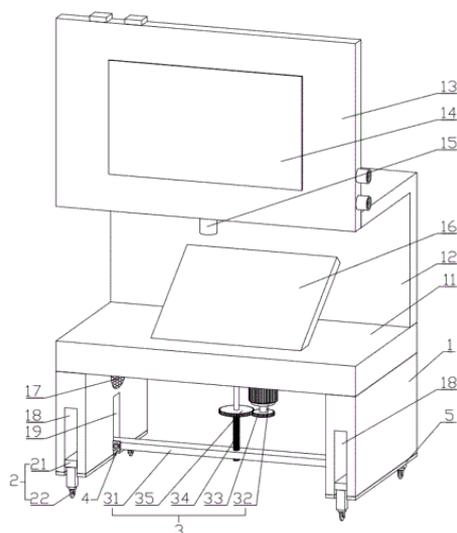
CN215271796U

Priority Date: 16/06/2021

DUWEI WUHAN DESIGN ENGINEERING

3D LASER HOLOGRAPHIC PROJECTION INTERACTIVE DISPLAY PLATFORM

The application discloses mutual show platform of 3D laser holographically projected, including first backup pad, with the landing slab, a housing, be fixed in the control panel on the casing, with the fixed display screen of control panel lateral wall, with the camera of control panel bottom surface fixed and with the landing slab upper surface fixed's holographically projected membrane transparent plate, the mounting groove has been seted up to first backup pad bottom surface, install the removal subassembly in the mounting groove, the removal subassembly includes movable plate sliding mounting in the mounting groove and the gyro wheel of fixing with the movable plate bottom surface, install lifting unit in the first backup pad. In this application, when needs remove this mutual show platform of 3D laser holography projection, the staff only need control the fly leaf through lifting unit and descend, and the arc surface of gyro wheel bottom lands, and first backup pad bottom surface is unsettled to this is convenient for the staff promotes this mutual show platform of 3D laser holography projection, has reduced the physical demands of staff at removal show platform in-process.



CLAIM 1. The utility model provides a mutual show platform of 3D laser holography projection, including first backup pad (1), with first backup pad (1) fixed surface's landing slab (11), with first backup pad (1) fixed surface's casing (12), be fixed in control panel (13) on casing (12), with fixed display screen (14) of control panel (13) lateral wall, with fixed camera (15) of control panel (13) bottom surface and with landing slab (11) fixed surface's holographic projection film transparent plate (16), its characterized in that: mounting groove (18) have been seted up to first backup pad (1) bottom surface, install in mounting groove (18) and remove subassembly (2), remove subassembly (2) including slidable mounting in mounting groove (18) fly leaf (21) and with fly leaf (21) bottom surface fixed gyro wheel (22), install lifting unit (3) that are used for ordering about fly leaf (21) and go up and down on first backup pad (1).

N8389

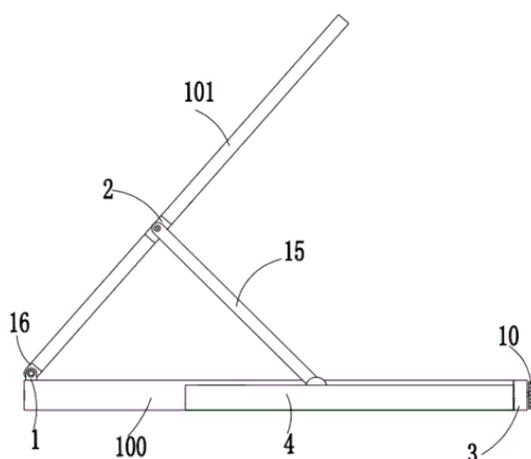
CN215264366U

Priority Date: 16/07/2021

SHANGHAI MENGYUN HOLOGRAPHIC TECHNOLOGY

DISPLAY EQUIPMENT FOR VEHICLE-MOUNTED HOLOGRAPHIC ADVERTISEMENT

The utility model discloses a display device of on-vehicle holographic advertisement, including the display device body, the display device body includes OLED display device and sets up the image plane of reflection in OLED display device top, the slope of image plane of reflection sets up, two supporting seats of top one side fixedly connected with of OLED display device rotate between two supporting seats and install same rotation seat, rotate the top of seat and the bottom fixed connection of image plane of reflection, the front side and the rear side of image plane of reflection all bond and are fixed with the stationary blade, and one side that two stationary blades were kept away from each other all rotates the bracing piece of installing the slope setting, and OLED display device's right side fixedly connected with left side is the rectangle box that the opening set up. The utility model relates to a rationally, easy and simple to handle, the inclination of the image plane of reflection of being convenient for according to actual need quick adjustment to its support, improve the viewing effect, satisfy the user demand, be favorable to the use.



CLAIM 1. Display device of on-vehicle holographic advertisement, including the display device body, the display device body includes OLED display device (100) and sets up image plane of reflection (101) in OLED display device (100) top, image plane of reflection (101) slope sets up, its characterized in that, top one side fixedly connected with two supporting seats (1) of OLED display device (100), rotate between two supporting seats (1) and install same rotation seat (16), the top of rotation seat (16) and the bottom fixed connection of image plane of reflection (101), the front side and the rear side of image plane of reflection (101) all bond fixedly and are fixed with stationary blade (2), the bracing piece (15) that the slope set up is all installed in the rotation of one side that two stationary blades (2) kept away from each other, the right side fixedly connected with left side of OLED display device (100) is rectangle box (3) that the opening set up, the front side and the rear side of the OLED display device (100) are fixedly connected with a cross rod (4), the right end of the cross rod (4) is fixedly connected with the left side of a rectangular box (3), the top of the cross rod (4) is provided with a rectangular hole (5), a screw rod (6) is rotatably installed on the inner wall of the left side of the rectangular hole (5), the right end of the screw rod (6) extends into the rectangular box (3) and is fixedly connected with chain wheels (7), the two chain wheels (7) are in transmission connection with the same chain (8), the right side of the chain wheel (7) positioned on the front side in the two chain wheels (7) is fixedly connected with a connecting shaft (9), the right end of the connecting shaft (9) extends out of the rectangular box (3) and is fixedly connected with a knob (10), a movable seat (14) is sleeved on the screw thread of the screw rod (6), the bottom end of a support rod (15) is hinged with the top of the corresponding movable seat (14), the guide rod (11) is fixedly connected between the inner walls on the two sides of the rectangular hole (5), the bottom of the moving seat (14) is fixedly connected with a guide sleeve (12), balls (13) are nested on the inner walls of the four sides of the guide sleeve (12), the guide rod (11) is located between the eight corresponding balls (13), and the balls (13) are in rolling contact with the outer side of the corresponding guide rod (11).

N8390

CN215195333U

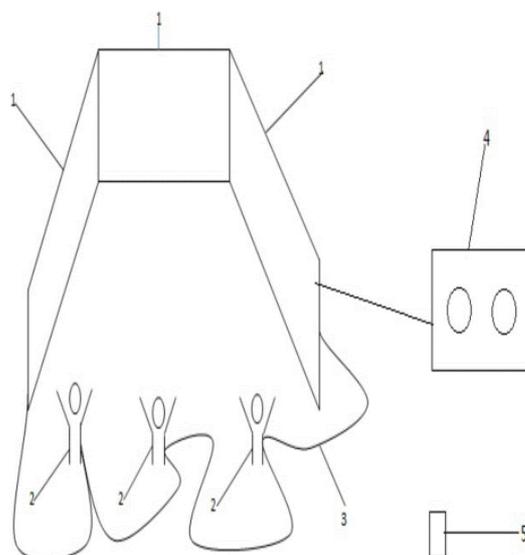
Priority Date: 12/03/2021

TONGJI UNIVERSITY

HOLOGRAPHIC PROJECTION SIMULATION ACTUAL COMBAT FOOTBALL TRAINING ROOM

The utility model relates to a holographic projection simulation actual combat football training room of football training technical field, include: a computer workstation; the remote controller is wirelessly connected with the computer workstation; the screen is provided with a base, is of a horizontal semi-surrounding C-shaped structure, and the inner surface of the screen is an image display surface; the projection equipment is controlled by the remote controller and is opposite to the image display surface of the screen; and the wires are electrically connected with the screen and all projection devices. The utility model discloses be convenient for carry out the projection operation at the scene to present for sportsman and football fan with lifelike virtual football training mate, reinforcing training effect.

CLAIM 1. A holographic projection simulated actual combat soccer training room, comprising: a computer workstation (4); the remote controller (5) is wirelessly connected with the computer workstation (4); the screen (1) with a base is of a horizontal semi-surrounding C-shaped structure, and the inner surface of the screen is an image display surface; the projection equipment (2) is controlled by the remote controller (5) and is opposite to the image display surface of the screen (1); the conducting wire (3), the electric signal of the conducting wire (3) connects the screen (1) and all projection devices (2); an auxiliary positioning component for assisting the projection equipment (2) in positioning; wherein, the screen (1) is connected with the computer workstation (4) by electric signals and displays the image transmitted by the computer workstation (4); characterized in that the auxiliary positioning member comprises: the equipment positioning platform (6) is used for positioning and detachably placing all the projection equipment (2), and the equipment positioning platform (6) is placed on the indoor ground and is opposite to the image display surface of the screen (1); a pair of location crossbearers (8) that are fixed in equipment location platform (6) left and right sides respectively, leave the clearance between location crossbearer (8) and the indoor ground, two location crossbearers (8) are fixed a position the cooperation and can dismantle each other with the left and right sides of screen (1) base respectively.



N8392

CN113923496

Priority Date: 27/07/2021

DONGGUAN RUIZHI PHOTOELECTRIC TECHNOLOGY | YANCHENG BRANCH CHINA TOWER

MULTI-PLACE SAME-FREQUENCY PLAYING CONTROL METHOD BASED ON HOLOGRAPHIC SCREEN

The invention belongs to the technical field of holographic screens, and particularly relates to a multi-place same-frequency playing control method based on a holographic screen, which comprises the steps of obtaining a playing starting instruction for starting the playing of the holographic screen; acquiring a current playing area set according to the playing area setting option and current playing content set according to the playing content setting option; generating a same-frequency playing instruction based on the current playing content and the current playing area; and acquiring a successful receiving instruction that each current to-be-controlled holographic screen successfully receives the current playing content, and controlling each current to-be-controlled holographic screen to simultaneously play the current playing content according to the successful receiving instruction. The holographic screen control method and the holographic screen control system can realize the simultaneous control of the communication iron towers, the power line towers and the holographic screens on the surfaces of the outdoor building structures in a plurality of areas, are simple and fast in operation process for users, meet the use requirements of the users, and greatly improve the use experience of the users.

N8395

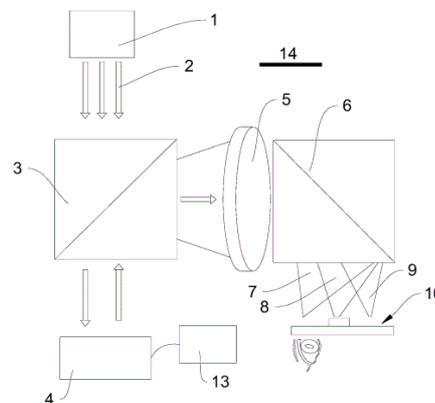
CN113900254

Priority Date: 21/10/2021

HEFEI UNIVERSITY OF TECHNOLOGY

NEAR-TO-EYE DISPLAY DEVICE AND METHOD FOR HOLOGRAPHIC DISPLAY

The invention provides a near-to-eye display device and a method for holographic display, which comprise the following steps: a display module; an ear-worn structure; a connecting structure connecting the display module and the ear-worn structure; wherein the display module includes: a laser; the first polarization beam splitter is positioned at the output end of the laser; the spatial light modulator is collinear with the laser and the first polarization beam splitter and is positioned on one side, far away from the laser, of the first polarization beam splitter; a lens at the output of the first polarizing beam splitter; the second polarization beam splitter is collinear with the first polarization beam splitter and the lens, and the second polarization beam splitter is positioned on one side, away from the first polarization beam splitter, of the lens; and a polarization filter at the output of the second polarization beam splitter; wherein the polarizing filter is located in a focal plane of the lens. The invention can realize the adjustment of the viewpoint position and the window size.



CLAIM 1. A near-to-eye display device for holographic display, comprising: a display module; an ear-worn structure; a connecting structure connecting the display module and the ear-worn structure; wherein the display module includes: a laser; the first polarization beam splitter is positioned at the output end of the laser; the spatial light modulator is collinear with the laser and the first polarization beam splitter and is positioned on one side, far away from the laser, of the first polarization beam splitter; a lens at the output of the first polarizing beam splitter; the second polarization beam splitter is collinear with the first polarization beam splitter and the lens, and the second polarization beam splitter is positioned on one side, away from the first polarization beam splitter, of the lens; and the polarization filter is positioned at the output end of the second polarization beam splitter; wherein the polarizing filter is located in a focal plane of the lens.

N8396

CN113891063

Priority Date: 09/10/2021

SHENZHEN REALIS MULTIMEDIA TECHNOLOGY

HOLOGRAPHIC DISPLAY METHOD AND DEVICE

The application relates to a holographic display method and a device, wherein the method comprises the following steps: acquiring viewpoint information of a first user, wherein the viewpoint information shows a dual-purpose position and a dual-purpose visual angle of the first user, and the first user is a user holding an interactive control pen; acquiring pose information of the interactive control pen; determining a first included angle between a visual angle and a pointing direction; if the first included angle is larger than the first angle threshold, the output frequency of the head-mounted display device is adjusted to a first frequency, and if the first included angle is not larger than the first angle threshold, the output frequency of the head-mounted display device is adjusted to a second frequency, wherein the first frequency is larger than the second frequency. In this specification, the output frequency of the head-mounted display device is adjusted according to a first included angle between the viewing angle of the first user and the pointing direction of the interactive control pen, so that the first user can recognize a part of the content that the first user wants to interact with in the hologram. The method is suitable for teaching scenes for multiple persons.

CLAIM 1. A holographic display method, said method being based on a holographic display system, said holographic display system comprising: the display device comprises display processing equipment, a sand table type display device, a head-mounted display device and an interactive control pen; the display processing equipment is electrically connected with the sand table type display device, the head-mounted display device and the interactive control pen respectively; the holographic display method is executed by the display processing equipment, and comprises the following steps: acquiring viewpoint information of a first user, wherein the viewpoint information shows a dual-purpose position and a dual-purpose view angle of the first user, and the first user is a user holding the interactive control pen; acquiring pose information of the interactive control pen, wherein the pose information shows the direction of the interactive control pen; determining a first angle between the viewing angle and the pointing direction; if the first included angle is larger than a first angle threshold, adjusting the output frequency of the head-mounted display device to a first frequency, and if the first included angle is not larger than the first angle threshold, adjusting the output frequency of the head-mounted display device to a second frequency, wherein the first frequency is larger than the second frequency.

N8397

CN113885209

Priority Date: 04/11/2021

SHENZHEN LOCHN OPTICS TECHNOLOGY

HOLOGRAPHIC AR THREE-DIMENSIONAL DISPLAY METHOD AND MODULE AND NEAR-TO-EYE DISPLAY SYSTEM

The embodiment of the invention relates to the field of optical display, and discloses a holographic AR three-dimensional display method, a holographic AR three-dimensional display module and a near-to-eye display system. According to the holographic AR three-dimensional display method and the module, diffraction calculation is reduced through light field image coding, the generation process of the hologram is accelerated, meanwhile, the hologram is obtained through interference of the converged spherical waves as reference light, the spatial frequency of the hologram is reduced, and therefore the holographic AR three-dimensional display effect with a large visual angle is obtained.

CLAIM 1. A holographic AR three-dimensional display method is applied to a holographic display module, and comprises the following steps: carrying out convergent spherical wave encoding on the light field image to obtain a hologram; loading a hologram of a three-dimensional image; and receiving the convergent spherical wave, and modulating the convergent spherical wave to output and display a three-dimensional light field image visible to human eyes.

N8402

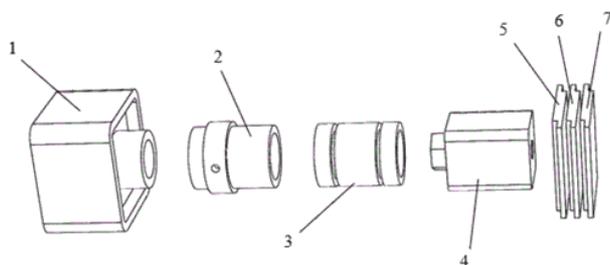
CN113835324

Priority Date: 23/09/2021

EAST CHINA UNIVERSITY OF SCIENCE & TECHNOLOGY

HOLOGRAPHIC DYNAMIC DISPLAY DEVICE BASED ON LIQUID CRYSTAL GEOMETRIC PHASE DEVICE

The invention relates to a holographic dynamic display device based on a liquid crystal geometric phase device, which comprises a light source, a beam expanding system, a circularly polarized light generating device and a liquid crystal box group which are sequentially connected, wherein the liquid crystal box group comprises a plurality of liquid crystal boxes, a liquid crystal layer is arranged in each liquid crystal box, the circularly polarized light generating device and the liquid crystal boxes in the liquid crystal box group are both connected with a controller, and the controller loads voltage waveforms to the circularly polarized light generating device and the liquid crystal boxes to realize holographic dynamic display of target patterns. Compared with the prior art, the invention has the advantages of low display difficulty, less light leakage, low holographic projection display cost, improvement on the switching efficiency between different target patterns, improvement on the flexibility of projection equipment and the like.



CLAIM 1. The holographic dynamic display device is characterized by comprising a light source (1), a beam expanding system, a circularly polarized light generating device (4) and a liquid crystal box group which are sequentially connected, wherein the liquid crystal box group comprises a plurality of liquid crystal boxes, liquid crystal layers are arranged in the liquid crystal boxes, the circularly polarized light generating device (4) and the liquid crystal boxes in the liquid crystal box group are both connected with a controller, and the controller loads voltage waveforms to the circularly polarized light generating device (4) and the liquid crystal boxes.

N8405

CN113821104

Priority Date: 17/09/2021

WUHAN HONGXIN TECHNOLOGY SERVICES

VISUAL INTERACTIVE SYSTEM BASED ON HOLOGRAPHIC PROJECTION

The invention provides a visual demonstration method based on holographic projection, which comprises the following steps: establishing a virtual employee model; presetting a behavior database of a virtual employee; presetting a demonstration content database of a virtual employee; generating a virtual employee demonstration video based on the behavior database and the demonstration content database; the virtual employee model demonstrates according to the behavior database and the demonstration content database to generate holographic projection of the virtual employee; and (4) building a demonstration place and projecting holographic projection in the demonstration place. Establishing a virtual employee model based on holographic projection; the behavior database and the demonstration content database can integrate the common problems of visitors and the information of common access time, visitor roles and the like, so that interaction with virtual staff is realized, a good question-answering mechanism is formed, manpower and material resources are saved, and the change of different scenes is adapted; by visualizing the question answering and the action of the virtual staff, the demonstration efficiency is improved.

CLAIM 1. A visual demonstration method based on holographic projection is characterized by comprising the following steps: establishing a virtual employee model; presetting a behavior database of a virtual employee; presetting a demonstration content database of a virtual employee; generating the virtual employee demonstration video based on the behavior database and the demonstration content database; the virtual employee model demonstrates according to the behavior database and the demonstration content database to generate holographic projection of the virtual employee; and constructing a demonstration place, and projecting the holographic projection in the demonstration place.

N8406

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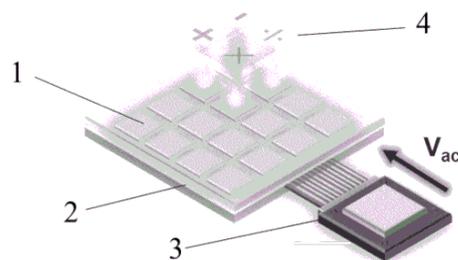
Priority Date: 08/07/2021

HUNAN UNIVERSITY

PIXELIZED DYNAMIC HOLOGRAPHIC DISPLAY DEVICE BASED ON SUPER-STRUCTURED SURFACE AND IMPLEMENTATION METHOD

The invention discloses a pixelized dynamic holographic display device based on a super-structured surface and an implementation method. The device consists of a bottom layer transparent dielectric substrate, a first layer of pixelated indium tin oxide transparent electrode, a dielectric nano-pillar structure array, polymethyl methacrylate, a dielectric material coating layer, a first layer of photoinduced orientation layer, nematic phase liquid crystal, a second layer of photoinduced orientation layer, a second layer of indium tin oxide transparent electrode and a top layer transparent dielectric substrate. The pixelated dynamic holographic display device based on the super-structured surface artificially regulates and controls the phase of incident light through the super-structured surface of the bottom layer, and applies voltage to the indium tin oxide transparent electrodes on the upper layer and the lower layer, so that the orientation of nematic liquid crystal is changed, and the phase of emergent light on the super-structured surface is modulated. Different holographic display effects are realized by applying different voltage values to the super-structure surface pixels respectively. The invention has the advantages of high integration level, small volume, pixelation regulation and control, easy processing, small pixels and the like.

CLAIM 1. A pixelated dynamic holographic display device based on a nanostructured surface, characterized in that: the pixelated dynamic holographic display device consists of a bottom layer transparent medium substrate, a first layer indium tin oxide transparent electrode, a dielectric nano-pillar structure array, polymethyl methacrylate, a dielectric material coating layer, a first layer photoinduced orientation layer, nematic phase liquid crystal, a second layer photoinduced orientation layer, a second layer indium tin oxide transparent electrode and a top layer transparent medium substrate; the dielectric nanostructure array comprises a plurality of nanopillar structures; the first layer of indium tin oxide transparent electrode is laid on the bottom layer of transparent dielectric substrate, polymethyl methacrylate is arranged between the first layer of indium tin oxide transparent electrode and the dielectric material coating layer, and a dielectric nano-pillar structure array is arranged in the polymethyl methacrylate; the dielectric material coating layer, the first photo-alignment layer, the nematic liquid crystal, the second photo-alignment layer, the second indium tin oxide transparent electrode and the top transparent dielectric substrate are sequentially arranged on the dielectric material coating layer; and alignment marks for aligning with the surface of the super structure are arranged in the first layer of indium tin oxide transparent electrode and the second layer of indium tin oxide transparent electrode.



N8407

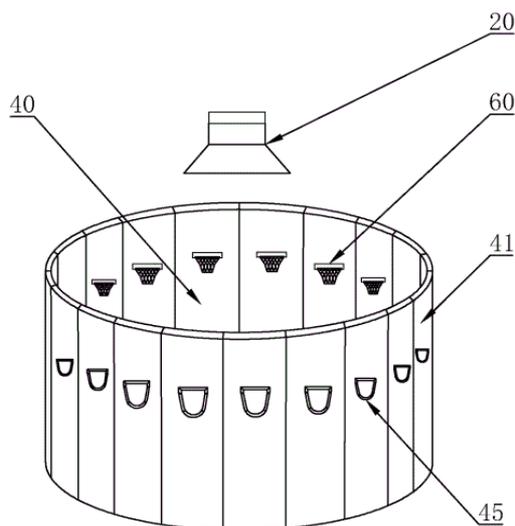
CN113813578

Priority Date: 09/10/2021

WENZHOU MEDICAL UNIVERSITY

SYSTEM AND METHOD FOR BASKETBALL PLAYER DRIBBLING TRAINING BASED ON HOLOGRAPHIC TECHNOLOGY

The invention relates to a basketball player dribble training system and method based on holographic technology, which comprises a control device, a holographic projector, an induction ground and a plurality of electronic screens, wherein the holographic projector, the induction ground and the electronic screens are respectively coupled with the control device, the holographic projector is arranged on the ground, the control device is used for controlling each electronic screen to move on the track, each electronic screen is used for displaying training actions, a basket is arranged on each electronic screen, the electronic screens can be arranged in a ring shape to form a fence, the holographic projector is used for projecting virtual artificial intelligent coach training guidance images into the fence, and the induction ground is paved on a training ground in the fence and is used for inducing data of players and basketball in motion. Thereby a plurality of electronic screens can enclose into a confined training place on the track and supply the sportsman to carry out the dribbling training, lets the sportsman can not receive external interference when the training, can show the exercise action of various differences on each electronic screen and supply the sportsman to refer to the training.



CLAIM 1. A basketball player dribble training system based on holographic technology is characterized in that the system comprises a control device, and a holographic projector (20), an inductive ground (30) and a plurality of electronic screens (40) which are respectively coupled with the control device, and a track (50) arranged on the ground, the control equipment is used for controlling each electronic screen (40) to move on a track (50), each electronic screen (40) is used for displaying training actions, each electronic screen (40) is provided with a basket (60), a plurality of electronic screens (40) can be arranged in a ring shape to form an enclosing wall (41), the holographic projector (20) is used for projecting virtual artificial intelligence coaching training instruction images into the enclosing wall (41), the sensing ground (30) is laid on a training ground within an enclosure (41) for sensing data generated by players and basketball during play.

Click on the title to return to table of contents

PATENT REFERENCE – See the table at the end of this document

N8344

WO202213178

Priority Date: 13/07/2020

WESTFAELISCHE WILHELMS UNIVERSITAET MUENSTER

A MODULE FOR GENERATING AN INTERFERENCE PATTERN FOR PRODUCING A DIGITAL HOLOGRAPHIC IMAGE, A RELATED METHOD, AND A DIGITAL HOLOGRAPHIC MICROSCOPE

In various embodiments a module for generating an interference pattern for producing a digital holographic image is provided. The module comprises an adaptive lens arrangement configured to receive, from a microscope, an object wave of an intermediate image of a sample to be examined, and to generate an adapted object wave of the intermediate image of the sample by reducing a curvature of the object wave of the intermediate image; a reference input interface configured to receive an optical fiber delivering a reference wave from the coherent light source to the module and an interference arrangement configured to generate an interference pattern to be received by an imaging sensor arrangement, wherein the interference pattern is based on the adapted object wave and the reference wave from a coherent light source; wherein a position of the reference input interface of the module is configured to be adjustable with respect to at least two directions (x-y), wherein at least one of the adjustable directions is in parallel to a propagation direction of the reference wave leaving the optical fiber.

MODULE PERMETTANT DE GÉNÉRER UN MOTIF D'INTERFÉRENCE POUR PRODUIRE UNE IMAGE HOLOGRAPHIQUE NUMÉRIQUE, PROCÉDÉ ASSOCIÉ ET MICROSCOPE HOLOGRAPHIQUE NUMÉRIQUE

Dans divers modes de réalisation, l'invention concerne un module permettant de générer un motif d'interférence pour produire une image holographique numérique. Le module comprend un agencement de lentille adaptatif conçu pour recevoir, à partir d'un microscope, une onde d'objet d'une image intermédiaire d'un échantillon à examiner, et pour générer une onde d'objet adaptée de l'image intermédiaire de l'échantillon en réduisant une courbure de l'onde d'objet de l'image intermédiaire ; une interface d'entrée de référence conçue pour recevoir une fibre optique délivrant au module une onde de référence provenant de la source de lumière cohérente et un agencement d'interférence conçu pour générer un motif d'interférence à recevoir par un agencement de capteur d'imagerie, le motif d'interférence étant basé sur l'onde d'objet adaptée et sur l'onde de référence provenant d'une source de lumière cohérente ; une position de l'interface d'entrée de référence du module étant conçue pour être réglable par rapport à au moins deux directions (x-y), au moins l'une des directions de réglage étant parallèle à une direction de propagation de l'onde de référence sortant de la fibre optique.

CLAIM 1. A module for generating an interference pattern for producing a digital holographic image, the module comprising: an adaptive lens arrangement configured to receive, from a microscope, an object wave of an intermediate image of a sample to be examined, and to generate an adapted object wave of the intermediate image of the sample by reducing a curvature of the object wave of the intermediate image; a reference input interface configured to receive an optical fiber delivering a reference wave from the coherent light source to the module and an interference arrangement configured to generate an interference pattern to be received by an imaging sensor arrangement, wherein the interference pattern is based on the adapted object wave and the reference wave from a coherent light source; wherein a position of the reference input interface of the module is configured to be adjustable with respect to at least two directions (x-y), wherein at least one of the adjustable directions is in parallel to a propagation direction of the reference wave leaving the optical fiber.

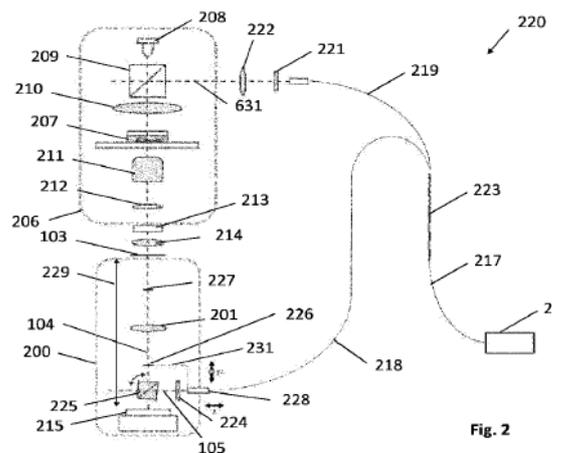


Fig. 2

N8347

WO202208726

Priority Date: 10/07/2020

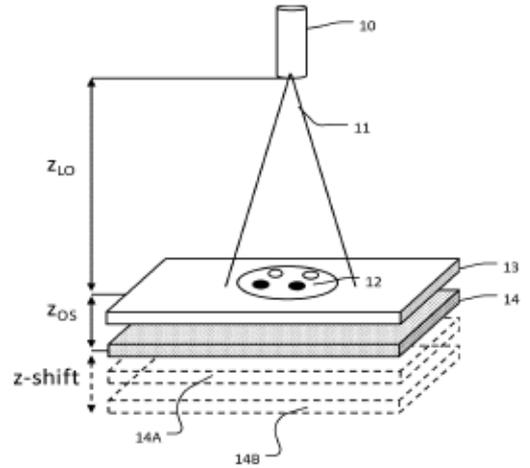
SONY | SONY GROUP

METHOD COMPRISING DETERMINING A QUANTITATIVE DISPERSION IMAGE OF AN OBJECT AND DIGITAL IN-LINE HOLOGRAM MICROSCOPE SCANNER

A method comprising determining a quantitative dispersion image of an object based on a set of quantitative phase images, each quantitative phase image of the set of quantitative phase images having been obtained with a respective different illumination light wavelength.

PROCÉDÉ CONSISTANT À DÉTERMINER UNE IMAGE DE DISPERSION QUANTITATIVE D'UN OBJET ET SCANNER DE MICROSCOPE À HOLOGRAMME EN LIGNE NUMÉRIQUE

L'invention concerne un procédé consistant à déterminer une image de dispersion quantitative d'un objet sur la base d'un ensemble d'images de phase quantitative, chaque image de phase quantitative de l'ensemble d'images de phase quantitative ayant été obtenue avec une longueur d'onde de lumière d'éclairage différente respective.



CLAIM 1. A method comprising determining a quantitative dispersion image of an object based on a set of quantitative phase images, each quantitative phase image of the set of quantitative phase images having been obtained with a respective different illumination light wavelength.

N8358

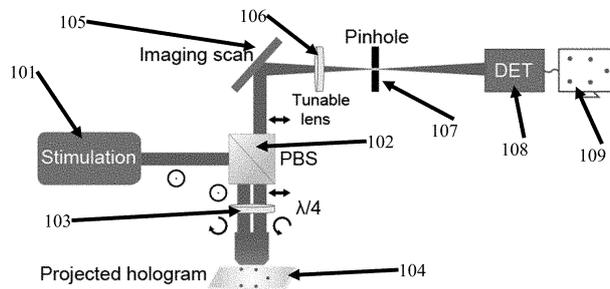
US20210397129

Priority Date: 19/06/2020

NEW YORK UNIVERSITY

SYSTEM AND METHOD FOR REAL-TIME IN-SITU HOLOGRAPHIC MICROSCOPY

A holographic imaging system comprises an imaging light source defining an imaging light path, an active light source defining an active light path directed at a target, a polarizer configured to modify the polarization of the active light path, a polarization beam splitter positioned in the active light path and the imaging light path, configured to separate the active light path and the imaging light path, and a photodetector positioned at a terminus of the active light path, configured to measure a reflection of the active light source. A method of holographic imaging is also described.



CLAIM 1. A holographic imaging system, comprising: an imaging light source defining an imaging light path; an active light source defining an active light path directed at a target; a polarizer configured to modify the polarization of the active light path; a polarization beam splitter positioned in the active light path and the imaging light path, configured to separate the active light path and the imaging light path; and a photodetector positioned at a terminus of the active light path, configured to measure a reflection of the active light source.

N8391

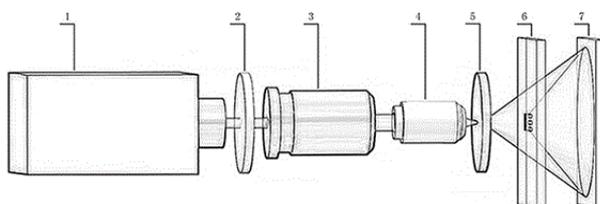
CN113946118

Priority Date: 15/07/2020

SICHUAN UNIVERSITY

DIGITAL COAXIAL HOLOGRAPHIC IMAGING SYSTEM BASED ON CONVERGENT SPHERICAL WAVE SMALL HOLE DIFFRACTION

The invention relates to a digital coaxial holographic imaging system based on convergent spherical wave pinhole diffraction, which consists of a laser 1, an attenuation sheet 2, a laser beam expander 3, a long-working-distance microscope objective 4, a pinhole array 5, a tested sample 6 and an image detector 7, wherein laser is focused into a highlight light spot by the microscope objective after being attenuated and expanded, the highlight light spot penetrates through a nanoscale circular hole to form spherical waves, the spherical waves are divided into two parts, one part of the spherical waves illuminate an object to obtain scattered object light waves, the other part of the spherical waves penetrate through the object to serve as reference waves, two beams of light waves form interference fringes and are recorded by the image detector, and the amplitude and phase information of the object is reconstructed by adopting a digital holographic Fresnel inverse transformation recovery algorithm. The invention has simple structure, the quality of the generated point light source is close to an ideal spherical wave model, the resolution ratio can approach the limit of the pixel interval of the image sensor, and the lens focusing process is not needed between the point source and the imaging target surface, so that the invention can rapidly image the object and has the advantages of wide view field, high resolution and non-contact imaging.



CLAIM 1. A digital coaxial holographic imaging system based on convergent spherical wave pinhole diffraction is characterized in that: the digital coaxial holographic imaging system based on convergent spherical wave pinhole diffraction is composed of a laser, an attenuation sheet, a laser beam expander, a long-working-distance microscope objective, a pinhole array, a measured sample and an image detector, wherein: light emitted by a laser enters a laser beam expander after light intensity adjustment is carried out through an attenuator, the diameter of the expanded light beam meets the requirement of the entrance pupil of a long-working-distance microobjective and cannot exceed the limit of the pupil diameter, the long working distance of the microobjective ensures the installation and hole position adjustment of a pinhole array, a focusing light spot generates an obvious Fresnel diffraction phenomenon after passing through a small hole close to the wavelength, the Ivy spots of a diffraction center are adjusted to be maximum in a rough and fine combination mode to obtain uniformly distributed spherical waves, one part of the spherical waves irradiate a tested sample to obtain scattered object light waves, the other part of the spherical waves penetrate through the tested sample to serve as reference waves, two light waves are interfered to form a digital hologram, the digital hologram is recorded by an image detector, the propagation process of the light waves is simulated through a computer, and the amplitude and phase information of the tested sample are recovered through Fresnel inverse transformation.

N8398

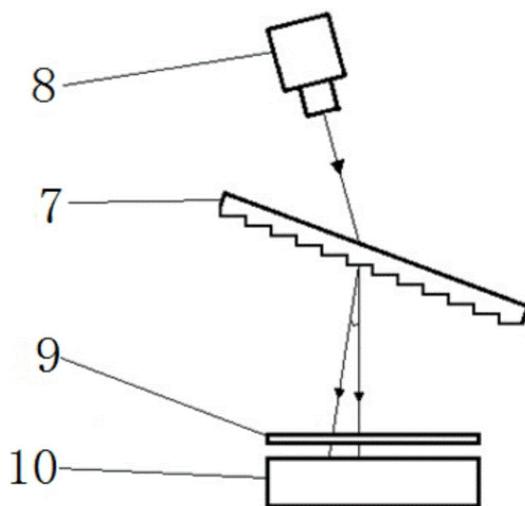
CN113867116

Priority Date: 19/10/2021

HEFEI UNIVERSITY OF TECHNOLOGY | INTELLIGENT
MANUFACTURING INSTITUTE OF HFUT

SUB-PIXEL DISPLACEMENT IMAGING METHOD FOR LENSLESS MICROSCOPY

The invention discloses a sub-pixel displacement imaging method for lensless microscopy, which adopts a laser and a transmission type blazed grating to form diffraction light to be used as a light source to irradiate a sample to be observed, an image sensor senses a hologram of the sample to be observed, and the hologram is displaced by changing the central wavelength of emergent light of the laser. The invention also discloses a lens-free microscopic sub-pixel displacement imaging system which comprises a laser, a transmission type blazed grating and an image sensor, wherein emergent light of the laser forms diffracted light after passing through the transmission type blazed grating and irradiates to a sample to be observed. The imaging method and the imaging system provided by the invention open up a new way for a pixel or sub-pixel displacement method, and can be applied to lensless microscopic imaging.



CLAIM 1. A sub-pixel displacement imaging method for lens-free microscopy is characterized in that an image sensor senses a sample to be observed which is irradiated by a light source, and a hologram of the sample to be observed is acquired by the image sensor, wherein the method comprises the following steps: the method comprises the steps of adopting a laser and a transmission type blazed grating, enabling emergent light of the laser to form diffracted light serving as a light source to irradiate a sample to be observed by utilizing the transmission type blazed grating, and enabling the angle of the formed diffracted light to deflect by changing the central wavelength of the emergent light of the laser, so that a hologram obtained by an image sensor is displaced.

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PATENT REFERENCE – See the table at the end of this document

N8342

WO202214772

Priority Date: 16/07/2020

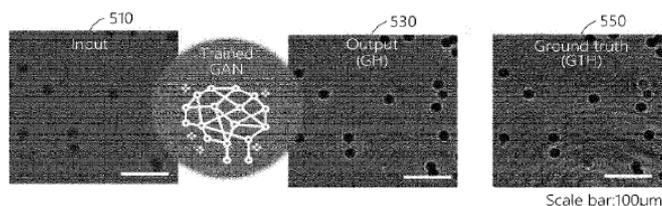
POHANG UNIVERSITY OF SCIENCE & TECHNOLOGY POSTECH

MACHINE LEARNING-BASED DIGITAL HOLOGRAPHY DEVICE AND METHOD FOR OPERATING SAME

A machine learning-based digital holography device and a method for operating same are disclosed. The digital holography method according to one embodiment comprises the steps of: obtaining an optical image including two-dimensional information about a sample; and on the basis of the optical image, generating a holographic image including three-dimensional information about the sample.

DISPOSITIF D'HOLOGRAPHIE NUMÉRIQUE FONDÉ SUR L'APPRENTISSAGE MACHINE ET PROCÉDÉ DE FONCTIONNEMENT ASSOCIÉ

La présente invention concerne un dispositif d'holographie numérique fondé sur l'apprentissage machine et un procédé de fonctionnement associé. Le procédé d'holographie numérique selon un mode de réalisation comprend les étapes consistant à : obtenir une image optique comprenant des informations bidimensionnelles concernant un échantillon ; et générer sur la base de l'image optique une image holographique comprenant des informations tridimensionnelles concernant l'échantillon.



CLAIM 1. Acquiring an optical image including two-dimensional information about a sample; Generating a holographic image including three-dimensional information about the sample based on the optical image; and Based on the total weight of the digital hologram.

SYSTEMS AND METHODS FOR RECONSTRUCTION OF DIGITAL HOLOGRAMS

A method for reconstructing a digital hologram of a surface having at least one three- dimensional feature thereon, including acquiring a digital hologram of the surface, reconstructing a wavefront based on the digital hologram, generating a phase map of at least a portion of the surface based on the wavefront, the phase map including phase ambiguities, obtaining at least one additional image of the surface, obtaining height data relating to the three-dimensional feature from the at least one additional image of the surface, the height data being obtained with a first precision, resolving the phase ambiguities based on the height data and deriving a height of the at least one three- dimensional feature based on the phase map following the resolving of the phase ambiguities therein, the height being derived with a second precision more precise than the first precision.

SYSTÈMES ET PROCÉDÉS POUR LA RECONSTRUCTION D'HOLOGRAMMES NUMÉRIQUES

L'invention concerne un procédé pour la reconstruction d'un hologramme numérique d'une surface ayant au moins une particularité tridimensionnelle sur celle-ci, consistant à acquérir un hologramme numérique de la surface, reconstruire un front d'onde sur la base de l'hologramme numérique, générer une carte de phase d'au moins une partie de la surface sur la base du front d'onde, la carte de phase comprenant des ambiguïtés de phase, obtenir au moins une image supplémentaire de la surface, obtenir des données de hauteur se rapportant à la particularité tridimensionnelle à partir de l'au moins une image supplémentaire de la surface, les données de hauteur étant obtenues avec une première précision, résoudre les ambiguïtés de phase sur la base des données de hauteur et déduire une hauteur de l'au moins une particularité tridimensionnelle sur la base de la carte de phase à la suite de la résolution des ambiguïtés de phase dans celle-ci, la hauteur étant déduite avec une seconde précision plus précise que la première précision.

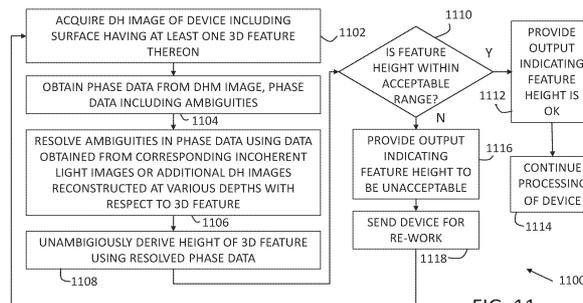


FIG. 11

CLAIM 1. A method for reconstructing a digital hologram comprising: acquiring a digital hologram of a surface having at least one three- dimensional feature thereon; reconstructing a wavefront based on said digital hologram; generating a phase map of at least a portion of said surface based on said wavefront, said phase map including phase ambiguities; obtaining at least one additional image of said surface; obtaining height data relating to said three-dimensional feature from said at least one additional image of said surface, said height data being obtained with a first precision; resolving said phase ambiguities based on said height data; and deriving a height of said at least one three-dimensional feature based on said phase map following said resolving of said phase ambiguities therein, said height being derived with a second precision more precise than said first precision.

N8348

WO2021262504

Priority Date: 22/06/2020

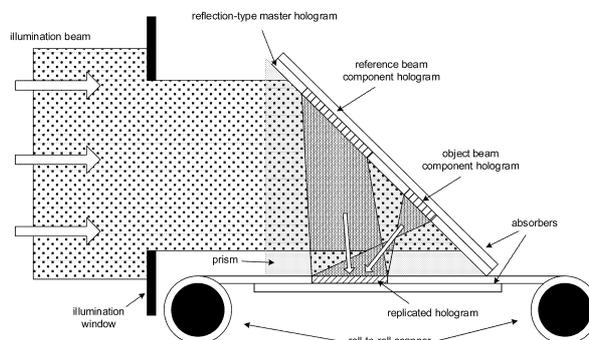
UNIVERSITY OF ARIZONA

SYSTEMS AND METHODS FOR MANUFACTURING AND REPLICATING HOLOGRAPHIC OPTICAL ELEMENTS AND HOLOGRAPHIC WAVEGUIDE COUPLERS

Methods and systems are described that enable manufacturing of holograms with high spatial frequencies and allow composite master holograms to be formed in reflection configurations. An example system for replicating transmission-type holographic elements includes one or more prisms positioned to receive an illumination beam on a first face. A composite master holographic element is positioned in contact with a second face of the one or more prisms to receive the illumination beam after propagation through the one or more prisms. The composite master hologram includes a reference beam component and an object beam component. The replication hologram is positioned in contact with a third face of the one or more prisms to receive, upon illumination of the master HOE by the illumination beam, a holographic exposure comprising first order diffracted illumination from both the reference beam component and object beam component at an exposure region of the copy HOE.

SYSTÈMES ET PROCÉDÉS POUR LA FABRICATION ET LA RÉPLICATION D'ÉLÉMENTS OPTIQUES HOLOGRAPHIQUES ET DE COUPLEURS DE GUIDES D'ONDES HOLOGRAPHIQUES

L'invention concerne des procédés et des systèmes qui assurent la fabrication d'hologrammes ayant des fréquences spatiales élevées et permettent à des hologrammes maîtres composites d'être formés dans des configurations de réflexion. Un système à titre d'exemple pour la réplique d'éléments holographiques de type à transmission comprend un ou plusieurs prismes positionnés pour recevoir un faisceau d'éclairage sur une première face. Un élément holographique maître composite est positionné en contact avec une deuxième face des un ou plusieurs prismes pour recevoir le faisceau d'éclairage après propagation à travers les un ou plusieurs prismes. L'hologramme maître composite comprend une composante de faisceau de référence et une composante de faisceau d'objet. L'hologramme de réplique est positionné en contact avec une troisième face des un ou plusieurs prismes pour recevoir, lors de l'éclairage de l'élément optique holographique (HOE) maître par le faisceau d'éclairage, une exposition holographique comprenant un éclairage diffracté de premier ordre provenant à la fois de la composante de faisceau de référence et de la composante de faisceau d'objet au niveau d'une région d'exposition du HOE de copie.



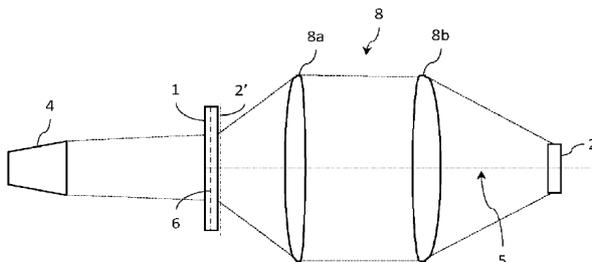
CLAIM 1. A system for replicating transmission-type holographic optical elements (HOEs), comprising: one or more prisms positioned to receive an illumination beam on a first face thereof; a composite master HOE in contact with a second face of the one or more prisms to receive the illumination beam after propagation through the one or more prisms, the composite master HOE including a reference beam component and an object beam component; and a copy HOE positioned in contact with a third face of the one or more prisms to receive, upon illumination of the master HOE by the illumination beam, a holographic exposure comprising first order diffracted illumination from both the reference beam component and object beam component at an exposure region of the copy HOE.

FOCUSING METHOD FOR HOLOGRAPHIC IMAGING SYSTEM

The invention relates to a focusing method for acquiring an image of a surface of interest (6) of a sample (1) by a holographic imager (2), comprising the following steps: - positioning the sample (1) comprising at least one reference object having a shape that is known and described by characterising parameters comprising at least position parameters; - acquiring an image and determining the position of the reference object relative to the acquisition plane (2') by applying a light diffraction model involving the spatial parameters of the reference object estimated by approximating the appearance of the reference object in the acquired holographic image; - determining the position of the surface of interest relative to the acquisition plane from a position of the reference object and focusing the image acquisition.

PROCÉDÉ DE MISE AU POINT POUR SYSTÈME D'IMAGERIE HOLOGRAPHIQUE

Procédé de mise au point pour l'acquisition d'une image d'une surface d'intérêt (6) d'un échantillon (1) par un imageur holographique (2), comprenant les étapes suivantes : - mise en place de l'échantillon (1) comprenant au moins un objet de référence présentant une forme connue et décrit par des paramètres caractérisants comprenant au moins des paramètres de position - acquisition d'une image et détermination de la position de l'objet de référence par rapport au plan d'acquisition (2'), par application d'un modèle de diffraction de la lumière impliquant les paramètres spatiaux de l'objet de référence estimés en approximant l'apparence de l'objet de référence dans l'image holographique acquise, - détermination de la position de la surface d'intérêt par rapport au plan d'acquisition à partir d'une position de l'objet de référence et mise au point de l'acquisition d'image.



CLAIM 1. Focusing method for acquiring an image of a surface of interest (6) of a sample (1) by an image sensor (2) of an imaging system, comprising the following steps: - placing the sample (1) in which the surface of interest (6) is located, in the field of view of an image sensor (2) of the imaging system, the sample (1) comprising at least one reference object (10) having a known shape and described by characterizing parameters associated with the reference object, these characterizing parameters comprising at least position parameters of the reference object (10), the reference object (10) being at a position corresponding to a position of the surface of interest (6), - illuminating the sample (1) with illumination light and acquiring a holographic image by the image sensor (2) at an acquisition plane (2'), interference patterns caused by the reference object (10), - determining the position of the reference object (10) relative to the acquisition plane (2'), using a diffraction pattern of the light by the at least one reference object (10), the diffraction pattern being a function of the known shape of the reference object (10) and involving the characterizing parameters of the reference object (10), at least the position parameters of the reference object (10) being estimated by fitting into the light diffraction model to approximate interference patterns caused by the reference object (10) appearing in the holographic image, - determining the position of the surface of interest (6) relative to the acquisition plane (2') from a position of the reference object (10) defined by the position parameters, - focusing the image acquisition based on the position of the surface of interest (6) relative to the acquisition plane.

N8350

DISPLAYS

WO2021259875

FONDATION B COM

Priority Date: 26/06/2020

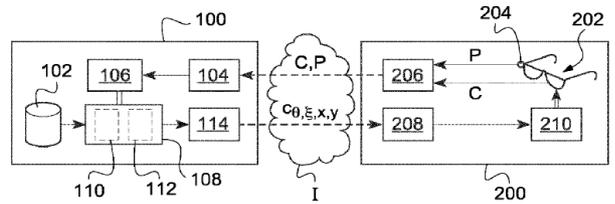
METHOD AND DEVICE FOR RECONSTRUCTING A DIGITAL HOLOGRAM, METHOD FOR DISPLAYING A DIGITAL HOLOGRAM AND ASSOCIATED SYSTEM

A digital hologram is represented by a set of coefficients (cθ, ξ, x, y) respectively associated with a plurality of definition wavelets each defined by a multiplet of coordinates (θ, ξ, x, y) in a multidimensional space. A method for reconstructing the digital hologram in order to display it by means of a display (202), comprises the following steps: - depending on at least one data item (C; P) representative of a characteristic of the display (202), determining a transformation of the multidimensional space; - generating a reconstructed hologram by assigning each coefficient of at least some of the coefficients (cθ, ξ, x, y) to a reconstruction wavelet defined by an image reconstruction multiplet by means of the predetermined transformation of the multiplet of coordinates defining the definition wavelet associated with the coefficient in question (cθ, ξ, x, y). An associated display method, reconstruction device and system are also described.

PROCÉDÉ ET DISPOSITIF DE RECONSTRUCTION D'UN HOLOGRAMME NUMÉRIQUE, PROCÉDÉ D'AFFICHAGE D'UN HOLOGRAMME NUMÉRIQUE ET SYSTÈME ASSOCIÉ

Un hologramme numérique est représenté par un ensemble de coefficients (cθ,ξ,x,y) respectivement associés à une pluralité d'ondelettes de définition définies chacune par un multiplet de coordonnées (θ,ξ,x,y) dans un espace pluridimensionnel. Un procédé de reconstruction de l'hologramme numérique en vue de son affichage au moyen d'un afficheur (202), comprend les étapes suivantes : - en fonction d'au moins une donnée (C; P) représentative d'une caractéristique de l'afficheur (202), détermination d'une transformation dudit espace pluridimensionnel; - génération d'un hologramme reconstruit en attribuant chaque coefficient parmi certains au moins desdits coefficients (cθ,ξ,x,y) à une ondelette de reconstruction définie par un multiplet de reconstruction image par la transformation déterminée du multiplet de coordonnées définissant l'ondelette de définition associée au coefficient concerné (cθ,ξ,x,y). Un procédé d'affichage, un dispositif de reconstruction et un système associés sont également décrits.

CLAIM 1. A method of reconstructing a digital hologram for display by means of a display (202), the digital hologram being represented by a set of coefficients (cθ,ξ,x,y) respectively associated with a plurality of definition wavelets each defined by a multiplet of coordinates (θ,ξ,x,y) in a multidimensional space, comprising the following steps: - as a function of at least one datum (C; P) representative of a characteristic of the display (202), determining (E20) a transformation of said multidimensional space; Generation of a reconstructed hologram by assigning each coefficient from at least some of the said coefficients(cθ,ξ,x,y) to a reconstruction wavelet defined by an image reconstruction multiplet by the determined transformation of the multiplet of coordinates defining the definition wavelet associated with the coefficient concerned (cθ,ξ,x,y).



N8353

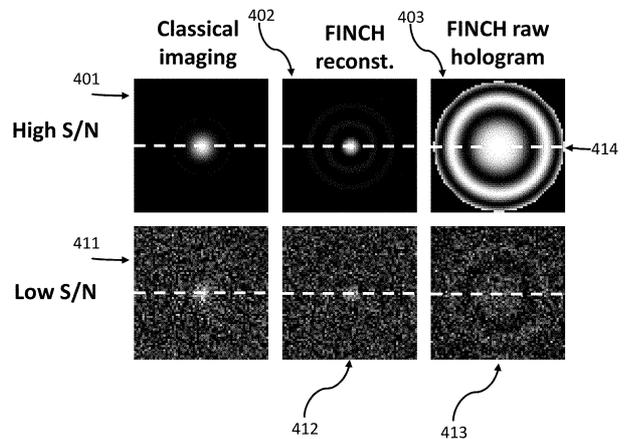
US20220020116

CELLOPTIC

Priority Date: 20/07/2020

HOLOGRAPHIC ULTRA RESOLUTION IMAGING

An advance in ultra-high-resolution optical imaging has been achieved by the introduction of iterative high-resolution image-building algorithms to incoherent holography. A recorded FINCH hologram is used as the basis of a method in which a high resolution image is built using detailed knowledge of the point spread functions of the FINCH hologram or reconstructed image, and then iteratively improved by successive algorithm generations of comparison to the recorded FINCH hologram and alteration of the high resolution image.



N8356

US20210402069

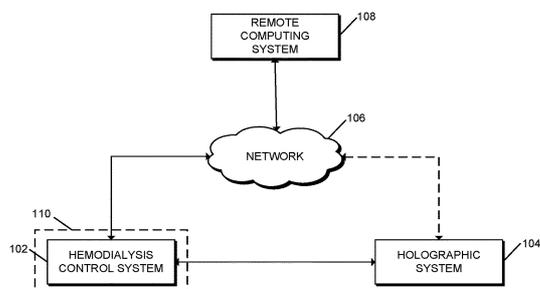
Priority Date: 29/06/2020

DAUGIRDAS JOHN T.

HOLOGRAPHIC CONTROL SYSTEM FOR HEMODIALYSIS

A system for holographic control of a hemodialysis machine according to one embodiment includes a hemodialysis control system of the hemodialysis machine and a holographic system communicatively coupled to the hemodialysis control system.

CLAIM 1. A system for holographic control of a hemodialysis machine, the system comprising: a hemodialysis control system of the hemodialysis machine, wherein the hemodialysis control system comprises at least one first processor and at least one first memory comprising a first plurality of instructions stored thereon that, in response to execution by the at least one first processor, causes the hemodialysis control system to provide a first user interface of the hemodialysis machine; and a holographic system communicatively coupled to the hemodialysis control system, wherein the holographic system comprises at least one second processor and at least one second memory comprising a second plurality of instructions stored thereon that, in response to execution by the at least one second processor, causes the holographic system to display a virtual three-dimensional image representative of a second user interface for the hemodialysis machine.



N8393

CN113917819

Priority Date: 13/10/2021

LASER FUSION RESEARCH CENTER CHINA ACADEMY OF ENGINEERING PHYSICS

INCOHERENT THREE-DIMENSIONAL HOLOGRAPHIC LAYERED RECONSTRUCTION METHOD BASED ON FRESNEL MASK

The invention provides a non-coherent three-dimensional holographic layered reconstruction method based on a Fresnel mask, which comprises the following steps of firstly, inputting a two-dimensional source image into equipment; secondly, generating a total compression hologram by overlapping k two-dimensional source image images; performing optical holographic projection and coding imaging on the k two-dimensional source images through a Fresnel mask, and transmitting the k two-dimensional source images to a sensor plane, thereby obtaining a total compression hologram formed by overlapping holograms generated by the k two-dimensional source images through the Fresnel mask; thirdly, applying sparsity constraint, and converting the total compression hologram into a solution model; converting the reconstruction problem of the total compression hologram into a sparse optimization problem on a transform domain by utilizing a total variation regular term constraint; fourthly, obtaining a two-dimensional reconstruction graph through iterative solution; and (3) iteratively solving the sparse optimization problem by a two-step iterative threshold shrinkage method to obtain a local optimal solution and obtain a plurality of two-dimensional reconstruction graphs capable of reflecting the information of the three-dimensional object, thereby realizing the layered reconstruction of the three-dimensional object.

CLAIM 1. A non-coherent three-dimensional holographic layered reconstruction method based on a Fresnel mask is characterized by comprising the following steps: s1, inputting the two-dimensional source image into equipment; the two-dimensional source image or k two-dimensional source images generated by dividing the three-dimensional object according to a set interval proportion, or k two-dimensional source images presented by the three-dimensional object in different time and space; s2, generating a total compression hologram by superposing k two-dimensional source image images; performing optical holographic projection and coding imaging on the k two-dimensional source images through a Fresnel mask, and transmitting the k two-dimensional source images to a sensor plane, thereby obtaining a total compression hologram formed by overlapping holograms generated by the k two-dimensional source images through the Fresnel mask; s3, applying sparsity constraint, and converting the total compression hologram into a solution model; converting the reconstruction problem of the total compression hologram into a sparse optimization problem on a transform domain by utilizing a total variation regular term constraint; s4, obtaining a two-dimensional reconstruction graph through iterative solution; and (3) iteratively solving the sparse optimization problem by a two-step iterative threshold shrinkage method to obtain a local optimal solution and obtain a plurality of two-dimensional reconstruction graphs capable of reflecting the information of the three-dimensional object, thereby realizing the layered reconstruction of the three-dimensional object.

N8394

CN113900365

Priority Date: 07/12/2021

CHINA COAL RESEARCH INSTITUTE

OPTICAL PATH SYSTEM OF HOLOGRAPHIC PRINTER AND HOLOGRAPHIC PRINTER

The application provides an optical path system and holographic printer of holographic printer, wherein, this optical path system includes: the holographic imaging device comprises a hologram acquisition module and a holographic imaging device, wherein the holographic imaging device comprises a synchronous controller, a light source component, a light processing component and a spatial light modulator; the hologram acquisition module is used for acquiring a plurality of holograms of the target object; the synchronous controller is used for controlling the spatial light modulator to load a plurality of holograms in sequence and controlling the light source component to provide an initial light beam with a color corresponding to the color component of the hologram currently loaded by the spatial light modulator; and the light processing assembly and the spatial light modulator are used for processing the initial light beam to obtain target object light and target reference light of a target object, and interfering the target object light and the target reference light to generate a dynamic full-color 3D image. Thus, full-color dynamic 3D photo printing can be realized.

CLAIM 1. An optical path system of a hologram printer, comprising: a hologram acquisition module and a holographic imaging device, the hologram acquisition module being connected to the holographic imaging device, wherein, the holographic imaging device comprises a synchronous controller, a light source component, a light processing component and a spatial light modulator, wherein the synchronous controller is respectively connected with the light source component and the spatial light modulator, and the spatial light modulator is connected with the hologram acquisition module; the hologram acquisition module is used for acquiring a plurality of holograms of the target object; the synchronous controller is used for controlling the spatial light modulator to load the plurality of holograms in sequence and controlling the light source assembly to provide an initial light beam with a color corresponding to the color component of the hologram currently loaded by the spatial light modulator; the light processing assembly and the spatial light modulator are used for processing the initial light beam to obtain target object light and target reference light of the target object, and interfering the target object light and the target reference light to generate a dynamic full-color 3D image.

N8400

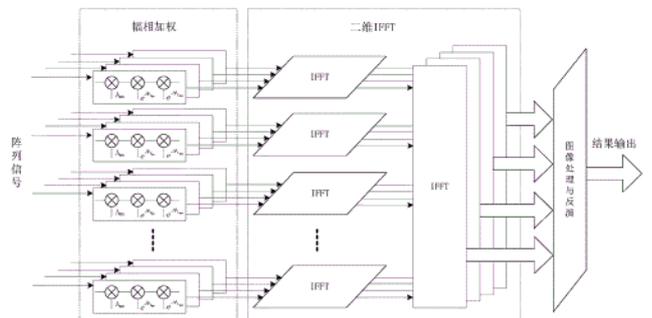
CN113848547

Priority Date: 24/09/2021

SUZHOU WEIMO ELECTRONIC INFORMATION TECHNOLOGY

DIGITAL HOLOGRAPHIC FAST IMAGING METHOD

The invention relates to the technical field of optical imaging, microwave imaging, radar detection, wireless communication, sonar, ultrasonic imaging, target detection and imaging identification based on media such as sound, light, electricity and the like, in particular to a digital holographic rapid imaging method and application thereof in the fields. The method is based on the lens imaging principle, combines the electromagnetic field theory, and obtains the image field distribution corresponding to the target by the amplitude and phase weighting of unit signals and the efficient parallel algorithm according to the target signals received by the antenna array. The invention has the advantages of small operation amount, low hardware cost, high imaging speed, suitability for remote imaging and the like, and can be widely applied to the fields of optical imaging, microwave imaging, radar detection, sonar imaging, ultrasonic imaging, target detection, imaging identification and wireless communication taking sound, light, electricity and the like as media.



CLAIM 1. A digital holographic rapid imaging method is characterized in that the method is based on a lens imaging principle, combines an electromagnetic field theory, and obtains image field distribution corresponding to a target by adopting an efficient parallel algorithm through amplitude and phase weighting of unit signals according to target signals received by an antenna array.

IHMA - JANUARY 2022 - 112 ISSUED PATENTS - PAGE 1

HOLOGRAMS - 20 PATENTS

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P34373	WO	202210022	13/01/2022	USEB	KR	06/07/2020	KR202000082806	WO202210022 KR20220006995	NON-CONTACT PERSONAL AUTHENTICATION CUSTOMER IDENTIFICATION APPARATUS AND METHOD THEREFOR	
P34384	WO	202203045	06/01/2022	SURYS	FR	30/06/2020	FR202000006884	WO202203045 FR3111843	METHODS FOR MANUFACTURING OPTICAL SECURITY COMPONENTS, OPTICAL SECURITY COMPONENTS AND SECURE OBJECTS EQUIPPED WITH SUCH COMPONENTS	OVD
P34386	WO	202202366	06/01/2022	FASE	WO	30/06/2020	WO2020680000383	WO202202366	MULTIFUNCTION SECURITY ELEMENT	
P34395	WO	2021254974	23/12/2021	IQ STRUCTURES S R O IQ STRUCTURES SRO	GB	15/06/2020	GB202000009076	WO2021254974 GB202009076 GB2596075	COMPOSITE SECURITY ELEMENT	OVD
P34405	RU	2763388	28/12/2021	NAUCHNO PROIZVODSTVENNOE OBDINENIE KRIPTEN AO NPO KRIPTEN	RU	26/03/2021	RU2021000108151	RU2763388	MULTILAYER PROTECTIVE OPTICAL DIFFRACTION-POLARIZATION DEVICE, A METHOD FOR MANUFACTURING THE SPECIFIED DEVICE, A PROTECTED PRODUCT CONTAINING THE SPECIFIED MULTILAYER PROTECTIVE OPTICAL DIFFRACTION-POLARIZATION DEVICE	
P34412	JP	2021194833	27/12/2021	DAI NIPPON PRINTING	JP	12/06/2020	JP2020000102075	JP2021194833	SECURITY PRINTED MATERIAL AND CARD AND FLEXAMPLE HAVING SECURITY PRINTED MATERIAL	
P34429	EP	3932689	05/01/2022	BUNDESDRUCKEREI	DE	01/07/2020	DE202010208256	EP3932689 EP3932689 DE102020208256 DE102020208256	SECURITY ELEMENT WITH MICROSTRUCTURED SECURITY FEATURE, METHODS OF MANUFACTURE AND VERIFICATION	Passport
P34433	CN	215577368	18/01/2022	QINGDAO ORIENT SIGNS	CN	18/08/2021	CN2021001945502	CN215577368U	HOLOGRAPHIC METAL LABEL WITH ANTI-COUNTERFEITING MARK	
P34437	CN	215560042	18/01/2022	ZHEJIANG YUSHI PACKAGE MATERIAL	CN	23/09/2021	CN2021002311420	CN215560042U	ANTI-COUNTERFEITING LASER FILM WITH MULTILAYER STRUCTURE	
P34438	CN	215552240	18/01/2022	JIANGSU JIAYI PACKAGING TECHNOLOGY	CN	17/06/2021	CN2021001346475	CN215552240U	ELECTROCHEMICAL ALUMINUM FOIL WITH ANTI-COUNTERFEITING FUNCTION	
P34445	CN	215474001	11/01/2022	ZHEJIANG MANDE NEW MATERIAL	CN	14/09/2021	CN2021002223251	CN215474001U	CIGARETTE PACKET POSITIONING TRANSFER PAPER	
P34452	CN	215417256	04/01/2022	WUHAN UNIVERSITY	CN	29/04/2021	CN2021000908944	CN215417256U	SILICON CHIP DUAL ANTI-COUNTERFEITING MARK BASED ON SUPER SURFACE MATERIAL	
P34459	CN	215397612	04/01/2022	SICHUAN KUANGZHAI PRINTING SUINING KUANGZHAI GOVERNMENT PRINTING WUHAN LIXIN MEILONG MOULD	CN	03/08/2021	CN2021001791240	CN215397612U	NOVEL GILT EMBOSSEING DIE OF PRINTING	
P34466	CN	215329040	28/12/2021	LAIYANG YINTONG PAPER	CN	08/03/2021	CN2021000485946	CN215329040U	THERMOSENSITIVE BRONZE ANTI-COUNTERFEITING PAPER	
P34478	CN	215246856	21/12/2021	GORGEOUS PACKAGING CHUXIONG CITY INDUSTRY	CN	29/01/2021	CN2021000267485	CN215246856U	HOLOGRAPHIC LASER CODE-SPRAYING ANTI-COUNTERFEITING STAY WIRE FOR CIGARETTES	
P34479	CN	215243493	21/12/2021	ANHUI ZIJIANG ALUMINIUM SPRAY ENVIRONMENTAL PROT MATERIAL	CN	08/03/2021	CN2021000489237	CN215243493U	MULTI-CHANNEL THREE-DIMENSIONAL COLOR DAZZLING LASER ANTI-COUNTERFEITING ALUMINUM-SPRAYED PAPER	
P34482	CN	215203934	17/12/2021	SHAOXING HUCAI LASER MATERIAL TECHNOLOGY	CN	09/12/2020	CN2020002923790	CN215203934U	LARGE-BREADTH SEAMLESS ANTI-COUNTERFEITING HOLOGRAPHIC PLATE AND MANUFACTURING DEVICE THEREOF	
P34496	CN	113895162	07/01/2022	WUHAN RUIHITENG ANTI COUNTERFEITING TECHNOLOGY	CN	22/10/2021	CN2021001233157	CN113895162	PRODUCTION METHOD OF MULTIDIMENSIONAL HOLOGRAPHIC ANTI-COUNTERFEITING ALUMINIZED LASER PAPER	
P34498	CN	113878976	04/01/2022	BELJING DEEPIR TECHNOLOGY	CN	18/09/2021	CN2021001098527	CN113878976	LOW-COST HOLOGRAPHIC ANTI-COUNTERFEITING OPTICAL DESIGN MANUFACTURING METHOD AND PLATE MAKING DEVICE THEREOF	
P34507	CN	113808472	17/12/2021	SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP	CN	14/09/2021	CN2021001073343	CN113808472	HOLOGRAPHIC LASER VARIABLE VERIFICATION CODE ANTI-COUNTERFEIT LABEL AND MANUFACTURING METHOD AND USING METHOD THEREOF	

IHMA - JANUARY 2022 - 112 ISSUED PATENTS - PAGE 2

VARIOUS OPTICAL EFFECTS - 26 PATENTS

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P34378	WO	202208098	13/01/2022	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	07/07/2020	DE202010004091	WO202208098 DE102020004091	OPTICALLY VARIABLE SECURITY ELEMENT	
P34384	WO	202203045	06/01/2022	SURYS	FR	30/06/2020	FR2020000006884	WO202203045 FR3111843	METHODS FOR MANUFACTURING OPTICAL SECURITY COMPONENTS, OPTICAL SECURITY COMPONENTS AND SECURE OBJECTS EQUIPPED WITH SUCH COMPONENTS	Hologram
P34389	WO	2021259527	30/12/2021	SICPA	EP	23/06/2020	EP2020000181614	WO2021259527 TW202200278	METHODS FOR PRODUCING OPTICAL EFFECT LAYERS COMPRISING MAGNETIC OR MAGNETIZABLE PIGMENT PARTICLES	
P34390	WO	2021256482	23/12/2021	TOPPAN PRINTING	JP	16/06/2020	JP2020000103805	WO2021256482	HOT STAMPING FOIL	
P34394	WO	2021255069	23/12/2021	SURYS	FR	19/06/2020	FR2020000006419	WO2021255069 FR3111726	METHOD FOR AUTHENTICATING AN OPTICALLY VARIABLE ELEMENT	
P34395	WO	2021254974	23/12/2021	IQ STRUCTURES S R O IQ STRUCTURES SRO	GB	15/06/2020	GB2020000009076	WO2021254974 GB202009076 GB2596075	COMPOSITE SECURITY ELEMENT	Hologram
P34400	US	20210394548	23/12/2021	RAYTHEON	US	19/06/2020	US2020016905952	US20210394548	LOW COST COUNTER COUNTERFEIT TECHNOLOGY	
P34404	TW	621698	01/01/2022	HOLO SOLUTION	TW	02/06/2021	TW2021000206385	TWM621698	STRUCTURE OF THE SECURITY DEVICE FOR REFRACTIVE EMBOSGING.	
P34407	KR	20210156505	27/12/2021	NBST	KR	18/06/2020	KR2020000074181	KR20210156505	HUMIDITY AWARE TYPE FORGERY PREVENTION MEANS	
P34410	JP	2021196530	27/12/2021	TOPPAN PRINTING	JP	16/06/2020	JP2020000103571	JP2021196530	DISPLAY	
P34414	JP	2021192956	23/12/2021	NATIONAL PRINTING BUREAU	JP	08/06/2020	JP2020000099165	JP2021192956	LAMINATE	Passport - Microlens
P34415	JP	2021187093	13/12/2021	NATIONAL PRINTING BUREAU	JP	02/06/2020	JP2020000095878	JP2021187093	LATENT IMAGE PRINTED MATERIAL	Microlens
P34418	JP	2021187014	13/12/2021	TOPPAN PRINTING	JP	27/05/2020	JP2020000092382	JP2021187014	PRINTED MATERIAL	
P34421	IN	202021050917	10/12/2021	PREHAR RAJ PREHAR MANU VIJAY RAJA KAPADIA VIKRAM DIGVIJAY MESSA GIANLUCA STEFANO	IN	23/11/2020	IN2020021050917	IN202021050917	A METHOD FOR MANUFACTURING A SECURITY ELEMENT/PRODUCT AND A SECURITY ELEMENT/PRODUCT OBTAINED THEREFROM	
P34422	IN	202021001345	29/10/2021	PATEL SHILPAN PRAVINCHANDRA	IN	12/01/2020	IN2020021001345	IN202021001345	SECURITY ELEMENTS FOR HIGH SECURITY PAPER	Microlens
P34424	FR	3112099	07/01/2022	IDEMIA FRANCE	FR	03/07/2020	FR2020000007080	FR3112099	METHOD OF MANUFACTURING AN OPTICALLY VARIABLE SECURITY DEVICE AND ASSOCIATED SECURITY DEVICE	
P34425	FR	3112098	07/01/2022	IDEMIA FRANCE	FR	03/07/2020	FR2020000007071	FR3112098	SECURITY DOCUMENT COMPRISING A SECURITY DEVICE WITH OPTICALLY VARIABLE MATERIAL	Microlens
P34426	FR	3112097	07/01/2022	IDEMIA FRANCE	FR	03/07/2020	FR2020000007070	FR3112097	IDENTITY DOCUMENT IN BOOKLET FORMAT COMPRISING A SECURITY DEVICE WITH OPTICALLY VARIABLE MATERIAL	Passport - Microlens
P34428	EP	3939801	19/01/2022	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	14/07/2020	DE202010004236	EP3939801 DE102020004236	VALUABLE DOCUMENT	
P34430	EP	3929000	29/12/2021	HUECK FOLIEN	EP	22/06/2020	EP2020000181416	EP3929000 EP3929000 WO2021259855	SECURITY ELEMENT FOR SECURITIES OR SECURITY PAPERS	
P34435	CN	215561550	18/01/2022	ANHUI JIUSHUN PHOTOELECTRIC TECHNOLOGY	CN	28/06/2021	CN2021001444312	CN215561550U	LASER PACKAGING PAPER WITH ANTI-COUNTERFEITING FUNCTION	
P34440	CN	215551608	18/01/2022	QINGDAO ENER PACKAGING TECHNOLOGY	CN	22/06/2021	CN2021001386032	CN215551608U	33UM LASER SHRINKAGE BOOP WIRE DRAWING FILM	
P34456	CN	215404008	04/01/2022	WENZHOU CHENHUI PLASTIC PACKAGING	CN	24/08/2021	CN2021001997763	CN215404008U	ANTI-COUNTERFEITING LASER FILM WITH MULTILAYER STRUCTURE	

IHMA - JANUARY 2022 - 112 ISSUED PATENTS - PAGE 3

VARIOUS OPTICAL EFFECTS - 26 PATENTS (continuation)

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P34460	CN	215397518	04/01/2022	DONGGUAN XINRUIYUAN ANTI COUNTERFEITING TECHNOLOGY	CN	17/06/2021	CN2021001350693	CN215397518U	LASER TRANSFER PAPER WITH SMOOTH SURFACE AND TRANSVERSE LIGHT BEAM	
P34484	CN	113947173	18/01/2022	CHINA BANKNOTE PRINTING & MINT	CN	08/09/2021	CN2021001050394	CN113947173	MAGNETIC OPTICAL ANTI-COUNTERFEITING ELEMENT AND ANTI-COUNTERFEITING PRODUCT USING SAME	
P34492	CN	113920849	11/01/2022	LAO GUOHUA	CN	21/10/2021	CN2021001230956	CN113920849	ANTI-COUNTERFEITING MARK AND PREPARATION METHOD THEREOF	Microlens

NON SECURITY HOLOGRAMS - 68 PATENTS

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
N8341	WO	202215878	20/01/2022	DIGILENS	US	14/07/2020	US2020063051805	WO202215878	NANOPARTICLE-BASED HOLOGRAPHIC PHOTOPOLYMER MATERIALS AND RELATED APPLICATIONS	
N8342	WO	202214772	20/01/2022	POHANG UNIVERSITY OF SCIENCE & TECHNOLOGY POSTECH	KR	16/07/2020	KR2020000088205	WO202214772	MACHINE LEARNING-BASED DIGITAL HOLOGRAPHY DEVICE AND METHOD FOR OPERATING SAME	
N8343	WO	202213850	20/01/2022	ORBOTECH	US	12/07/2020	US2020063050806	WO202213850 TW202202953	SYSTEMS AND METHODS FOR RECONSTRUCTION OF DIGITAL HOLOGRAMS	
N8344	WO	202213178	20/01/2022	WESTFAELISCHE WILHELMS UNIVERSITAET MUENSTER	LU	13/07/2020	LU2020000101920	WO202213178	A MODULE FOR GENERATING AN INTERFERENCE PATTERN FOR PRODUCING A DIGITAL HOLOGRAPHIC IMAGE, A RELATED METHOD, AND A DIGITAL HOLOGRAPHIC MICROSCOPE	
N8345	WO	202211006	13/01/2022	VEYEZER	US	08/07/2020	US2020016923672	WO202211006	HOLOGRAPHIC REAL SPACE REFRACTIVE SYSTEM	
N8346	WO	202208884	13/01/2022	VIVIDQ	GB	06/07/2020	GB2020000010354	WO202208884	HOLOGRAPHIC DISPLAY SYSTEM AND METHOD	
N8347	WO	202208726	13/01/2022	SONY SONY GROUP	EP	10/07/2020	EP2020000185349	WO202208726	METHOD COMPRISING DETERMINING A QUANTITATIVE DISPERSION IMAGE OF AN OBJECT AND DIGITAL IN-LINE HOLOGRAM MICROSCOPE SCANNER	
N8348	WO	2021262504	30/12/2021	UNIVERSITY OF ARIZONA	US	22/06/2020	US2020063042417	WO2021262504	SYSTEMS AND METHODS FOR MANUFACTURING AND REPLICATING HOLOGRAPHIC OPTICAL ELEMENTS AND HOLOGRAPHIC WAVEGUIDE COUPLERS	
N8349	WO	2021260321	30/12/2021	BIOMERIEUX CNRS - CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE UJM - UNIVERSITE JEAN MONNET SAINT ETIENNE	FR	24/06/2020	FR2020000006613	WO2021260321 FR3111998	FOCUSING METHOD FOR HOLOGRAPHIC IMAGING SYSTEM	
N8350	WO	2021259875	30/12/2021	FONDATION B COM	FR	26/06/2020	FR2020000006710	WO2021259875 FR3111999	METHOD AND DEVICE FOR RECONSTRUCTING A DIGITAL HOLOGRAM, METHOD FOR DISPLAYING A DIGITAL HOLOGRAM AND ASSOCIATED SYSTEM	
N8351	WO	2021254873	23/12/2021	SAINT GOBAIN GLASS	EP	15/06/2020	EP2020000179983	WO2021254873	COMPOSITE PANEL WITH A HOLOGRAPHIC ELEMENT AND METHOD FOR THE PRODUCTION THEREOF	
N8352	WO	2021254872	23/12/2021	SAINT GOBAIN GLASS	EP	15/06/2020	EP2020000179982	WO2021254872	LAMINATED PANE WITH A HOLOGRAPHIC ELEMENT, AND METHOD FOR PRODUCING THE SAME	
N8353	US	20220020116	20/01/2022	CELLOPTIC	US	20/07/2020	US2020063053909	US20220020116	HOLOGRAPHIC ULTRA RESOLUTION IMAGING	
N8354	US	20220011091	13/01/2022	BAE SYSTEMS INFORMATION & ELECTRONIC SYSTEMS INTEGRATION	US	10/07/2020	US2020016925420	US20220011091	COMPUTATIONAL SHEAR BY PHASE STEPPED SPECKLE HOLOGRAPHY	
N8355	US	20210405365	30/12/2021	DIGILENS ROCKWELL COLLINS	US	19/09/2014	US2014062071277	US20210405365 US20190219822 US20170276940 US10241330 WO201642283	METHOD AND APPARATUS FOR GENERATING INPUT IMAGES FOR HOLOGRAPHIC WAVEGUIDE DISPLAYS	
N8356	US	20210402069	30/12/2021	DAUGIRDAS JOHN T.	US	29/06/2020	US2020016914588	US20210402069 WO202205978	HOLOGRAPHIC CONTROL SYSTEM FOR HEMODIALYSIS	

IHMA - JANUARY 2022 - 112 ISSUED PATENTS - PAGE 4

NON SECURITY HOLOGRAMS - 68 PATENTS (continuation)

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
N8357	US	20210397130	23/12/2021	SAMSUNG DISPLAY SEOUL NATIONAL UNIVERSITY R&DB FOUNDATION	KR	17/06/2020	KR2020000073707	US20210397130 CN113805455 KR20210156382	HOLOGRAM DISPLAY DEVICE AND METHOD OF DRIVING THE SAME	
N8358	US	20210397129	23/12/2021	NEW YORK UNIVERSITY	US	19/06/2020	US2020063041472	US20210397129	SYSTEM AND METHOD FOR REAL-TIME IN-SITU HOLOGRAPHIC MICROSCOPY	
N8359	US	20210397002	23/12/2021	HON HAI PRECISION INDUSTRY	CN	22/06/2020	CN2020000578308	US20210397002 CN113900264	HOLOGRAPHIC DISPLAY DEVICE WITH COLOR-SHIFTED ADJUSTMENT	
N8360	KR	20220006413	17/01/2022	FTC OMA Y LEADERS	KR	08/07/2020	KR2020000084361	KR20220006413	ROAD CONDITION NOTIFICATION SYSTEM USING LED OR 3 D HOLOGRAM	
N8361	KR	20220004464	11/01/2022	CENTER FOR ADVANCED META MATERIALS POHANG UNIVERSITY OF SCIENCE & TECHNOLOGY POSTECH	KR	03/07/2020	KR2020000082322	KR20220004464	WAVELENGTH-SPLITTING METASURFACE, METHOD FOR MANUFACTURING THE SAME, AND MULTICOLOR HOLOGRAM IMPLEMENTING APPARATUS INCLUDING THE SAME	
N8362	KR	20220000314	03/01/2022	NEO INTERNET	KR	25/06/2020	KR2020000078105	KR20220000314	ROBOT INTERACTION HOLOGRAM DISPLAY SYSTEM AND METHOD	
N8363	KR	102342536	22/12/2021	YANG, CHANG JOON	KR	02/06/2021	KR2021000071686	KR102342536	HOLOGRAPHIC TOUCH DISPLAY DEVICE AND HOLOGRAPHIC TOUCH OPERATION CONTROL METHOD	
N8364	IN	202111054639	03/12/2021	NOIDA INSTITUTE OF ENGINEERING TECHNOLOGY GREATER NOIDA	IN	26/11/2021	IN2021011054639	IN202111054639	HOLOGRAPHIC INTERACTION SYSTEM AND METHOD	
N8365	IN	202011022303	03/12/2021	CSIR - COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH	IN	27/05/2020	IN2020011022303	IN202011022303	METHOD FOR RECORDING WIDE OFF-AXIAL ANGLE DIGITAL HOLOGRAMS WITH ENHANCED FIELD OF VIEW	
N8366	EP	3929665	29/12/2021	IMEC-INTERUNIVERSITAIR MICRO ELECTRONICA CENTRUM VZW VRIJE UNIVERSITEIT BRUSSEL	EP	22/06/2020	EP2020000181447	EP3929665 EP3929665 WO2021259702	A METHOD FOR COMPUTING A HOLOGRAPHIC INTERFERENCE PATTERN	
N8367	DE	102020209026	20/01/2022	ROBERT BOSCH	DE	20/07/2020	DE202010209026	DE102020209026 CN113960907	EXPOSURE DEVICE FOR RECORDING AT LEAST ONE HOLOGRAM AND METHOD FOR RECORDING AT LEAST ONE HOLOGRAM	
N8368	DE	102020209021	20/01/2022	ROBERT BOSCH	DE	20/07/2020	DE202010209021	DE102020209021 CN113960792	HOLOGRAPHIC PROJECTION SURFACE FOR A PROJECTION DEVICE AND PROJECTION DEVICE	
N8369	DE	102020117992	13/01/2022	BMW - BAYERISCHE MOTORENWERKE	DE	08/07/2020	DE202010117992	DE102020117992	METHOD FOR INTEGRATING A HOLOGRAM BETWEEN TWO SUBSTRATE DISCS OF A COMPOSITE DISC, IN PARTICULAR A VEHICLE DISC, AND A RESULTING COMPOSITE DISC	
N8370	CN	215581489	18/01/2022	SHENZHEN ZHENG TU TECHNOLOGY	CN	10/08/2021	CN2021001860791	CN215581489U	PORTABLE HOLOGRAPHIC THREE-DIMENSIONAL INTERACTIVE IMAGING EQUIPMENT	
N8371	CN	215581253	18/01/2022	SHENZHEN INTELLIGENT TECHNOLOGY	CN	21/08/2021	CN2021001971778	CN215581253U	SMART PHONE WITH HOLOGRAPHIC IMAGE PROJECTION	
N8372	CN	215577612	18/01/2022	CHENGDU BANFENLI EXHIBITION SERVICE	CN	08/06/2021	CN2021001274829	CN215577612U	HOLOGRAPHIC EFFECT IMAGE DISPLAY DEVICE	
N8373	CN	215576125	18/01/2022	LEYARD PHOTOELECTRIC GROUP SYSTEM INTEGRATION	CN	30/08/2021	CN2021002058284	CN215576125U	HOLOGRAPHIC PANORAMIC PROJECTION DISPLAY SYSTEM	
N8374	CN	215575938	18/01/2022	GUANGZHOU SENSE NETWORK TECHNOLOGY	CN	31/07/2021	CN2021001767303	CN215575938U	MUTUAL DISPLAY SCREEN OF HOLOGRAPHIC VR INTELLIGENCE	
N8375	CN	215569135	18/01/2022	SHANDONG JINGDING INTELLIGENT TECHNOLOGY	CN	29/06/2021	CN2021001456292	CN215569135U	MR-BASED DISPLAY OF HOLOGRAPHIC FAULT TREE	
N8376	CN	215569096	18/01/2022	GUANGZHOU FENGYE CULTURE TECHNOLOGY	CN	01/06/2021	CN2021001215208	CN215569096U	MULTI-ANGLE DISPLAY DEVICE FOR HOLOGRAPHIC IMAGING	
N8377	CN	215551810	18/01/2022	YANCHENG ZHIKUN PRINTING	CN	01/06/2021	CN2021001209259	CN215551810U	LASER HOLOGRAPHIC GRATING PATTERN WATER TRANSFER PRINTING BRUSH MANUFACTURING EQUIPMENT	
N8378	CN	215522772	14/01/2022	YUNNAN LIGHT & SHADOW INTERACTIVE INTELLIGENT TECHNOLOGY	CN	20/07/2021	CN2021001645745	CN215522772U	PROJECTOR WITH WATERPROOF STRUCTURE FOR HOLOGRAPHIC LARGE-SCALE WATER CURTAIN PROJECTION	

IHMA - JANUARY 2022 - 112 ISSUED PATENTS - PAGE 5

NON SECURITY HOLOGRAMS - 68 PATENTS (continuation)

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
N8379	CN	215495815	11/01/2022	CHANGZHOU JIALIN LIGHTING	CN	11/06/2021	CN2021001308726	CN215495815U	HOLOGRAPHIC IMAGE ATMOSPHERE LAMP	
N8380	CN	215494533	11/01/2022	SHANGHAI TENGRONG INTELLIGENT TECHNOLOGY	CN	29/09/2021	CN2021002377772	CN215494533U	180-DEGREE HOLOGRAPHIC AND L-SCREEN NAKED EYE 3D IMMERSIVE SPACE	
N8381	CN	215441583	07/01/2022	CHANGSHA VOCATIONAL & TECHNICAL COLLEGE	CN	02/02/2021	CN2021000294142	CN215441583U	HOLOGRAPHIC PROJECTION ARRANGEMENT OF PORTABLE DANGER WARNING SIGN	
N8382	CN	215436965	07/01/2022	ZHEJIANG KEBITE TECHNOLOGY	CN	10/09/2021	CN2021002191966	CN215436965U	UNMANNED AERIAL VEHICLE PERFORMANCE DEVICE BASED ON HOLOGRAPHIC PROJECTION	
N8383	CN	215433711	07/01/2022	KEDA XUNFEI SOUTH CHINA ARTIFICIAL INTELLIGENCE RESEARCH INSTITUTE GUANGZHOU	CN	11/08/2021	CN2021001869498	CN215433711U	HOLOGRAPHIC PROJECTION INTERACTIVE ROBOT	
N8384	CN	215417319	04/01/2022	GUIZHOU NORMAL UNIVERSITY	CN	29/07/2021	CN2021001747167	CN215417319U	HOLOGRAPHIC SCREEN DISPLAY DEVICE OF TOURISM PROPAGANDA	
N8385	CN	215411225	04/01/2022	WEI QINGLIN	CN	19/01/2021	CN2021000138934	CN215411225U	HOLOGRAPHIC PROJECTION EQUIPMENT BASED ON LINUX SYSTEM	
N8386	CN	215397457	04/01/2022	SHANGHAI SHUANGGE INDUSTRY	CN	18/03/2021	CN2021000556060	CN215397457U	HOLOGRAPHIC LASER ALUMINIZER	
N8387	CN	215340658	28/12/2021	JINGMEN CITY DREAM EXPLORATION TECHNOLOGY	CN	23/02/2021	CN2021000396460	CN215340658U	REFLECTIVE GEOMETRIC HOLOGRAPHIC SCREEN WITH FIELD ANGLE	
N8388	CN	215271796	24/12/2021	DUWEI WUHAN DESIGN ENGINEERING	CN	16/06/2021	CN2021001331500	CN215271796U	3D LASER HOLOGRAPHIC PROJECTION INTERACTIVE DISPLAY PLATFORM	
N8389	CN	215264366	21/12/2021	SHANGHAI MENGUN HOLOGRAPHIC TECHNOLOGY	CN	16/07/2021	CN2021001620171	CN215264366U	DISPLAY EQUIPMENT FOR VEHICLE-MOUNTED HOLOGRAPHIC ADVERTISEMENT	
N8390	CN	215195333	17/12/2021	TONGJI UNIVERSITY	CN	12/03/2021	CN2021000520187	CN215195333U	HOLOGRAPHIC PROJECTION SIMULATION ACTUAL COMBAT FOOTBALL TRAINING ROOM	
N8391	CN	113946118	18/01/2022	SICHUAN UNIVERSITY	CN	15/07/2020	CN2020000682255	CN113946118	DIGITAL COAXIAL HOLOGRAPHIC IMAGING SYSTEM BASED ON CONVERGENT SPHERICAL WAVE SMALL HOLE DIFFRACTION	
N8392	CN	113923496	11/01/2022	DONGGUAN RUIZHI PHOTOELECTRIC TECHNOLOGY YANCHENG BRANCH CHINA TOWER	CN	27/07/2021	CN2021000849748	CN113923496	MULTI-PLACE SAME-FREQUENCY PLAYING CONTROL METHOD BASED ON HOLOGRAPHIC SCREEN	
N8393	CN	113917819	11/01/2022	LASER FUSION RESEARCH CENTER CHINA ACADEMY OF ENGINEERING PHYSICS	CN	13/10/2021	CN2021001190539	CN113917819	INCOHERENT THREE-DIMENSIONAL HOLOGRAPHIC LAYERED RECONSTRUCTION METHOD BASED ON FRESNEL MASK	
N8394	CN	113900365	07/01/2022	CHINA COAL RESEARCH INSTITUTE	CN	07/12/2021	CN2021001480688	CN113900365	OPTICAL PATH SYSTEM OF HOLOGRAPHIC PRINTER AND HOLOGRAPHIC PRINTER	
N8395	CN	113900254	07/01/2022	HEFEI UNIVERSITY OF TECHNOLOGY	CN	21/10/2021	CN2021001227847	CN113900254	NEAR-TO-EYE DISPLAY DEVICE AND METHOD FOR HOLOGRAPHIC DISPLAY	
N8396	CN	113891063	04/01/2022	SHENZHEN REALIS MULTIMEDIA TECHNOLOGY	CN	09/10/2021	CN2021001179077	CN113891063	HOLOGRAPHIC DISPLAY METHOD AND DEVICE	
N8397	CN	113885209	04/01/2022	SHENZHEN LOCHN OPTICS TECHNOLOGY	CN	04/11/2021	CN2021001300646	CN113885209	HOLOGRAPHIC AR THREE-DIMENSIONAL DISPLAY METHOD AND MODULE AND NEAR-TO-EYE DISPLAY SYSTEM	
N8398	CN	113867116	31/12/2021	HEFEI UNIVERSITY OF TECHNOLOGY INTELLIGENT MANUFACTURING INSTITUTE OF HFUT	CN	19/10/2021	CN2021001214975	CN113867116	SUB-PIXEL DISPLACEMENT IMAGING METHOD FOR LENSLESS MICROSCOPY	
N8399	CN	113866129	31/12/2021	BELJING UNIVERSITY OF TECHNOLOGY	CN	26/08/2021	CN2021000985867	CN113866129	COMMON-PATH DIGITAL HOLOGRAPHIC REFRACTIVE INDEX FULL-FIELD DYNAMIC MEASUREMENT METHOD BASED ON COHERENT LIGHT SOURCE	
N8400	CN	113848547	28/12/2021	SUZHOU WEIMO ELECTRONIC INFORMATION TECHNOLOGY	CN	24/09/2021	CN2021001123894	CN113848547	DIGITAL HOLOGRAPHIC FAST IMAGING METHOD	

IHMA - JANUARY 2022 - 112 ISSUED PATENTS - PAGE 6

NON SECURITY HOLOGRAMS - 68 PATENTS (continuation)

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
N8401	CN	113838186	24/12/2021	KUNMING UNIVERSITY OF SCIENCE & TECHNOLOGY	CN	11/08/2021	CN2021000917442	CN113838186	FRESNEL HOLOGRAM FREQUENCY DOMAIN GATING FILTERING METHOD BASED ON DEEP LEARNING	
N8402	CN	113835324	24/12/2021	EAST CHINA UNIVERSITY OF SCIENCE & TECHNOLOGY	CN	23/09/2021	CN2021001113430	CN113835324	HOLOGRAPHIC DYNAMIC DISPLAY DEVICE BASED ON LIQUID CRYSTAL GEOMETRIC PHASE DEVICE	
N8403	CN	113835145	24/12/2021	SHENZHEN LOCHN OPTICS TECHNOLOGY	CN	10/09/2021	CN2021001063804	CN113835145	HOLOGRAPHIC GRATING MANUFACTURING DEVICE, HOLOGRAPHIC GRATING AND TWO-DIMENSIONAL HOLOGRAPHIC GRATING OPTICAL WAVEGUIDE	
N8404	CN	113829745	24/12/2021	BELJING KANGTEMAN ELECTRONIC SYSTEMS BEIJING SPECTRUM YINBAO TECHNOLOGY TIANJIN YANGGUANG TECHNOLOGY	CN	15/10/2021	CN2021001202843	CN113829745	TRANSFER PRINTING METHOD AND TRANSFER PRINTING SYSTEM FOR HOLOGRAPHIC IMAGE	
N8405	CN	113821104	21/12/2021	WUHAN HONGXIN TECHNOLOGY SERVICES	CN	17/09/2021	CN2021001093223	CN113821104	VISUAL INTERACTIVE SYSTEM BASED ON HOLOGRAPHIC PROJECTION	
N8406	CN	113820895	21/12/2021	HUNAN UNIVERSITY	CN	08/07/2021	CN2021000773262	CN113820895	PIXELIZED DYNAMIC HOLOGRAPHIC DISPLAY DEVICE BASED ON SUPER-STRUCTURED SURFACE AND IMPLEMENTATION METHOD	
N8407	CN	113813578	21/12/2021	WENZHOU MEDICAL UNIVERSITY	CN	09/10/2021	CN2021001179541	CN113813578	SYSTEM AND METHOD FOR BASKETBALL PLAYER DRIBBLING TRAINING BASED ON HOLOGRAPHIC TECHNOLOGY	
N8408	CN	113808626	17/12/2021	BELJING INSTITUTE OF TECHNOLOGY SHENZHEN RESEARCH INSTITUTE	CN	12/06/2020	CN2020000532468	CN113808626	METHOD FOR IMPROVING HOLOGRAPHIC STORAGE REPRODUCTION DATA PAGE RESOLUTION BY MULTI-ANGLE ILLUMINATION	