



IHMA PATENT NEWSLETTER

Limited circulation patent news bulletin for the Holography Industry

AUGUST 2021 – 111 PATENTS

Published and granted patents

**The IHMA PATENT NEWSLETTER
is exclusively dedicated to IHMA MEMBERS.**

HONNORAT RECHERCHES & SERVICES
23 rue Président Favre – 74 000 ANNECY – FRANCE
Tel.: 33 4 50 45 83 32 – Mobile: 33 6 61 52 73 59
Email: contact-hrs@numericable.fr – Web site: www.honorat-rs.fr

**Reproducing the IHMA PATENT NEWSLETTER via any means
(Electronic, mechanical, photocopying or recording) is an illegal infringement of copyright.**

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
<u>SECURITY HOLOGRAMS</u>	(17 patents)	p.	6 – 16
<u>SECURITY & OPTICAL EFFECTS</u>	(20 patents)	p.	17 – 31
Various optical effects in Security			
<u>DECORATIVE HOLOGRAMS</u>	(2 patents)	p.	32 – 33
<u>HOLOGRAPHY TECHNIQUE</u>	(8 patents)	p.	34 – 38
<u>HOLOGRAPHY PROCESS</u>	(7 patents)	p.	39 – 42
Manufacturing equipment and process			
<u>RECORDING & MEMORY</u>	(5 patents)	p.	43 – 45
Recording material – Storage medium – Optical disk & process			
<u>DISPLAYS</u>	(36 patents)	p.	46 – 67
Displays devices – Digital holography – TV – Video			
<u>HOLOGRAPHY & MICROSCOPY</u>	(2 patents)	p.	68 – 69
<u>VARIOUS</u>	(15 patents)	p.	70 – 80
TABLES WITH REFERENCES		p.	81 – 86

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.

Even though the greatest care is taken in the preparation of H-R&S patent surveillance newsletters, some errors or oversights could have occurred. H-R&S is committed to making all reasonable efforts to ensure the reliability and a content of information as complete as possible without nevertheless being able to guarantee the exactitude or exhaustive character of the data used. H-R&S collects data from official or private sources of the best quality which themselves do not guarantee that the information provided is complete, up-to-date, pertinent, well-referenced ... Please also accept our apologies for the poor quality translations of Asian abstracts which are machine translation.

Click on the title to return to table of contents

1. ANHUI FINANCIAL UNIVERSITY
2. ANHUI JINCAI ANTI COUNTERFEITING TECHNOLOGY
3. ANHUI QINGXIAO FANGTANG EDUCATION TECHNOLOGY
4. ANHUI UNIVERSITY
5. ANHUI WEIQIAN NETWORK TECHNOLOGY
6. BEIJING DINGDANG CAT TECHNOLOGY
7. BEIJING KANGTEMAN ELECTRONIC SYSTEMS - BEIJING SPECTRUM YINBAO TECHNOLOGY - TIANJIN YANGGUANG TECHNOLOGY
8. BEIJING KANGTEMAN ELECTRONIC SYSTEMS - TIANJIN YANGGUANG TECHNOLOGY
9. BEIJING PAN PASS INFO TECHNOLOGY
10. BEIJING UNIVERSITY OF TECHNOLOGY
11. BUNDESDRUCKEREI
12. CCL SECURE
13. CHINA BANKNOTE PRINTING & MINT - CHINA BANKNOTE PRINTING TECHNOLOGY RESEARCH INSTITUTE
14. CHONGQING INSTITUTE OF GREEN & INTELLIGENT TECHNOLOGY CHINESE ACADEMY OF SCIENCES - CHONGQING UNIVERSITY
15. DAI NIPPON PRINTING
16. DE LA RUE INTERNATIONAL
17. DONGGUAN PAIHONG INDUSTRIAL
18. ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE
19. FEDERALNOE GOSUDARSTVENNOE AVTONOMNOE OBRAZOVATELNOE UCHREZHDENIE VYSSHEGO OBRAZOVANIYA NATSIONALNYJ ISSLEDOVATELSKIJ TEKHNOLOGICHESKIJ UNIVERSITET MISIS
20. FOSHAN DREAM PLANET TECHNOLOGY
21. FRAUNHOFER GES ZUR FOERDERUNG DER ANGEWANDTEN TECHNIK E V - GSI HELMHOLTZZENTRUM FUER SCHWERIONENFORSCHUNG - UNIVERSITY JENA FRIEDRICH SCHILLER
22. FUTURESHPERS
23. FUZHOU ZHENHUANG ADVERTISING
24. GIESECKE & DEVRIENT CURRENCY TECHNOLOGY
25. GUANGDONG HENGLI NEW PACKING MATERIAL
26. GUANGDONG XINTAO TECHNOLOGY
27. GUANGZHOU DASQI DIGITAL TECHNOLOGY
28. GUANGZHOU JINMENG JEWELLERY
29. GUANGZHOU TIMES PRINTING FACTORY
30. HANGZHOU XUELU ENTERPRISE MANAGEMENT
31. HENAN WEIQUN TECHNOLOGY DEVELOPMENT
32. HUBEI YI EMMETT HOLOGRAPHIC TECHNOLOGY
33. HUECK FOLIEN
34. IPG PHOTONICS
35. JINGMEN CITY DREAM EXPLORATION TECHNOLOGY
36. JOURNEY TECHNOLOGY
37. KAKAOBANK
38. KOREA ADVANCED INSTITUTE OF SCIENCE & TECHNOLOGY
39. KOREA ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE
40. KURZ DIGITAL SOLUTIONS - OVD KINEGRAM
41. KWANGWOON UNIVERSITY INDUSTRY ACADEMIC COLLABORATION FOUNDATION
42. LELAND STANFORD JUNIOR UNIVERSITY
43. LOCKHEED MARTIN
44. LUMINIT
45. MEDIVIEW XR
46. NATIONAL CENTRAL UNIVERSITY
47. NAUCHNO PROIZVODSTVENNOE OBEDINENIE GOSUDARSTVENNYJ INSTITUT PRIKLADNOJ OPTIKI
48. NESTEROVICH LAZARYUK SERGEY - NIKOLAEVICH MIKHAILOV VIKTOR
49. NEXT EDITION
50. NORTHERN ARIZONA UNIVERSITY - UNIVERSITY OF ILLINOIS
51. ORELL FÜSSLI
52. QIN YIYI
53. QIQIHAR UNIVERSITY
54. SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP
55. SHANGHAI CHENGYI PACKAGE TECHNOLOGY
56. SHANGHAI INSTITUTE OF TECHNOLOGY
57. SHANGHAI SHUN HAO NEW MATERIALS POLYTRON TECHNOLOGIES
58. SHANGHAI XINMU INTELLIGENT TECHNOLOGY
59. SHANXI LUSHENG TRAFFIC ARCHITECTURAL DESIGN
60. SHEN BOZHONG - SHEN SU - YANG LI
61. SHENZHEN HENGXUN TONGDA TECHNOLOGY
62. SHENZHEN LOCHN OPTICS TECHNOLOGY
63. SHENZHEN REALIS MULTIMEDIA TECHNOLOGY
64. SHENZHEN TECHNOLOGY UNIVERSITY
65. SHENZHEN YANRUN TECHNOLOGY
66. SONY SEMICONDUCTOR SOLUTIONS
67. SUZHOU PANGU INFORMATION OPTICAL
68. SUZHOU ZHENRONGSHANGPIN EXHIBITION EQUIPMENT
69. TAN XIAODI
70. TEXAS INSTRUMENTS
71. TIANMA MICROELECTRONICS
72. TIANYIN YIYI TECHNOLOGY
73. TOPPAN PRINTING
74. UNIVERSITY OF MINNESOTA
75. UNIVERSITY OF NANKAI
76. VIAVI SOLUTIONS
77. VIVIDQ
78. WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT
79. WUHAN INSTITUTE OF TECHNOLOGY
80. XIAMEN UNIVERSITY
81. YAN HUACUN
82. YIWU INDUSTRIAL & COMMERCIAL COLLEGE
83. ZEON
84. ZHONGSHAN HUATAI DISPLAY PRODUCTS
85. ZHONGSHAN YILIAN INTELLIGENT TECHNOLOGY

Click on the title to return to table of contents

P33744 **SECURITY & OPTICAL EFFECTS' COLUMN**
BANKNOTE – RELIEF

WO2021159183 **CCL SECURE**

Inventor: JOLIC, KARLO IVAN

Application Nber / Date: AU2021050122W·2021-02-12

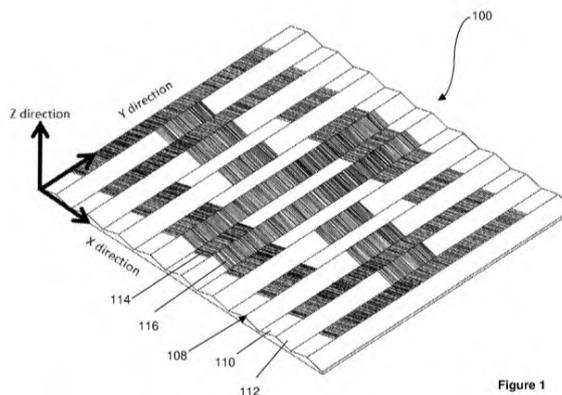
Priority Nber / Date / Country: AU2020900385A·2020-02-12

AN OPTICAL EFFECT DEVICE

An optical effect device (300) comprising: a substrate (302) having a first surface (304) and a second surface (306); a plurality of structures (308) arranged on the first surface (304), each structure (308) having a first facet (310) and a second facet (314), the first facet (310) of each structure (308) being substantially parallel to the first surface (304) of the substrate (302), the second facet (314) of each structure (308) defining a slope with respect to the first surface (304), and the first facets (310) of the plurality of structures (308) forming a first facet set. The first facet set defines a first optical effect when the optical effect device (300) is viewed from a first viewing angle range

DISPOSITIF À EFFET OPTIQUE

L'invention concerne un dispositif à effet optique (300) comprenant : un substrat (302) présentant une première surface (304) et une seconde surface (306) ; une pluralité de structures (308) disposées sur la première surface (304), chaque structure (308) présentant une première facette (310) et une seconde facette (314), la première facette (310) de chaque structure (308) étant sensiblement parallèle à la première surface (304) du substrat (302), la seconde facette (314) de chaque structure (308) définissant une pente par rapport à la première surface (304), et les premières facettes (310) de la pluralité de structures (308) formant un premier ensemble de facettes. Le premier ensemble de facettes définit un premier effet optique lorsque le dispositif à effet optique (300) est vu depuis une première plage d'angles de visualisation.



CLAIM 1. An optical effect device comprising: a substrate having a first surface and a second surface; a plurality of structures arranged on the first surface, each structure having a first facet and a second facet, the first facet of each structure being substantially parallel to the first surface of the substrate, the second facet of each structure defining a slope with respect to the first surface, and the first facets of the plurality of structures forming a first facet set, wherein the first facet set defines a first optical effect when the optical effect device is viewed from a first viewing angle range.

Equivalent: FR3107004A1

Status: Pending

Research Report:

INTERNATIONAL SEARCH REPORT		International application No.
C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		PCT/AU2021/050122
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2019186165 A1 (DE LA RUE INTERNATIONAL LIMITED) 03 October 2019 [abstract], [fig 2a], [fig 5], [figs 6a-6b], [figs 7a-7d], [fig 9d], [pg 3, ln 2-12], [pg 6, ln 11-25], [pg 6, ln 27-34], [pg 11, ln 12-15], [pg 14, ln 1-8], [pg 20, ln 1-8], [pg 25, ln 5-24], [pg 31, ln 1-4]	1-15
A	WO 2006095161 A2 (DE LA RUE INTERNATIONAL LIMITED) 14 September 2006 Whole document see especially [abstract], [fig 1], [fig 2], [pg 4, Summary of Invention]	1-15
A	WO 2018045429 A1 (CCL SECURE PTY LTD) 15 March 2018 Whole document see especially [abstract], [fig 1], [fig 7], [fig 23], [fig 25], [fig 35], [fig 39], [para 008], [para 0015 - 0017]	1-14

Click on the title to return to table of contents

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

P33747

OVD – CARD

WO2021157695

TOPPAN PRINTING

Priority Date: 07/02/2020

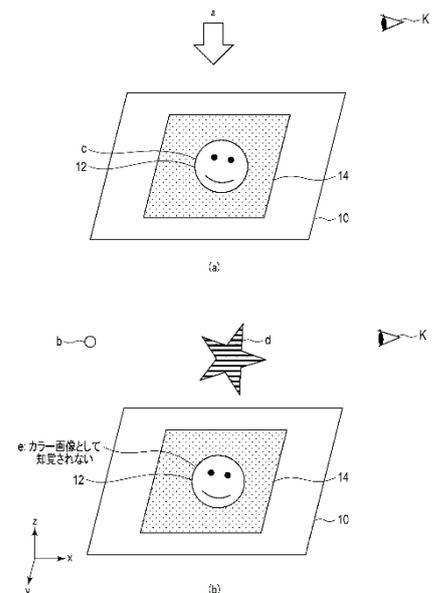
OPTICAL IDENTIFICATION BODY AND PRINTED MATTER

Provided is an optical identification body (10), wherein deflection cells on each of which the deflection direction range of diffracted light is recorded as the spatial frequency of a relief structure are discretely formed at regular intervals on a recording surface, a variable color image is recorded with a plurality of deflection cells as pixels, a space between the deflection cells on the recording surface is filled with a spatial phase modulator (14) on which a phase difference distribution is recorded as the height of the relief structure, a deposition layer covers part or all of the recording surface, and the deflection cell diffracts diffused light and deflects the diffused light by directional scattering, the optical identification body being provided with one or more spatial phase modulators (14) for displaying the variable color image recorded with the deflection cells as pixels, modulating the phase of light from a point light source (b), and displaying a reproduced image (d).

CORPS D'IDENTIFICATION OPTIQUE ET MATIÈRE IMPRIMÉE

La présente invention concerne un corps d'identification optique (10), des cellules de déviation sur chacune desquelles la plage de direction de déviation d'une lumière diffractée est enregistrée en tant que fréquence spatiale d'une structure en relief, étant formées de manière discrète à des intervalles réguliers sur une surface d'enregistrement, une image couleur variable étant enregistrée avec une pluralité de cellules de déviation en tant que pixels, un espace entre les cellules de déviation sur la surface d'enregistrement étant rempli avec un modulateur de phase spatiale (14) sur laquelle une distribution de différence de phase est enregistrée en tant que hauteur de la structure en relief, une couche de dépôt recouvrant une partie, ou la totalité, de la surface d'enregistrement, et la cellule de déviation diffractant la lumière diffusée et déviant la lumière diffusée par diffusion directionnelle, le corps d'identification optique étant pourvu d'un ou de plusieurs modulateurs de phase spatiale (14) pour afficher l'image couleur variable enregistrée avec les cellules de déviation en tant que pixels, modulant la phase de lumière provenant d'une source de lumière ponctuelle (b), et affichant une image reproduite (d).

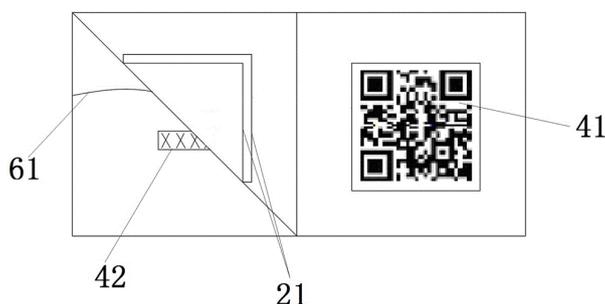
CLAIM 1. For each deflection cell, deflection cells, in which a range of deflection directions of diffracted light is recorded as a spatial frequency of the recessing and protruding structure, are formed discretely at regular intervals on a recording surface, a variable color image is recorded with a plurality of the deflection cells as pixels, spaces between the deflection cells on the recording surface being filled with spatial phase modulators in which phase difference distributions are recorded as heights of the recessing and protruding structure, and A deposition layer covers a part or all of the recording surface, the deflection cell deflects diffused light by diffraction and directional scattering, displays the variable color image recorded with the deflection cell as a pixel, modulates a phase of light from a point light source, and displays a reproduced image, and includes the recording surface.



e Not perceived as color image

LOCAL HOLOGRAPHIC ANTI-COUNTERFEIT LABEL THAT OPENS

The utility model relates to a local holographic uncovering anti-counterfeit label, which comprises glassine base paper and a label main body stuck on the glassine base paper; the label main body comprises a peelable part, a base part and a peelable isolation layer, wherein the peelable part comprises a transparent base material, a local laser holographic encryption image-text layer and a wear-resistant layer, the base part sequentially comprises a digital tracing image-text layer, a transfer crosslinking layer, a copper plate base paper and an adhesive layer, the digital tracing image-text layer is provided with a two-dimensional code and a verification code arranged corresponding to the two-dimensional code, when the label main body is attached to a commodity, the verification code is covered by a local laser pattern on the local laser holographic encryption image-text layer, when the label main body is uncovered, the base part is adhered to the commodity, and the peelable part is uncovered, so that the verification code on the base part is exposed; the utility model discloses have dual anti-fake setting, be a local holography that the differentiation mode credibility is high, be difficult to imitate and steal and take off antifalsification label.



CLAIM 1. A local holographic uncovering anti-counterfeiting label is characterized by comprising glassine base paper and a label main body adhered to the glassine base paper, wherein the label main body is adhered to a commodity after being torn off from the glassine base paper when in use; the label main body comprises a peelable part, a base part and a peelable isolation layer positioned between the peelable part and the base part, wherein the peelable part sequentially comprises a transparent base material, a local laser holographic encryption image-text layer printed on one side of the transparent base material and a wear-resistant layer covering the local laser holographic encryption image-text layer, and a local laser pattern is arranged on the local laser holographic encryption image-text layer; the strippable isolation layer is isolation glue coated on the other side of the transparent base material and used for detachably bonding the base part and the strippable part; the label comprises a label body, a base part and a peelable isolating layer, wherein the base part sequentially comprises a digital traceback image-text layer, a transfer crosslinking layer, a copperplate base paper and a non-setting adhesive layer coated on the outer side of the copperplate base paper, the digital traceback image-text layer is printed on the other side of the peelable isolating layer; the digital tracing image-text layer is provided with a two-dimensional code and a verification code arranged corresponding to the two-dimensional code, when the label body is attached to a commodity, the verification code is covered by the local laser pattern on the local laser holographic encryption image-text layer, when the label body is uncovered, the bottom part is adhered to the commodity, and the peelable part is uncovered, so that the verification code on the bottom part is exposed.

VOID OPENS AND DESTROYS ANTIFALSIFICATION LABEL

The utility model relates to a VOID opens and destroys antifalsification label, including glassine base stock and the antifalsification label that glues on glassine base stock, the antifalsification label includes to open the part, gluing layer and gluing separation layer, and the part that opens includes transparent substrate in proper order, the VOID release layer of concave pressure in one side of transparent substrate, scribble step hidden extinction layer on VOID release layer, print the digital figure code layer on hiding extinction layer, the holographical variable texture layer of suppression in the digital figure code layer outside, when opening antifalsification label from the commodity the part that opens is separated with gluing separation layer and gluing separation layer destroys hidden extinction layer, digital figure code layer and holographical variable texture layer, so that the bar code and/or the two-dimensional code on the uncovering part is invalid and the uncovering destruction pattern of the VOID release layer is displayed, therefore, the anti-counterfeiting label can not be imitated or stolen subsequently, and the problem that the anti-counterfeiting label is easy to be stolen and imitated after being uncovered in the prior art is solved.



CLAIM 1. A VOID opens and destroys the antifalsification label, its characteristic is, including glassine base paper and antifalsification label that sticks on glassine base paper, the antifalsification label is used for sticking on the goods after taking off from glassine base paper while using, the antifalsification label includes taking off the part, gluing layer and glue separating layer located between gluing layer and taking off the part, the antifalsification label sticks on glassine base paper through the gluing layer; the uncovering part sequentially comprises a transparent substrate, a VOID release layer concavely pressed on one side of the transparent substrate, a hidden extinction layer coated on the VOID release layer, a digital image code layer printed on the hidden extinction layer and a holographic variable texture layer pressed on the outer side of the digital image code layer, wherein the VOID release layer is provided with an uncovering destruction pattern, the hidden extinction layer is used for hiding the uncovering destruction pattern on the transparent substrate, and the digital image code layer is provided with a bar code and/or a two-dimensional code for anti-counterfeiting; the adhesive separation layer is coated on the outer side of the holographic variable texture layer, when the anti-counterfeiting label is uncovered from an article, the uncovering part is separated from the adhesive separation layer, and the adhesive separation layer destroys the hidden extinction layer, the digital pattern layer and the holographic variable texture layer, so that the bar code and/or the two-dimensional code on the uncovering part is invalid, and the uncovering destruction pattern of the VOID release layer is displayed.

P33817

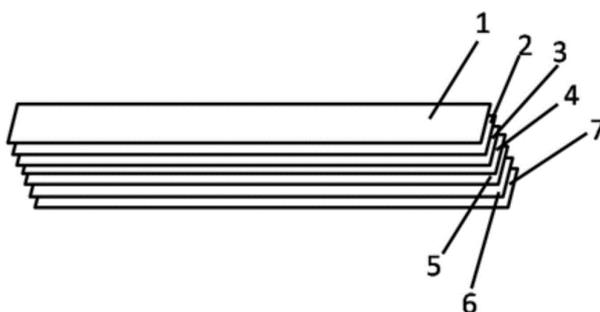
CN213947682U

Priority Date: 09/11/2020

SHANGHAI SHUN HAO NEW MATERIALS POLYTRON
TECHNOLOGIES

LIGHT-TRANSMITTING VISIBLE ANTI-COUNTERFEITING LAMINATING PAPER

The utility model discloses a transparent visual anti-counterfeiting laminating paper, which comprises a top coating layer, an anti-counterfeiting information layer, a micro-structural layer, a base film layer, a bonding layer, a base paper layer and a back coating layer; the back coating is arranged on the lower surface of the base paper layer; the base paper layer is arranged on the lower surface of the bonding layer; the bonding layer is arranged on the lower surface of the base film layer; the base film layer is arranged on the lower surface of the microstructure layer; the micro-structural layer is arranged on the lower surface of the anti-counterfeiting information layer; the anti-counterfeiting information layer is arranged on the lower surface of the surface coating; the microstructure layer is made of acrylic resin with a microstructure pattern which is copied with one or a plurality of combinations of holographic light columns, holographic plain surfaces, holographic crushed ice, holographic star clusters and holographic photoetching; the thickness of the anti-counterfeiting information layer is 25-35nm, the anti-counterfeiting information layer is a hollow aluminum layer formed by dot-shaped arranged unit dots, and the diameter of the unit dots is 0.01-0.1 mm. The utility model discloses a luminance and anti-fake performance are effectively promoted in the cooperation of anti-fake information layer and micro-structure layer.



CLAIM 1. The light-transmitting visual anti-counterfeiting coated paper is characterized by comprising a top coating layer, an anti-counterfeiting information layer, a microstructure layer, a base film layer, an adhesive layer, a base paper layer and a back coating layer; the back coating is arranged on the lower surface of the base paper layer; the base paper layer is arranged on the lower surface of the bonding layer; the bonding layer is arranged on the lower surface of the base film layer; the base film layer is arranged on the lower surface of the microstructure layer; the micro-structural layer is arranged on the lower surface of the anti-counterfeiting information layer; the anti-counterfeiting information layer is arranged on the lower surface of the surface coating; the thickness of the anti-counterfeiting information layer is 25-35nm, and the anti-counterfeiting information layer is a hollow aluminum layer formed by unit points arranged in a dotted manner.

P33825

PRINTING

CN213861236U

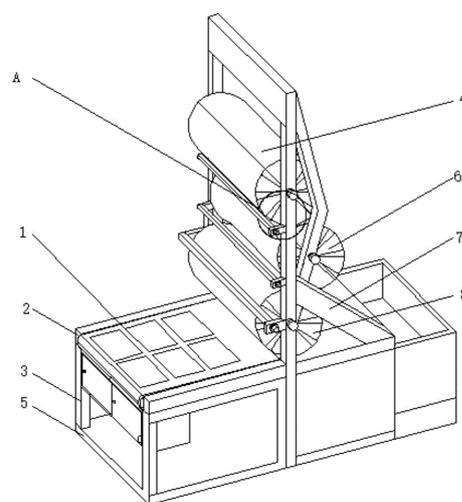
Priority Date: 13/10/2020

YIWU INDUSTRIAL & COMMERCIAL COLLEGE

INK SUPPLY MECHANISM FOR HOLOGRAPHIC CODING IMAGE PRINTING MACHINE

The utility model discloses an ink supply mechanism for a holographic coding image printing machine, which comprises a workbench, wherein the bottom of the periphery of the workbench is fixedly provided with supporting legs, the bottom of each supporting leg is fixedly provided with a base, the top of the workbench is movably connected with a conveyor belt, a paper feeding table is fixedly arranged on the conveyor belt, the right side of the workbench is fixedly provided with a shell, a fixed column is fixedly arranged in the shell, the right side of the fixed column is fixedly provided with a support frame, the bottom end of the fixed column is movably connected with an impression cylinder, the left side of the impression cylinder is fixedly provided with an ink cylinder, the right side of the top of the impression cylinder is movably connected with a rubber cylinder, the left side of the top of the rubber cylinder is movably connected with a printing plate cylinder, the right side of the shell is fixedly provided with a paper receiving box, the inside of the paper receiving box is movably connected with a pull plate, the right side of the paper receiving box is movably connected with a rotating plate, the right side of the shell is movably connected with a movable door, and the rear side of the shell is fixedly provided with an ink pump.

CLAIM 1. An ink supply mechanism for a holographic coding image printing machine comprises a workbench (2), and is characterized in that: the automatic printing machine is characterized in that supporting legs (3) are fixedly mounted at the bottom of the periphery of the workbench (2), a base (5) is fixedly mounted at the bottom of the supporting legs (3), a conveyor belt is movably connected to the top of the workbench (2), a paper feeding table (1) is fixedly mounted on the conveyor belt, a shell (9) is fixedly mounted on the right side of the workbench (2), a fixing column (14) is fixedly mounted in the shell (9), a supporting frame (7) is fixedly mounted on the right side of the fixing column (14), an impression cylinder (8) is movably connected to the bottom end of the fixing column (14), an ink cylinder is fixedly mounted on the left side of the impression cylinder (8), a blanket cylinder (6) is movably connected to the right side of the top of the impression cylinder (8), a printing plate cylinder (4) is movably connected to the left side of the top of the blanket cylinder (6), a paper receiving box (11) is fixedly mounted on the right side of the shell (9), the novel ink bottle is characterized in that a drawing plate (10) is movably connected in the paper receiving box (11), a rotating plate (12) is movably connected to the right side of the paper receiving box (11), a movable door (13) is movably connected to the right side of the shell (9), and an ink pump (16) is fixedly mounted on the rear side of the shell (9).



P33827

PRINTING – LABEL

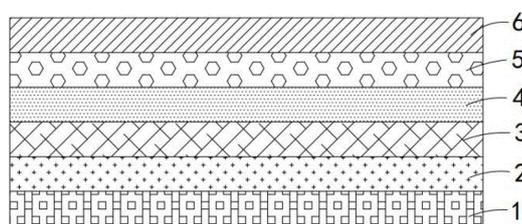
CN213844569U

Priority Date: 30/12/2020

GUANGZHOU TIMES PRINTING FACTORY

NOVEL ANTI-COUNTERFEIT LABEL

The invention discloses a novel anti-counterfeit label, which comprises a transparent carrier layer, a printing layer, a plastic layer, a reflecting layer, a non-setting adhesive layer and base paper, wherein the transparent carrier layer, the printing layer, the plastic layer, the reflecting layer, the non-setting adhesive layer and the base paper are sequentially arranged according to a hierarchical structure; and one surface of the plastic layer, which faces the reflecting layer, is provided with an optical holographic image. Through the improvement of the structure of the optical holographic anti-counterfeiting label, the transparent carrier layer has the printing and protecting functions at the same time, so that the optical holographic anti-counterfeiting label omits a protective layer, reduces the production cost and is thinner; in addition, the working procedure of adding a protective layer is omitted, so that the production efficiency is increased to a certain extent.



CLAIM 1. A novel anti-counterfeit label is characterized by comprising a transparent carrier layer, a printing layer, a plastic layer, a reflecting layer, a non-setting adhesive layer and base paper which are sequentially arranged according to a hierarchical structure; and one surface of the plastic layer, which faces the reflecting layer, is provided with an optical holographic image.

P33828

PRINTING – LABEL

CN213844568U

SHENZHEN YANRUN TECHNOLOGY

Priority Date: 14/12/2020

HOLOGRAPHIC LASER POSITIONING ANTI-COUNTERFEIT LABEL

The utility model discloses a holographic laser positioning anti-counterfeit label, which relates to the technical field of anti-counterfeit labels and comprises a body, wherein the body comprises a transparent wear-resistant layer, a transparent anti-static layer, a release paper layer, a substrate layer and an adhesive layer, the transparent wear-resistant layer and the lower end of the transparent anti-static layer are jointly connected with a semicircular tearing angle, the transparent anti-static layer is adhered on the surface of the substrate layer, the transparent wear-resistant layer comprises a shielding part, the release paper layer comprises a printing ink anti-counterfeit layer and a laser information layer, the transparent wear-resistant layer is a sub-optical film, the anti-counterfeit label has the effects that a first layer of anti-counterfeit mark can be seen through the transparent wear-resistant layer and the transparent anti-static layer, a second layer of anti-counterfeit mark can be verified by tearing the semicircular tearing angle, the imitation of many genuine brands by manufacturers is solved, the genuine and fake can be difficult to distinguish from the appearance, and the anti-counterfeit labels are also imitated, so that many common people can be cheated, the label with high anti-counterfeiting degree is needed to ensure the rights and interests of the legal-version manufacturers.

CLAIM 1. The utility model provides a radium-shine location antifalsification label of holographic laser, includes body (1), its characterized in that: the body (1) comprises a transparent wear-resistant layer (4), a transparent anti-static layer (5), a release paper layer (6), a base material layer (7) and an adhesive layer (8), the transparent wear-resistant layer (4) is connected with a semicircle tearing angle (3) together with the lower end of the transparent anti-static layer (5), the transparent anti-static layer (5) is adhered to the surface of the base material layer (7), and the transparent wear-resistant layer (4) comprises a shielding part (2).



P33829

PRINTING

CN213844567U

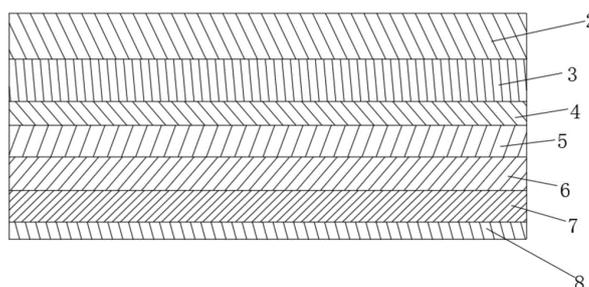
SHENZHEN YANRUN TECHNOLOGY

Priority Date: 14/12/2020

MULTIFUNCTIONAL HOLOGRAPHIC ANTI-COUNTERFEITING MARK

The utility model discloses a multi-functional holographic false proof mark, including the basic unit, the surface of basic unit is provided with electrochemical aluminium thin layer, the surface of electrochemical aluminium thin layer be provided with tear the layer the surface of tearing the layer be provided with the printing layer the surface of printing layer is provided with anti-fake layer the surface of anti-fake layer is provided with compound printing ink printing layer, the surface of compound printing ink printing layer is provided with compound printing ink printed matter, the surface of electrochemical aluminium thin layer is provided with false proof mark, and the basic unit specifically is one of polyester materials such as PET, OPP or PVC, and the outer wall of electrochemical aluminium thin layer has still been seted up and has been strengthened anti-fake mechanism, and it includes the cellosilk to strengthen anti-fake mechanism, cellosilk fixed connection be in the outer wall of electrochemical aluminium thin layer, the surface of compound printing ink printing layer is provided with protection mechanism, the utility model provides an anti-fake trade mark that has a large amount of aluminizer and made with the aluminizer on the market, The mark can not play the anti-counterfeiting problem.

CLAIM 1. The utility model provides a multi-functional holographic false proof mark, includes basic unit (2), its characterized in that: the surface of basic unit (2) is provided with electrochemical aluminium thin layer (3), the surface of electrochemical aluminium thin layer (3) is provided with tears layer (4), the surface of tearing layer (4) is provided with printing layer (5), the surface of printing layer (5) is provided with anti-fake layer (6) the surface of anti-fake layer (6) is provided with compound printing ink printing layer (7), the surface of compound printing ink printing layer (7) is provided with compound printing ink printed matter (9), the surface of electrochemical aluminium thin layer (3) is provided with anti-fake label.



P33831

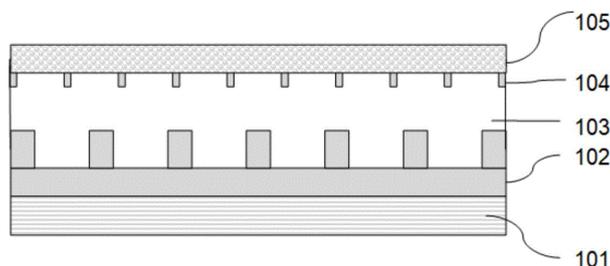
CN213844565U

Priority Date: 26/11/2020

WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT

ENCRYPTED HOLOGRAPHIC MARK

The utility model discloses an encrypted holographic mark, which comprises a base film layer and an information layer; the information layer comprises a first structure area, and the first structure area comprises a first optically variable information layer, a color layer, a second optically variable information layer and a first plating layer which are sequentially stacked; the first optically variable information layer is formed on the surface of the base film layer and is provided with a first microstructure capable of displaying a holographic pattern, and the first microstructure is embedded into the color layer; one side of the color layer, which is far away from the first optically variable information layer, is a second optically variable information layer with a second microstructure; before the first optically variable information layer is separated from the color layer, the second microstructure of the second optically variable information layer forms a holographic pattern under the action of the first plating layer; after the first optically variable information layer is separated from the color layer, a holographic pattern is formed on the surface of the color layer by the first microstructure on the first optically variable information layer, and a dynamic anti-counterfeiting pattern is obtained by superposing the laser effects of the first microstructure and the second microstructure; the utility model provides an anti-fake rank of sign is high, is difficult for being imitated.



CLAIM 1. An encrypted holographic label comprises a base film layer and an information layer; wherein the information layer comprises a first structured area; the first structure area comprises a first optically variable information layer, a color layer, a second optically variable information layer and a first plating layer which are sequentially stacked; the first optically variable information layer is formed on the surface of the base film layer, is provided with a first microstructure capable of displaying a holographic pattern and is embedded into the color layer; one side of the color layer, which is far away from the first optically variable information layer, is a second optically variable information layer with a second microstructure; before the first optically variable information layer is separated from the color layer, the second microstructure of the second optically variable information layer forms a holographic pattern under the action of the first plating layer; after the first optically variable information layer is separated from the color layer, the first microstructure on the first optically variable information layer forms a holographic pattern on the surface of the color layer, and the holographic pattern formed by the first microstructure is superposed with the holographic pattern formed by the second microstructure to form a dual laser effect.

P33832

CN213836095U

Priority Date: 09/11/2020

SHANGHAI SHUN HAO NEW MATERIALS POLYTRON TECHNOLOGIES

LIGHT-TRANSMITTING VISIBLE ANTI-COUNTERFEITING TRANSFER PAPER

The utility model discloses a transparent visual anti-counterfeiting transfer paper, which comprises a surface coating layer, a micro-structural layer, an anti-counterfeiting information layer, a bonding layer, a base paper layer and a back coating layer; the back coating is arranged on the lower surface of the base paper layer; the base paper layer is arranged on the lower surface of the bonding layer; the bonding layer is arranged on the lower surface of the anti-counterfeiting information layer; the anti-counterfeiting information layer is arranged on the lower surface of the microstructure layer; the microstructure layer is arranged on the lower surface of the top coating layer; the microstructure layer is composed of acrylic resin copied with one or more combined microstructure patterns of holographic light column, holographic plain surface, holographic crushed ice, holographic star cluster and holographic photoetching; the thickness of the anti-counterfeiting information layer is 25-35nm, the anti-counterfeiting information layer is a hollow aluminum layer formed by dot-shaped arranged unit dots, and the diameter of the unit dots is 0.01-0.1 mm. The utility model has no base film, which is beneficial to the subsequent recycling; the surface coating layer is tightly attached to the microstructure layer and the anti-counterfeiting information layer, and the brightness of a product after subsequent printing can be effectively improved through the arrangement.

CLAIM 1. The light-transmitting visible anti-counterfeiting transfer paper is characterized by comprising a surface coating layer, a microstructure layer, an anti-counterfeiting information layer, an adhesive layer, a base paper layer and a back coating layer; the back coating is arranged on the lower surface of the base paper layer; the base paper layer is arranged on the lower surface of the bonding layer; the bonding layer is arranged on the lower surface of the anti-counterfeiting information layer; the anti-counterfeiting information layer is arranged on the lower surface of the microstructure layer; the microstructure layer is arranged on the lower surface of the top coating layer; the thickness of the anti-counterfeiting information layer is 25-35nm, and the anti-counterfeiting information layer is a hollow aluminum layer formed by unit points arranged in a dotted manner.



P33835

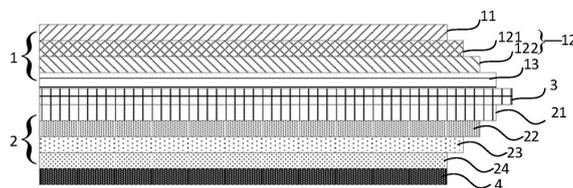
CN213815275U

Priority Date: 24/11/2020

BEIJING PAN PASS INFO TECHNOLOGY

COMPOSITE ANTI-COUNTERFEITING MARK

The application discloses compound false proof mark, compound false proof mark has two sets of lamination membrane layer groups as an organic whole, is provided with a specific anti-fake sign indicating number on every membrane layer group, sets up the anti-fake sign indicating number on two membrane layer groups respectively and has and predetermine the relevance, specially, be provided with anti-fake fibre layer in the bottom layer membrane layer group, random distribution's anti-fake fibre in the anti-fake fibre layer with set up in anti-fake sign indicating number in the bottom layer membrane layer group combines to form specific anti-fake figure, thereby the reinforcing false proof mark's irreproducibility.



CLAIM 1. The utility model provides a compound false proof mark, a serial communication port, compound false proof mark includes top layer membrane layer group (1) and bottom layer membrane layer group (2) that laminate as an organic whole, wherein, top layer membrane layer group (1) with bottom layer membrane layer group (2) laminate as an organic whole through separating layer (3), top layer membrane layer group (1) is including laminating layer (11), holographic picture and text layer (12) and first substrate layer (13) in proper order, bottom layer membrane (2) are including laminating second substrate layer (21), substrate picture and text layer (22), bonding layer (23) and anti-fake fibre layer (24) in proper order.

P33839

PRINTING – LABEL – MAGNETISM

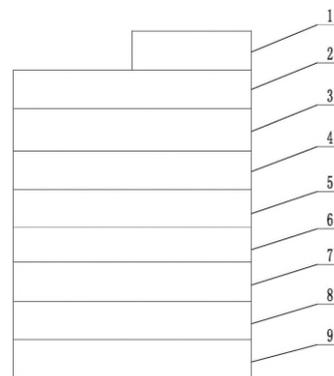
CN113299180

SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP

Priority Date: 25/05/2021

MAGNETIC OPTICALLY-VARIABLE ANTI-COUNTERFEITING HOLOGRAPHIC ANTI-COUNTERFEITING LABEL AND PREPARATION METHOD THEREOF

The invention relates to an anti-counterfeiting label, in particular to a magnetic optically-variable anti-counterfeiting holographic anti-counterfeiting label and a preparation method thereof. The magnetic light-variable anti-counterfeiting holographic anti-counterfeiting label comprises a magnetic light-variable anti-counterfeiting layer, a protective layer, a printing layer, a plastic film layer, a laser aluminizing coating, a mould pressing information layer, an aluminizing layer and a glue layer which are sequentially arranged from top to bottom; the magnetic light-variable anti-counterfeiting layer is printed by magnetic ink, and a field depth dynamic light-variable effect is formed by fixed magnetism and light curing. The anti-counterfeiting label has the advantages of gorgeous color, unique light variation effect, more anti-counterfeiting information, multiple anti-counterfeiting functions, simple identification, high imitation difficulty, good anti-counterfeiting effect and difficulty in secondary transfer use; the preparation method is scientific, reasonable, simple and feasible.



CLAIM 1. The utility model provides a holographic antifalsification label of magnetic light variation anti-fake effect which characterized in that: the anti-counterfeiting laser printing device comprises a magnetic light-variable anti-counterfeiting layer (1), a protective layer (2), a printing layer (3), a plastic film layer (4), a laser aluminizing coating (5), a mould pressing information layer (6), an aluminizing layer (7) and a glue layer (8) which are arranged from top to bottom in sequence; the magnetic light-variable anti-counterfeiting layer (1) is printed by magnetic ink, and a field depth dynamic light-variable effect is formed through fixed magnetism and light curing.

P33840

PRINTING – LABEL – MAGNETISM

CN113299179

SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP

Priority Date: 25/05/2021

PRINTED HOLOGRAPHIC UNCOVERING INFORMATIZATION ANTI-COUNTERFEIT LABEL AND PREPARATION METHOD THEREOF

The invention relates to an anti-counterfeit label, in particular to a printed holographic uncovering informatization anti-counterfeit label and a preparation method thereof. The printed holographic uncovering informatization anti-counterfeit label comprises a plastic film layer, a permanent laser aluminizing coating, a local positioning mould pressing information layer, a positioning aluminizing layer, a release layer, a printing layer, a color ink layer and a glue layer which are sequentially arranged from top to bottom; the anti-counterfeiting label can be uncovered and is divided into a stripping part and a bottom-remaining part, wherein the stripping part sequentially comprises a plastic film layer, a permanent laser aluminized coating, a local positioning mould pressing information layer and a positioning aluminized layer from top to bottom; the bottom-retaining part is sequentially provided with a release layer, a printing layer, a color ink layer and a glue layer from top to bottom. The invention combines printing and holographic uncovering technology, the mark can realize the functions of logistics tracing and the like, can realize the functions of point reward exchange, anti-counterfeiting inquiry and the like after being uncovered, and also provides the information magnetic light-variable anti-counterfeiting effect; the preparation method is scientific, reasonable, simple and feasible.



CLAIM 1. A printed holographic uncovering informatization anti-counterfeit label is characterized in that: the laser aluminum plating device comprises a plastic film layer (1), a permanent laser aluminum plating coating (2), a local positioning mould pressing information layer (3), a positioning aluminum washing layer (4), a release layer (5), a printing layer (6), a color ink layer (7) and a glue layer (8) which are arranged from top to bottom in sequence; the anti-counterfeiting label can be uncovered and is divided into a stripping part and a bottom-remaining part, wherein the stripping part comprises a plastic film layer (1), a permanent laser aluminizing coating (2), a local positioning mould pressing information layer (3) and a positioning aluminum washing layer (4) from top to bottom in sequence; the bottom-retaining part is sequentially provided with a release layer (5), a printing layer (6), a color ink layer (7) and a glue layer (8) from top to bottom.

P33845

PRINTING – SEALING LABEL

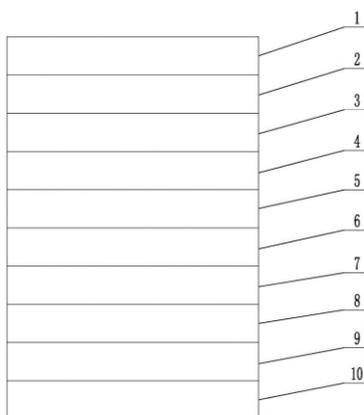
CN113284409

Priority Date: 11/06/2021

SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP

BARRELED WATER SEALING LABEL AND PREPARATION METHOD THEREOF

The invention relates to the technical field of anti-counterfeiting products, in particular to a barreled water sealing label and a preparation method thereof. Bottled water seal label, including OPP layer, first glue film, printing layer, PET layer, formation of image layer, holographic laser layer, aluminize layer, variable number layer, second glue film and the heat-seal layer that from the top down set gradually. The variable two-dimensional code is endowed on the label, one label and one code are realized, the two-dimensional code is printed on the reverse side of the sealing label, and the verification can be carried out only after a consumer uncovers the variable two-dimensional code, so that the sealing label is prevented from being forged by lawbreakers, and the anti-counterfeiting strength is high; the sealing label has the characteristics that the two-dimensional code is not deformed during heat sealing, and the holographic laser layer does not have the matte phenomenon; the preparation method is scientific, reasonable, simple and feasible.



CLAIM 1. The utility model provides a bottled water seals label which characterized in that: the multifunctional holographic laser film comprises an OPP layer (1), a first adhesive layer (2), a printing layer (3), a PET layer (4), an imaging layer (5), a holographic laser layer (6), an aluminum plating layer (7), a variable code layer (8), a second adhesive layer (9) and a heat sealing layer (10) which are sequentially arranged from top to bottom.

P33854

BRAND PROTECTION

CN113263849

Priority Date: 08/06/2021

GUANGDONG HENGLI NEW PACKING MATERIAL

CIGARETTE ANTI-COUNTERFEITING HOLOGRAPHIC TWO-DIMENSIONAL CODE ELECTROCHEMICAL ALUMINUM AND PREPARATION METHOD THEREOF

The invention discloses a cigarette anti-counterfeiting holographic two-dimensional code electrochemical aluminum and a preparation method thereof, wherein the cigarette anti-counterfeiting holographic two-dimensional code electrochemical aluminum comprises a base film layer, a release layer, a protective layer, a color layer, an aluminum plating layer and an adhesive layer which are sequentially stacked, and the release layer comprises the following raw materials: 60-70% of modified methyl silicone resin, 2-3% of defoaming agent and 3-4% of flattening agent. The technical scheme of the invention is as follows. The methyl silicone resin is modified by the vinyl distearamide, the methyl silicone resin has lower viscosity, the vinyl distearamide has lubricity, the modified methyl silicone resin has lower viscosity and lubricity at the same time, and the probability of adhering aluminum plated on the color layer during detachment is greatly reduced by utilizing the detachment layer prepared from the modified methyl silicone resin; the color layer is protected by the protective layer, so that the time for the color layer to be oxidized can be prolonged, and the surface of the color layer can also be subjected to friction resistance.

CLAIM 1. The utility model provides a holographic two-dimensional code electrochemical aluminium of cigarette anti-fake which characterized in that, includes base film layer, abscission layer, protective layer, chromatograph, aluminize layer and the adhesive layer that stacks gradually the setting, the abscission layer includes following raw materials: 60-70% of modified methyl silicone resin, 2-3% of defoaming agent and 3-4% of flattening agent.

P33876

PRINTING – CARD

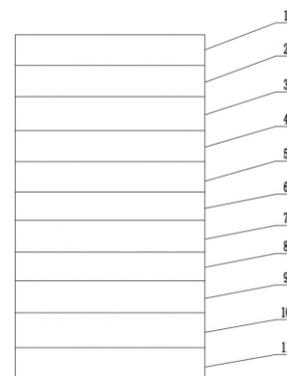
CN113160696

SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP

Priority Date: 31/03/2021

ANTI-COUNTERFEITING CARD WITH UNCOVERING VERIFICATION INFORMATION AND PREPARATION METHOD THEREOF

The invention belongs to the technical field of anti-counterfeiting marks, and particularly relates to an anti-counterfeiting card for uncovering verification information and a preparation method thereof. The transfer printing film comprises a plastic film layer, a coating, a die-pressing holographic information layer, a transfer coating, a polyamide layer, a first printing layer, a pressure-sensitive adhesive layer, a holographic rainbow transfer layer, a first adhesive layer and a base material layer which are arranged in sequence from top to bottom; the holographic rainbow transfer layer comprises a laser molding information layer and an aluminum-plated layer, and the laser molding information layer is positioned above the aluminum-plated layer; the anti-counterfeiting card can be uncovered and is divided into a stripping part and a bottom retaining part, wherein the stripping part is a part above the transfer coating, and the bottom retaining part is a part below the transfer coating and below the transfer coating. After the anti-counterfeiting card is uncovered, the upper surface and the lower surface of the peeled part both display the hidden laser effect, the bottom part displays the rainbow holographic effect and the hidden laser effect, and a consumer judges the authenticity of the mark by identifying the hidden information and still displays the hidden laser information when the mark is adhered together; the preparation method is simple and easy to implement.



CLAIM 1. An anti-counterfeiting card for uncovering authentication information is characterized in that: the transfer printing film comprises a plastic film layer (1), a coating (2), a die pressing holographic information layer (3), a transfer coating (4), a polyamide layer (5), a first printing layer (6), a pressure-sensitive adhesive layer (7), a holographic rainbow transfer layer, a first adhesive layer (10) and a base material layer (11) which are arranged from top to bottom in sequence; the holographic rainbow transfer layer comprises a laser die-pressing information layer (8) and an aluminum-plated layer (9), wherein the laser die-pressing information layer (8) is positioned above the aluminum-plated layer (9); the anti-counterfeiting card can be uncovered and is divided into a stripping part and a reserved part, wherein the stripping part is a part above the transfer coating (4), and the reserved part is the transfer coating (4) and a part below the transfer coating (4).

P33877

PRINTING

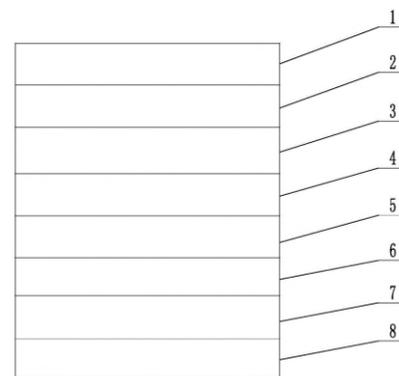
CN113160695

SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP

Priority Date: 31/03/2021

LASER CONCEALED ANTI-FAKE MARK AND ITS PREPARING METHOD

The invention belongs to the technical field of anti-counterfeiting marks, and particularly relates to a laser concealed anti-counterfeiting mark and a preparation method thereof. The mark comprises a plastic film layer, a coating, a die-pressing holographic information layer, a local transfer coating, a polyamide layer, a printing layer, a color ink layer and a pressure-sensitive adhesive layer which are arranged from top to bottom in sequence; the anti-counterfeiting mark can be uncovered, the stripping part is a part above the local transfer coating, and the bottom remaining part is the local transfer coating and a part below the local transfer coating. The mark has good temperature and humidity resistance effect, unique anti-counterfeiting information, difficult counterfeiting and quick identification, layering damage and no integral transfer, and can effectively prevent secondary use; after the anti-counterfeiting mark is uncovered, the upper surface and the lower surface of the peeling part both display hidden laser effects, the bottom-left part also displays hidden laser information, a consumer judges the authenticity of the mark by identifying the hidden information, and when the mark is adhered together, the hidden laser information is still displayed, so that the mark has exclusivity; the preparation method is simple and easy to implement.



CLAIM 1. A laser hidden anti-counterfeiting mark is characterized in that: the transfer printing ink comprises a plastic film layer (1), a coating (2), a die pressing holographic information layer (3), a local transfer coating (4), a polyamide layer (5), a printing layer (6), a color ink layer (7) and a pressure sensitive adhesive layer (8) which are arranged from top to bottom in sequence; the anti-counterfeiting mark can be uncovered and is divided into a stripping part and a reserved part, wherein the stripping part is a part above the local transfer coating (4), and the reserved part is the part below the local transfer coating (4) and the local transfer coating (4).

Click on the title to return to table of contents

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

P33739

PRINTING – CARD – PASSPORT – WINDOW

WO2021165640

Priority Date: 20/02/2020

DE LA RUE INTERNATIONAL

A SECURITY SHEET

The present disclosure is directed towards a security sheet (10) for displaying personal data (11) comprising a plastic substrate (12) comprising first and second outer surfaces (13, 14). A first opaque region (21) extends partially across the plastic substrate (12) between the first and second outer surfaces (13, 14). A first window (50) is at least partially surrounded by the first opaque region (21). A security device (51) comprises a transparent first device region (52) and a second device region (53) formed from a second device insert (55). The first and second device regions (52, 53) have different optical detection characteristics. The security device (51) is arranged in the plastic substrate (12) such that, when viewed in reflected light incident upon the first outer surface (13), at least part of the first device region (52) is visible at least partially around the second device region (53) in the first window (50).

FEUILLE DE SÉCURITÉ

La présente divulgation concerne une feuille de sécurité (10) pour afficher des données personnelles (11) comprenant un substrat en plastique (12) comprenant des première et seconde surfaces externes (13, 14). Une première région opaque (21) s'étend partiellement à travers le substrat en plastique (12) entre les première et seconde surfaces externes (13, 14). Une première fenêtre (50) est au moins partiellement entourée par la première région opaque (21). Un dispositif de sécurité (51) comprend une première région de dispositif transparent (52) et une seconde région de dispositif (53) formée à partir d'un second insert de dispositif (55). Les première et seconde régions de dispositif (52, 53) présentent des caractéristiques de détection optique différentes. Le dispositif de sécurité (51) est disposé dans le substrat en plastique (12) de telle sorte que, lorsqu'il est observé dans la lumière réfléchie incidente sur la première surface externe (13), au moins une partie de la première région de dispositif (52) est visible au moins partiellement autour de la seconde région de dispositif (53) dans la première fenêtre (50).

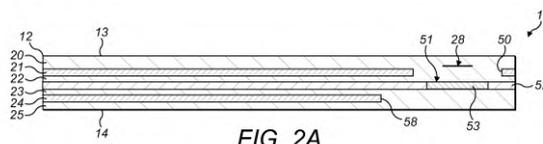


FIG. 2A

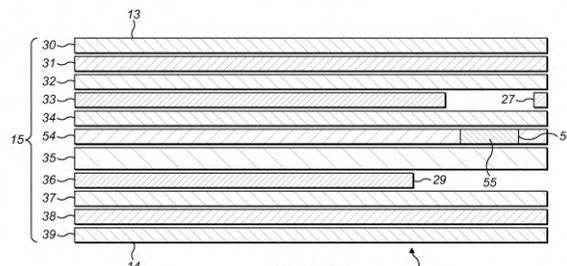


FIG. 2B

CLAIM 1. A security sheet for displaying personal data comprising a plastic substrate comprising: first and second outer surfaces; a first opaque region extending partially across the plastic substrate between the first and second outer surfaces; a first window at least partially surrounded by the first opaque region; a security device comprising a transparent first device region and a second device region formed from a second device insert, wherein the first and second device regions have different optical detection characteristics and the security device is arranged in the plastic substrate such that, when viewed in reflected light incident upon the first outer surface, at least part of the first device region is visible at least partially around the second device region in the first window.

P33744

PATENT OF THE MONTH
BANKNOTE – RELIEF

WO2021159183

CCL SECURE

Priority Date: 12/02/2020

AN OPTICAL EFFECT DEVICE

An optical effect device (300) comprising: a substrate (302) having a first surface (304) and a second surface (306); a plurality of structures (308) arranged on the first surface (304), each structure (308) having a first facet (310) and a second facet (314), the first facet (310) of each structure (308) being substantially parallel to the first surface (304) of the substrate (302), the second facet (314) of each structure (308) defining a slope with respect to the first surface (304), and the first facets (310) of the plurality of structures (308) forming a first facet set. The first facet set defines a first optical effect when the optical effect device (300) is viewed from a first viewing angle range

DISPOSITIF À EFFET OPTIQUE

L'invention concerne un dispositif à effet optique (300) comprenant : un substrat (302) présentant une première surface (304) et une seconde surface (306) ; une pluralité de structures (308) disposées sur la première surface (304), chaque structure (308) présentant une première facette (310) et une seconde facette (314), la première facette (310) de chaque structure (308) étant sensiblement parallèle à la première surface (304) du substrat (302), la seconde facette (314) de chaque structure (308) définissant une pente par rapport à la première surface (304), et les premières facettes (310) de la pluralité de structures (308) formant un premier ensemble de facettes. Le premier ensemble de facettes définit un premier effet optique lorsque le dispositif à effet optique (300) est vu depuis une première plage d'angles de visualisation.

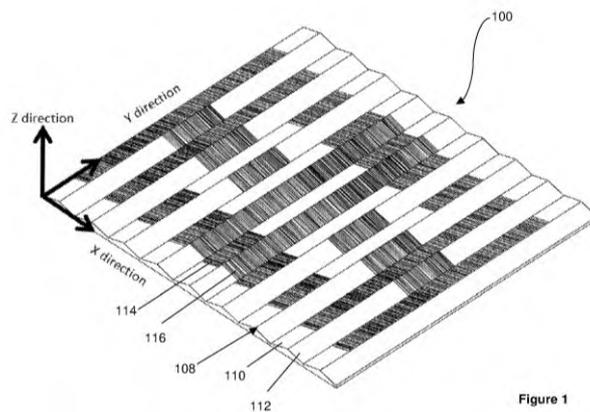


Figure 1

CLAIM 1. An optical effect device comprising: a substrate having a first surface and a second surface; a plurality of structures arranged on the first surface, each structure having a first facet and a second facet, the first facet of each structure being substantially parallel to the first surface of the substrate, the second facet of each structure defining a slope with respect to the first surface, and the first facets of the plurality of structures forming a first facet set, wherein the first facet set defines a first optical effect when the optical effect device is viewed from a first viewing angle range.

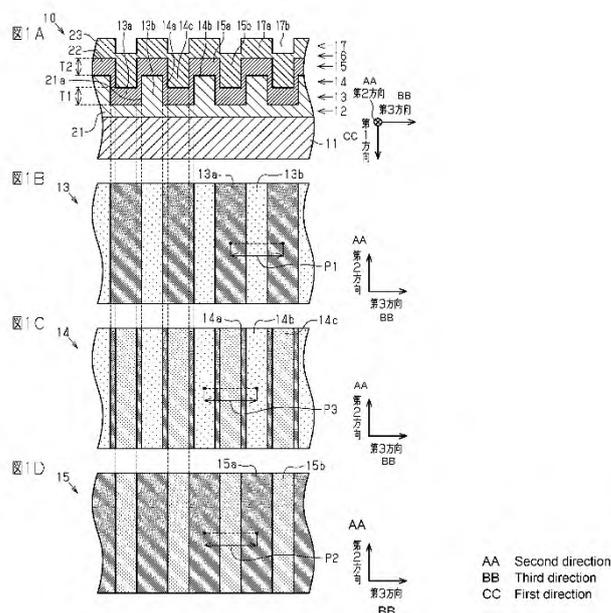
OPTICAL DEVICE AND METHOD FOR MANUFACTURING OPTICAL DEVICE

This optical device is provided with: a relief structure layer that has, on the surface thereof, a relief structure comprising either a plurality of protrusions or a plurality of recesses arranged at subwavelength intervals; a high refractive index layer that comprises a material having a higher refractive index than the relief structure layer, is located on the relief structure, and has a surface having a shape following the relief structure; and a low refractive index layer that comprises a material having a lower refractive index than the high refractive index layer, and is located on the high refractive index layer. The high refractive index layer includes a first grating high refractive index portion that is located at the bottom of the relief structure and forms a first subwavelength grating, and a second grating high refractive index portion that is located at the top of the relief structure and forms a second subwavelength grating. Either the relief structure layer or the low refractive index layer has the property of absorbing light in a predetermined wavelength region, or the optical device is provided with an additional layer having the property of absorbing light in the predetermined wavelength region.

DISPOSITIF OPTIQUE ET PROCÉDÉ DE FABRICATION DE DISPOSITIF OPTIQUE

L'invention concerne un dispositif optique qui est pourvu : d'une couche de structure en relief qui a, sur sa surface, une structure en relief comprenant soit une pluralité de saillies soit une pluralité d'évidements agencés à des intervalles de sous-longueur d'onde ; d'une couche à indice de réfraction élevé qui comprend un matériau ayant un indice de réfraction supérieur à celui de la couche de structure en relief, est située sur la structure en relief, et a une surface ayant une forme suivant la structure en relief ; et d'une couche à faible indice de réfraction qui comprend un matériau ayant un indice de réfraction inférieur à celui de la couche à indice de réfraction élevé, et est située sur la couche à indice de réfraction élevé. La couche à indice de réfraction élevé comprend une première partie à indice de réfraction élevé de réseau qui est positionnée sur une partie inférieure de la structure en relief et qui forme un premier réseau de sous-longueur d'onde, et une seconde partie à indice de réfraction élevé de réseau qui est positionnée sur une partie supérieure de la structure en relief et qui forme un second réseau de sous-longueur d'onde. La couche de structure en relief ou la couche à faible indice de réfraction a la propriété d'absorber la lumière dans une région de longueur d'onde prédéterminée, ou le dispositif optique est pourvu d'une couche supplémentaire ayant la propriété d'absorber la lumière dans la région de longueur d'onde prédéterminée.

CLAIM 1. An optical device comprising: a recessing and protruding structure layer including, on a surface thereof, a recessing and protruding structure that is either a plurality of convexities or a plurality of concavities arranged at a sub-wavelength period; and a high refractive index layer positioned on the recessing and protruding structure and including a surface having a shape following the recessing and protruding structure, wherein A first grating high refractive index portion located at a bottom of the recessing and protruding structure and forming a first sub-wavelength grating, and a second grating high refractive index portion located at a top of the recessing and protruding structure and forming a second sub-wavelength grating. A high-refractive-index layer made from a material having a higher refractive index than that of the recessing and protruding structure layer; a low-refractive-index layer located on the high-refractive-index layer, the low-refractive-index layer made from a material having a lower refractive index than that of the high-refractive-index layer; Wherein either the recessing and protruding structure layer or the low-refractive index layer has absorption of light in a predetermined wavelength region, or the optical device includes an additional layer having absorption of light in the predetermined wavelength region.

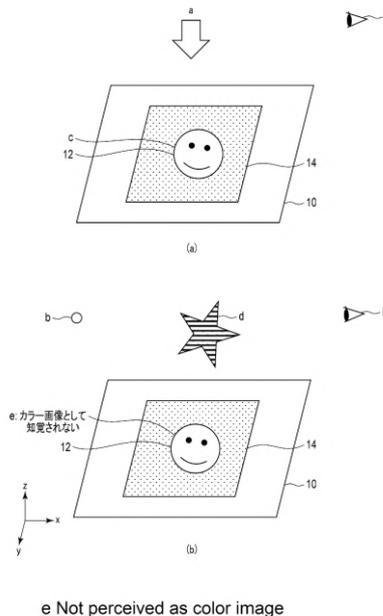


OPTICAL IDENTIFICATION BODY AND PRINTED MATTER

Provided is an optical identification body (10), wherein deflection cells on each of which the deflection direction range of diffracted light is recorded as the spatial frequency of a relief structure are discretely formed at regular intervals on a recording surface, a variable color image is recorded with a plurality of deflection cells as pixels, a space between the deflection cells on the recording surface is filled with a spatial phase modulator (14) on which a phase difference distribution is recorded as the height of the relief structure, a deposition layer covers part or all of the recording surface, and the deflection cell diffracts diffused light and deflects the diffused light by directional scattering, the optical identification body being provided with one or more spatial phase modulators (14) for displaying the variable color image recorded with the deflection cells as pixels, modulating the phase of light from a point light source (b), and displaying a reproduced image (d).

CORPS D'IDENTIFICATION OPTIQUE ET MATIÈRE IMPRIMÉE

La présente invention concerne un corps d'identification optique (10), des cellules de déviation sur chacune desquelles la plage de direction de déviation d'une lumière diffractée est enregistrée en tant que fréquence spatiale d'une structure en relief, étant formées de manière discrète à des intervalles réguliers sur une surface d'enregistrement, une image couleur variable étant enregistrée avec une pluralité de cellules de déviation en tant que pixels, un espace entre les cellules de déviation sur la surface d'enregistrement étant rempli avec un modulateur de phase spatiale (14) sur laquelle une distribution de différence de phase est enregistrée en tant que hauteur de la structure en relief, une couche de dépôt recouvrant une partie, ou la totalité, de la surface d'enregistrement, et la cellule de déviation diffractant la lumière diffusée et déviant la lumière diffusée par diffusion directionnelle, le corps d'identification optique étant pourvu d'un ou de plusieurs modulateurs de phase spatiale (14) pour afficher l'image couleur variable enregistrée avec les cellules de déviation en tant que pixels, modulant la phase de lumière provenant d'une source de lumière ponctuelle (b), et affichant une image reproduite (d).



CLAIM 1. For each deflection cell, deflection cells, in which a range of deflection directions of diffracted light is recorded as a spatial frequency of the recessing and protruding structure, are formed discretely at regular intervals on a recording surface, a variable color image is recorded with a plurality of the deflection cells as pixels, spaces between the deflection cells on the recording surface being filled with spatial phase modulators in which phase difference distributions are recorded as heights of the recessing and protruding structure, and A deposition layer covers a part or all of the recording surface, the deflection cell diffracts diffused light by diffraction and directional scattering, displays the variable color image recorded with the deflection cell as a pixel, modulates a phase of light from a point light source, and displays a reproduced image, and includes the recording surface.

OPTICALLY VARIABLE SECURITY ELEMENT

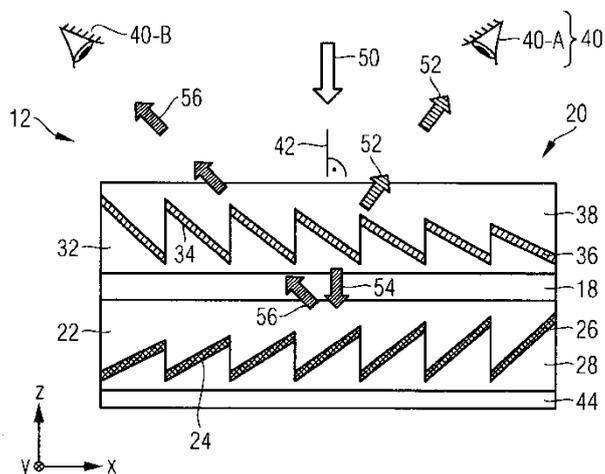
The invention relates to an optically variable security element (12) for securing valuable objects, the surface extension of which defines a z-axis perpendicular thereto, comprising a reflective surface region (20) which exhibits at least two optically variable effects (14-A, 14-B) that can be recognized from different viewing directions and appear with different colors. The reflective surface region contains two independent relief structures (24, 34) which are arranged in different height steps in the z direction and form a lower-lying relief structure and a higher-lying relief structure. The higher relief structure (34) is provided with a first reflection-increasing coating (36) following the relief course and the lower relief structure (24) is provided with a second reflection-increasing coating (26) following the relief course. The two relief structures overlap in a feature region. The first reflection-increasing coating (36) is formed in the feature region with a reflection and transmission in the visible spectral region, in particular wavelength-dependent, so that the higher relief structure (34) exhibits a first optically variable effect (14-A) in a first color, and the lower-lying relief structure (24) is visible through the first reflection-increasing coating (36) and exhibits a second optically variable effect (14-B) in a second, different color.

ÉLÉMENT DE SÉCURITÉ OPTIQUEMENT VARIABLE

L'invention concerne un élément de sécurité optiquement variable (12) pour la protection d'objets de valeur, l'aire surfacique dudit élément de sécurité définissant un axe z perpendiculaire à celle-ci, comprenant une région de surface réfléchissante (20) présentant au moins deux effets optiquement variables (14-A, 14-B) qui sont discernables à partir de différentes directions de visualisation et apparaissent avec des couleurs différentes. La région de surface réfléchissante contient deux structures en relief indépendantes (24, 34), qui sont agencées à différents niveaux dans la direction z et forment une structure en relief de niveau inférieur et une structure en relief de niveau supérieur. La structure en relief de niveau inférieur (34) est munie d'un premier revêtement augmentant la réflexion (36), qui suit la forme du relief, et la structure en relief de niveau supérieur (24) est munie d'un second revêtement augmentant la réflexion (26) qui suit la forme du relief. Les deux structures en relief se chevauchent dans une région de caractéristique. Le premier revêtement augmentant la réflexion (36) est pourvu d'une réflexion et d'une transmission, en particulier dépendantes de la longueur d'onde, dans la plage spectrale visible dans la région de caractéristique, de sorte que la structure en relief de niveau supérieur (34) présente un premier effet optiquement variable (14-A) dans une première couleur, et la structure en relief de niveau inférieur (24) est visible à travers le premier revêtement augmentant la réflexion (36) et présente un second effet optiquement variable (14-B) dans une seconde couleur différente.

CLAIM 1. An optically variable security element for securing valuable objects, the areal extent of which defines a z-axis perpendicular thereto, comprising a reflective areal region having at least two, optically variable effects which can be recognized from different viewing directions and appear with different colors, wherein

- the reflective surface region contains two independent relief structures, which are arranged in the z direction at different height steps and form a lower-lying and a higher-lying relief structure,
- the higher-lying relief structure is provided with a first reflection-increasing coating following the relief course and the lower-lying relief structure is provided with a second reflection-increasing coating following the relief course,
- the two relief structures overlap in a feature region, and
- the first reflection-increasing coating is formed in the visible spectral region with a preferably wavelength-dependent reflection and transmission in the visible spectral region, so that
- the higher relief structure exhibits a first optically variable effect in a first color, and
- the lower relief structure exhibits a second optically variable effect through the first reflection-increasing coating, wherein the second optically variable effect exhibits a second, different color.

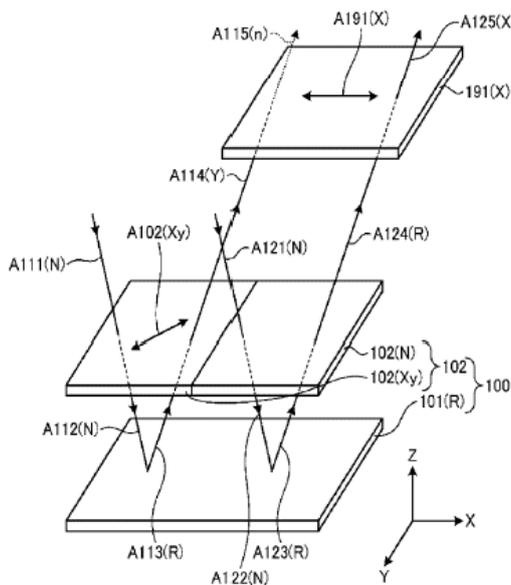


IDENTIFICATION MEDIUM, ARTICLE, AND IDENTIFICATION MEDIUM USE METHOD

This identification medium includes a light reflection layer and a patterned phase difference layer. The light reflection layer reflects incident light as circularly polarized light or linearly polarized light. The patterned phase difference layer includes a region having a phase difference, and is provided in the identification medium such that the region having the phase difference occupies a portion of a region of a display surface of the identification medium. Also provided are: an article comprising the identification medium; and a method of using the identification medium including, in observation of the reflected light, selectively observing a linearly polarized light component of the reflected light or allowing the linearly polarized light to enter as the incident light.

SUPPORT D'IDENTIFICATION, ARTICLE ET PROCÉDÉ D'UTILISATION DE SUPPORT D'IDENTIFICATION

L'invention concerne un support d'identification comprenant une couche de réflexion de lumière et une couche à différence de phase à motifs. La couche de réflexion de lumière réfléchit la lumière incidente sous la forme d'une lumière polarisée circulairement ou d'une lumière polarisée linéairement. La couche à différence de phase à motifs comprend une région ayant une différence de phase, et est disposée dans le support d'identification de telle sorte que la région ayant la différence de phase occupe une partie d'une région d'une surface d'affichage du support d'identification. L'invention concerne également : un article comprenant le support d'identification ; et un procédé d'utilisation du support d'identification comprenant, dans l'observation de la lumière réfléchie, observer sélectivement une composante de lumière polarisée linéairement de la lumière réfléchie ou permettre à la lumière polarisée de façon linéaire d'entrer en tant que lumière incidente.



CLAIM 1. An identification medium comprising: a light reflection layer; and a patterned retardation layer, wherein the light reflection layer is a layer configured to reflect incident light as circularly polarized light or linearly polarized light, the patterned retardation layer is a layer including a region having a retardance, and the region having the retardance occupies a part of a region of a display surface of the identification medium.

SECURITY DOCUMENT WITH LIGHTGUIDE HAVING A SPARSE OUTCOUPLER STRUCTURE

The security document, such as a passport, comprises a lightguide (12) having an incoupler structure (14) and an outcoupler structure (16). The outcoupler structure (16) is sparse in the sense that any part of the protective area (18) is close to a part of the outcoupler structure (16). However, to secure a large protective area with a limited amount of incoupled light, the outcoupler structure (16) covers no more than 20% of the protective area (18). This allows to protect a large area of the security document, such as a photograph (30) or other personalized information (32 -34), by means of the lightguide (12).

DOCUMENT DE SÉCURITÉ AVEC GUIDE DE LUMIÈRE PRÉSENTANT UNE STRUCTURE DE COUPLEUR DE SORTIE PEU DENSE

Selon l'invention, le document de sécurité, tel qu'un passeport, comprend un guide de lumière (12) présentant une structure de coupleur d'entrée (14) et une structure de coupleur de sortie (16). La structure de coupleur de sortie (16) est peu dense dans le sens où n'importe quelle partie de la zone de protection (18) est proche d'une partie de la structure de coupleur de sortie (16). Cependant, pour fixer une grande zone de protection avec une quantité limitée de lumière couplée en entrée, la structure de coupleur de sortie (16) ne couvre pas plus de 20 % de la zone de protection (18). Ceci permet de protéger une grande zone du document de sécurité, telle qu'une photographie (30) ou d'autres informations personnalisées (32 -34), au moyen du guide de lumière (12).

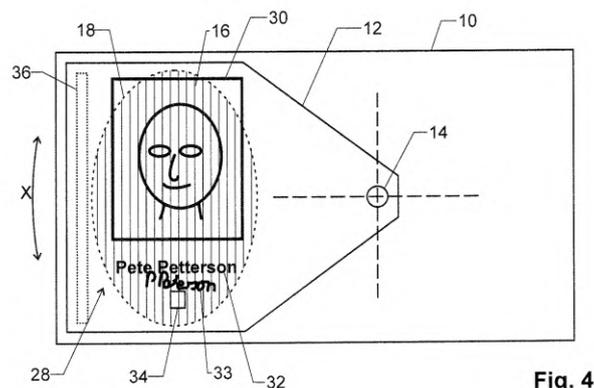


Fig. 4

CLAIM 1. A security document having an optical lightguide (12), wherein said lightguide (12) comprises - an incoupler structure (14), - an outcoupler structure (16), - a protective area (18) having a longest diameter D, wherein - said outcoupler structure (16) covers no more than 20% of said protective area (18) and - for any point (P) in said protective area (18), a shortest distance (d) to said outcoupler structure (16) is less than $D/3$.

DOCUMENT OF IDENTIFICATION WITH OPTICAL LIGHTGUIDE

The identification document comprises a personalized area (20) carrying owner-specific information, such as an owner's name data (22a, 22b) or photograph (26). The personalized area (20) is overlapped by a lightguide (12). The lightguide (12) comprises a primary incoupler (14) and a primary outcoupler (16) on opposite sides of the personalized area (20). Any attempt to tamper with the personalized area (20) may lead to a damage in the lightguide (12), which can easily be detected by coupling light into the primary incoupler (14) and testing the light coupled out by the primary outcoupler (16).

DOCUMENT D'IDENTIFICATION AVEC GUIDE DE LUMIÈRE OPTIQUE

Selon l'invention, le document d'identification comprend une zone personnalisée (20) portant des informations spécifiques au propriétaire, telles que des données liées au nom du propriétaire (22a, 22b) ou une photographie (26), la zone personnalisée (20) est recouverte par un guide de lumière (12), le guide de lumière (12) comprenant un coupleur d'entrée primaire (14) et un coupleur de sortie primaire (16) sur des côtés opposés de la zone personnalisée (20). Toute tentative d'altération de la zone personnalisée (20) peut provoquer un endommagement du guide de lumière (12), qui peut être facilement détecté en couplant la lumière dans le coupleur d'entrée primaire (14) et en testant la lumière couplée en sortie par le coupleur de sortie primaire (16).

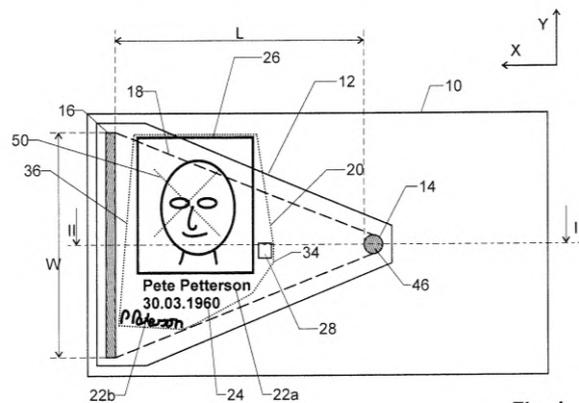


Fig. 1

CLAIM 1. A document of identification having a personalized area (20) carrying personalized information (22 - 28) identifying an owner of the document and an optical lightguide (12) comprising a primary incoupler (14) and a primary outcoupler (16), wherein the lightguide (12) forms a protective area (18) between said primary incoupler (14) and said primary outcoupler (16), wherein said protective area (18) overlaps with at least part of said personalized area (20).

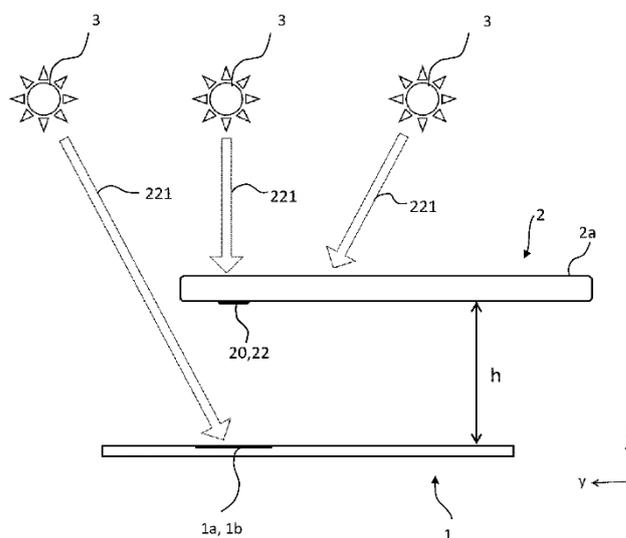
METHOD FOR AUTHENTICATING A SECURITY DOCUMENT

The invention relates to a method for authenticating a security document by means of at least one device, wherein the method involves the following steps being performed, in particular in the following order: a) providing the security document comprising at least one first security element and at least one second security element; b) providing the at least one device, wherein the at least one device comprises at least one sensor; c) capturing first optical information of the at least one first security element by means of the at least one sensor of the at least one device during a first illumination, wherein at least one first dataset specifying this information is generated therefrom; d) capturing second optical information of the at least one second security element by means of the at least one sensor of the at least one device during a second illumination, wherein at least one second dataset specifying this information is generated therefrom; e) capturing third optical information of the at least one second security element by means of the at least one sensor of the at least one device during a third illumination, wherein at least one third dataset specifying this information is generated therefrom, the second illumination differing from the third illumination; f) checking the authenticity of the security document and/or of the second security element at least on the basis of the at least one second dataset and the at least one third dataset.

PROCÉDÉ D'AUTHENTIFICATION D'UN DOCUMENT DE SÉCURITÉ

L'invention concerne un procédé d'authentification d'un document de sécurité au moyen d'au moins un dispositif, le procédé comprenant les étapes suivantes, exécutées en particulier dans l'ordre suivant, consistant à : a) fournir le document de sécurité comprenant au moins un premier élément de sécurité et au moins un second élément de sécurité ; b) fournir le ou les dispositifs, le ou les dispositifs comprenant au moins un capteur ; c) capturer des premières informations optiques du ou des premiers éléments de sécurité au moyen du ou des capteurs du ou des dispositifs pendant un premier éclairage, au moins un premier ensemble de données spécifiant ces informations étant généré à partir de celui-ci ; d) capturer des deuxièmes informations optiques du ou des seconds éléments de sécurité au moyen du ou des capteurs du ou des dispositifs pendant un deuxième éclairage, au moins un deuxième ensemble de données spécifiant ces informations étant généré à partir de celui-ci ; e) capturer des troisièmes informations optiques du ou des seconds éléments de sécurité au moyen du ou des capteurs du ou des dispositifs pendant un troisième éclairage, au moins un troisième ensemble de données spécifiant ces informations étant généré à partir de celui-ci, le deuxième éclairage étant différent du troisième éclairage ; f) vérifier l'authenticité du document de sécurité et/ ou du deuxième élément de sécurité au moins sur la base dudit deuxième ensemble de données et dudit troisième ensemble de données.

CLAIM 1. A method for authenticating a security document (1) by means of at least one device (2), wherein in the method the following steps are carried out, in particular in the following sequence: a) providing the security document (1) comprising at least one first security element (1 a) and at least one second security element (1 b), b) providing the at least one device (2), wherein the at least one device (2) comprises at least one sensor (20), c) acquiring first optical information of the at least one first security element (1 a) by means of the at least one sensor (20) of the at least one device (2) during a first illumination, wherein at least one first data set specifying this information is generated therefrom, d) acquiring second optical information of the at least one second security element (1 b) by means of the at least one sensor (20) of the at least one device (2) during a second illumination, wherein at least one second data set specifying this information is generated therefrom, e) acquiring third optical information of the at least one second security element (1 b) by means of the at least one sensor (20) of the at least one device (2) during a third illumination, wherein at least one third data set specifying this information is generated therefrom, wherein the second illumination differs from the third illumination, f) checking the authenticity of the security document (1) and/or of the at least one second security element (1 b) at least based on the at least one second data set and the at least one third data set.



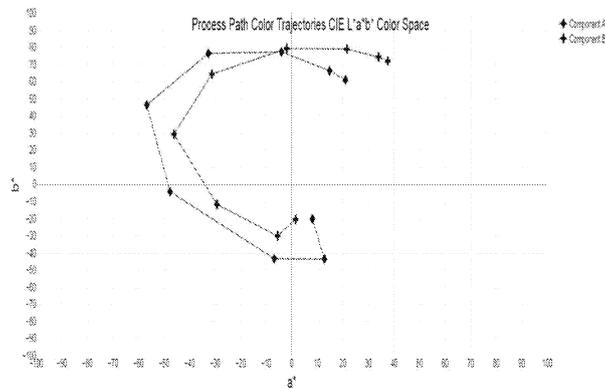
checking the authenticity of the security document (1) and/or of the at least one second security element (1 b) at least based on the at least one second data set and the at least one third data set.

COMPOSITION INCLUDING A COLOR SHIFTING PIGMENT HAVING A DIFFERENT PARTICLE SIZE

A composition including a first color shifting pigment flake population having a first D50 particle size; and a second color shifting pigment flake population having a second D50 particle size that is different from the first D50 particle size, wherein the first color shifting pigment flake population and the second color shifting pigment flake population have a similar face color and color shift is disclosed. An article including the composition is included. A method of making the composition and a method of making the article are also disclosed.

COMPOSITION COMPRENANT UN PIGMENT À VARIATION CHROMATIQUE AYANT UNE TAILLE DE PARTICULE DIFFÉRENTE

L'invention concerne une composition comprenant une première population de paillettes de pigment à variation chromatique ayant une première taille de particule D50 ; et une seconde population de paillettes de pigment à variation chromatique ayant une seconde taille de particule D50 qui est différente de la première taille de particule D50, la première population de paillettes de pigment à variation chromatique et la seconde population de paillettes de pigment à variation chromatique ayant une couleur de face et une variation chromatique similaires. L'invention concerne également un article comprenant la composition. L'invention concerne en outre un procédé de préparation de la composition et un procédé de fabrication de l'article.



CLAIM 1. A composition comprising: a first color shifting pigment flake population having a first D50 particle size; and a second color shifting pigment flake population having a second D50 particle size that is different from the first D50 particle size, wherein the first color shifting pigment flake population and the second color shifting pigment flake population are present in the composition in a ratio of from 5:1 to 1:5 by weight; and wherein an optical thickness of a single cavity of a small D50 particle size is on average 1.5 times larger than an optical thickness of dielectric layer of a large D50 particle size.

P33781

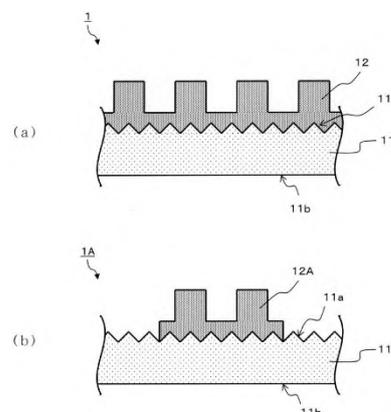
JP2021110779

Priority Date: 07/01/2020

DAI NIPPON PRINTING

DIFFRACTION OPTICAL ELEMENT, ILLUMINATION DEVICE, AND METHOD FOR MANUFACTURING DIFFRACTION OPTICAL ELEMENT

TOPIC: To provide a diffraction optical element having heat resistance and high transmittance, an illumination device using the diffraction optical element, and a method for manufacturing the diffraction optical element. INVENTION: a diffraction optical element that shapes light from a light source, the diffraction optical element including: a transparent base material having a first surface and a second surface on a side opposite the first surface; a diffraction grating portion provided on the first surface side of the transparent base material, made from a material different from a material constituting the transparent base material, and having a recessing and protruding structure; Wherein the transparent base material is formed of a thermoplastic resin, a storage elastic modulus at 260 °C of the thermoplastic resin constituting the transparent base material is 6.2×10^7 Pa or greater and 4.0×10^8 Pa or less, and the first surface of the transparent base material is a rougher surface than the second surface.



CLAIM 1. A diffraction optical element that shapes light from a light source, the diffraction optical element comprising: a transparent base material having a first surface and a second surface on a side opposite the first surface; and a diffraction grating portion provided on the first surface side of the transparent base material, made from a material different from a material constituting the transparent base material, and having a recessing and protruding structure; wherein The transparent base material is composed of a thermoplastic resin, a storage elastic modulus at 260 °C of the thermoplastic resin constituting the transparent base material is from 6.2×10^7 Pa to 4.0×10^8 Pa, and the first surface of the transparent base material is a rougher surface than the second surface.

P33790

BANKNOTE – THREAD

EP3865312

Priority Date: 14/02/2020

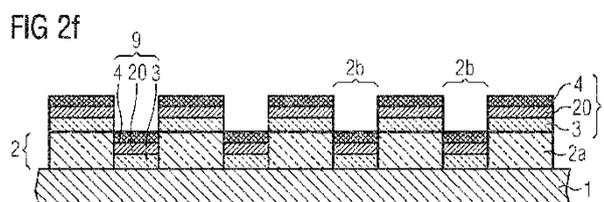
HUECK FOLIEN

METHOD FOR MANUFACTURING A SAFETY ELEMENT

The invention relates to a method for producing a security element (10) with a security feature, said security feature comprising a first motif (11) having a color shift effect and a second motif (12).

In order to permit simplified production and the production of security features producing a partial colour shift effect with very high resolution, the following steps are provided according to the invention: - provision of a carrier substrate (1); - applying a lift-off capable embossing lacquer layer (2); - producing the second motif (12) by partially removing the lift-off capable embossing lacquer layer (2) in the form of the first motif (11) by embossing the first motif (11) into the lift-off capable embossing lacquer layer (2); - applying a thin-film element (9) generating the color shift effect, comprising an absorber layer (3), a dielectric spacer layer (20) and a reflection layer (4); - removing the remaining lift-off capable embossing lacquer layer (2) by means of a lift-off method, so that those regions of the thin-film element (9) applied to the lift-off capable embossing lacquer layer (2) in the form of the second motif (12) are removed while the thin-film element (9) remains in the form of the first motif (11).

CLAIM 1. A method for producing a security element (10) having a security feature (16), which security feature (16) comprises a first motif (11) generating a color shift effect and a second motif (12), comprising the following steps:- Providing a carrier substrate (1); - Applying a lift-off capable embossing lacquer layer (2); - Producing the second motif (12) by partial removal of the lift-off capable embossing lacquer layer (2) in the form of the first motif (11) by embossing the first motif (11) into the lift-off capable embossing lacquer layer (2) in such a way that, characterized in that the lift-off capable embossing lacquer layer (2) is removed in an embossing direction (17) up to a layer (1, 8) lying directly below the lift-off capable embossing lacquer layer (2); - Application of a thin-film element (9) which generates the color shift effect and comprises an absorber layer (3), a dielectric spacer layer (20) and a reflection layer (4); - Removing the remaining lift-off capable embossing lacquer layer (2) by means of a lift-off method so that those regions of the thin-film element (9) applied to the lift-off capable embossing lacquer layer (2) in the form of the second motif (12), together with the lift-off capable embossing lacquer layer (2), while the thin-film element (9) remains in the form of the first motif (11) on the layer (1, 8) lying directly below the lift-off capable embossing lacquer layer (2).



P33791

BANKNOTE – THREAD

EP3865311

HUECK FOLIEN

Priority Date: 14/02/2020

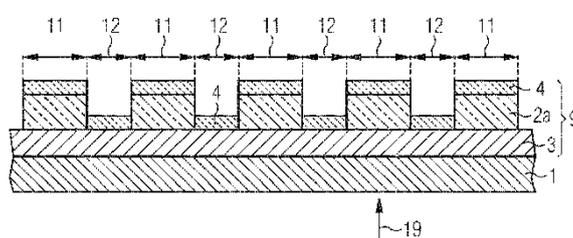
METHOD FOR MANUFACTURING A SAFETY ELEMENT

The invention relates to a method for producing a security element (10) with a security feature, said security feature comprising a first motif (11) having a color shift effect and a second motif (12).

In order to facilitate a simplified production and the production of the first motif or second motif (12) with very high resolution, the following steps are provided according to the invention: - providing a carrier substrate (1); - applying an absorber layer (3); - applying an embossing lacquer layer (2); - producing the first motif (11) by partially removing the embossing lacquer layer (2) in the form of the second motif (12) by embossing the second motif (12) into the embossing lacquer layer (2); - applying a reflection layer (4), wherein a thin-film element (9) in the form of the first motif (11) generating a color shift effect is formed by the application of the reflection layer (4) in that the part of the embossing lacquer layer (2) remaining after embossing forms an intermediate layer (2 a) between absorber layer (3) and reflection layer (4); and wherein the application of the reflection layer (4) produces an effect in the form of the second motif (12) which is optically distinguishable from the colour shift effect of the thin-film element (9) in the form of the first motif (11).

CLAIM 1. A method for producing a security element (10) having a security feature (16), which security feature (16) comprises a first motif (11) having a color shift effect and a second motif (12), comprising the following steps:- Providing a carrier substrate (1); - Applying an absorber layer (3); - Applying an embossing lacquer layer (2); - Producing the first motif (11) by partial removal of the embossing lacquer layer (2) in the form of the second motif (12) by embossing the second motif (12) into the embossing lacquer layer (2) in such a way that the embossing lacquer layer (2) is removed in an embossing direction (17) as far as a layer (3, 8) lying directly below the embossing lacquer layer (2); - Application of a reflection layer (4), wherein a thin-film element (9) in the form of the first motif (11) generating a color shift effect is formed by the application of the reflection layer (4) in that the part of the embossing lacquer layer (2) remaining after embossing forms an intermediate layer (2 a) between absorber layer (3) and reflection layer (4); and wherein the application of the reflection layer (4) produces an effect in the form of the second motif (12) which is optically distinguishable from the colour shift effect of the thin-film element (9) in the form of the first motif (11).

FIG 2g



P33819

STRIP

CN213919911U

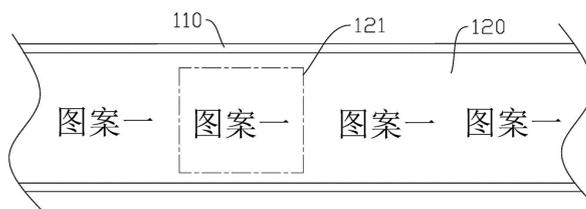
DONGGUAN PAIHONG INDUSTRIAL

Priority Date: 17/09/2020

INVISIBLE ANTI-FAKE RIBBON

The utility model discloses an invisible anti-counterfeiting ribbon, which comprises a ribbon layer and a reflective film layer, wherein the ribbon layer is in a strip shape; the reflective film layer is arranged on the woven belt layer; the light-reflecting film layer is provided with a pattern area, more than two different patterns are formed in the pattern area, and the pattern area displays one of the patterns at different angles. Different patterns can be seen from different angles by the invisible anti-counterfeiting mesh belt, so that the anti-counterfeiting effect is achieved. The application range of the invisible anti-counterfeiting braid is wider due to the combination of the braid and the reflective film, the ornamental value and the aesthetic property of the braid layer are increased, and the braid layer is combined with the reflective film to have scientific and technological sense and fashion sense.

CLAIM 1. An invisible anti-counterfeiting ribbon, which is characterized by comprising: a webbing layer, the webbing layer being in the form of a strip; the reflective film layer is attached to the woven belt layer; the light-reflecting film layer is provided with a pattern area, more than two different patterns are formed in the pattern area, and the pattern area displays one of the patterns at different angles.



P33826

BRAND PROTECTION

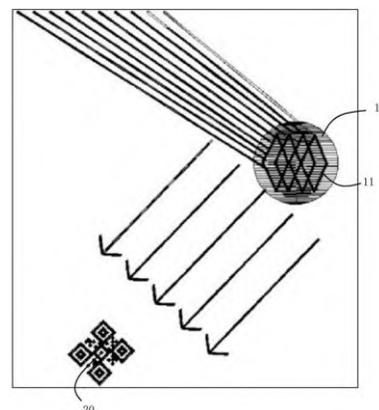
CN213844570U

GUANGZHOU JINMENG JEWELLERY

Priority Date: 12/01/2021

REFLECTIVE PROJECTION SURFACE ANTI-COUNTERFEITING STRUCTURE

The utility model discloses a but projected surface anti-fake structure of reflection formula, including marking the carrier and setting up in the mark structure on marking the carrier surface, mark the structure and constitute a plurality of finishing impression structures of marking the pattern including the combination, each finishing impression structure passes through the finishing impression mechanism and in the surface machining shaping of marking the carrier, and the mark structure passes through the light beam and shines the ability and can project out the mark pattern on the plane. This but surface anti-fake structure of reflective projection is through a plurality of carved designs combination molding on sign carrier surface, and the identifier shines the sign carrier through the light beam slope, can through the light reflection with the pattern formation of image that the sign pattern is always on the plane, in the aspect of this structure use, but its whole identifiability of formation of image is high, the utility model is used for the anti-fake mark field.



P33855

PRINTING

CN113263847

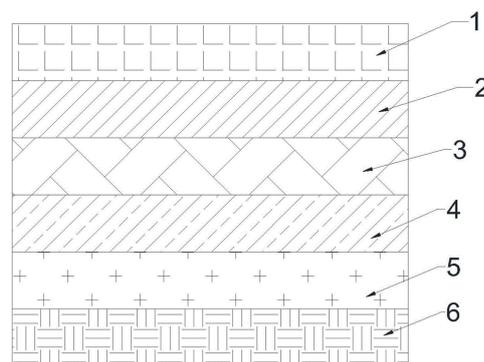
ANHUI JINCAI ANTI COUNTERFEITING TECHNOLOGY

Priority Date: 17/05/2021

HEAT TRANSFER GOLD STAMPING STAINED PAPER AND HEAT TRANSFER ANTI-COUNTERFEITING PRINTING PROCESS

The invention discloses a heat transfer gold stamping stained paper and a heat transfer anti-counterfeiting printing process, wherein the heat transfer gold stamping stained paper comprises a base film layer and a hot melt adhesive powder layer, and a transparent release layer, a protective layer, an ink layer and a fine aluminum plating layer are sequentially arranged between the base film layer and the hot melt adhesive powder layer; the base film layer is composed of a PET polyester film; the release agent in the transparent release layer adopts paraffin; the protective layer adopts water-based polyurethane resin as a material of the protective layer; the printing ink layer consists of a synthetic resin layer and a dye layer, and forms the color of the bronzing paper; the fine aluminum plating layer reflects light rays to enable the ink layer to present metal luster; the hot melt adhesive powder layer is composed of hot melt plastic. The heat transfer gold stamping stained paper can enhance the brightness of gold stamped by the gold stamping paper, so that the gold stamping stained paper has bright effect and good anti-counterfeiting effect, and the ink layer has the anti-counterfeiting effect of metallic luster.

CLAIM 1. A heat transfer gold stamping stained paper comprises a base film layer (1) and a hot melt adhesive powder layer (6), and is characterized in that a transparent release layer (2), a protective layer (3), an ink layer (4) and a fine aluminum plating layer (5) are sequentially arranged between the base film layer (1) and the hot melt adhesive powder layer (6); the base film layer (1) is composed of a PET polyester film and plays a supporting role for other layers; the transparent release layer (2) enables the protective layer (3), the ink layer (4), the fine aluminum coating layer (5) and the hot melt adhesive powder layer (6) to be coated during hot stamping, and the release agent in the transparent release layer (2) adopts paraffin wax which is sprayed on the base film layer (1) in a solid, powder and mist form; the protective layer (3) is made of aqueous polyurethane resin, and the protective layer (3) is used for protecting the ink layer (4) and the fine aluminum plating layer (5); the printing ink layer (4) is composed of a synthetic resin layer and a dye layer, the color of the bronzing paper is formed, anti-counterfeiting information is printed and pressed on the synthetic resin layer, and the dye layer is coated on the synthetic resin layer to display and color the anti-counterfeiting information; the fine aluminum plating layer (5) is formed by evaporating, cooling and sublimating and depositing metal aluminum at high temperature in vacuum, and the fine aluminum plating layer (5) reflects light rays to enable the ink layer (4) to show metal luster; the hot melt adhesive powder layer (6) is composed of hot melt plastic, and the protective layer (3), the ink layer (4) and the fine aluminum plating layer (5) are bonded on an object to be ironed.



P33863

PRINTING – THREAD

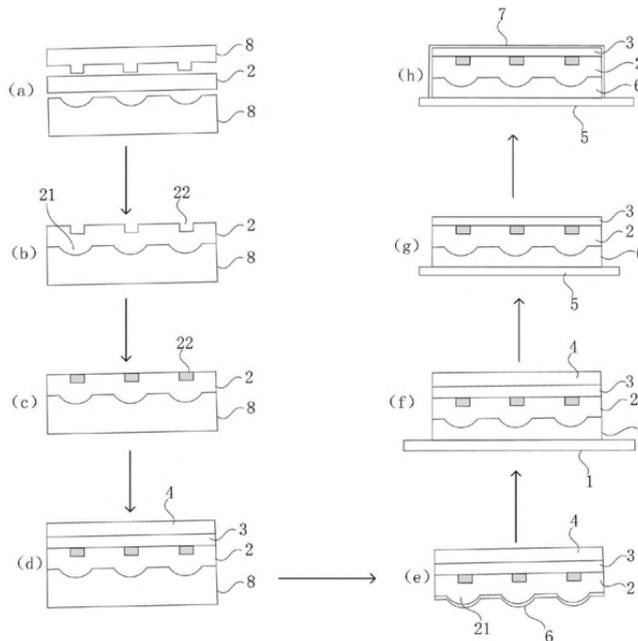
CN113232444

Priority Date: 20/05/2021

SHEN BOZHONG - SHEN SU - YANG LI

MOTION SAFETY LINE WATER TRANSFER PAPER, MANUFACTURING METHOD, APPLICATION AND PRODUCT

The invention discloses a method for manufacturing motion safety line water transfer paper, which comprises the following steps: step A: providing a molding substrate; and B: stamping a spherical reflective bead on one side of the molding base material, and stamping a pattern groove opposite to the reflective bead on the other side; and C: and thermoprinting one side of the formed substrate material reflective bead on a water transfer printing carrier to obtain the motion safety line water transfer printing paper. According to the motion safety line water transfer printing paper manufactured by the manufacturing method, after the reflective beads and the pattern grooves are formed on the forming base material, one side of the reflective beads of the forming base material is hot-stamped on the water transfer printing carrier, a PET (polyethylene terephthalate) protective film is not needed to be used as a carrier, the motion safety line can be sintered on products such as ceramic products and glass products, the warping and falling are avoided, and the application range of the motion safety line is enlarged.



CLAIM 1. A manufacturing method of motion safety line water transfer paper is characterized by comprising the following steps: step A: providing a molding substrate; and B: stamping a spherical reflective bead on one side of the molding base material, and stamping a pattern groove opposite to the reflective bead on the other side; and C: and thermoprinting one side of the formed substrate material reflective bead on a water transfer printing carrier to obtain the motion safety line water transfer printing paper.

P33875

PRINTING – BANKNOTE

CN113173022

Priority Date: 24/05/2021

CHINA BANKNOTE PRINTING & MINT - CHINA BANKNOTE PRINTING TECHNOLOGY RESEARCH INSTITUTE

TRANSPARENT ANTI-COUNTERFEITING ELEMENT, MANUFACTURING METHOD AND DETECTION METHOD THEREOF, DETECTION EQUIPMENT THEREOF AND SECURITY ARTICLE

The disclosure relates to a transparent anti-counterfeiting element, a manufacturing method and a detection method and equipment thereof, and a security article. The transparent anti-counterfeiting element comprises a transparent material layer and an anti-counterfeiting dielectric layer, wherein: the transparent material layer has a patterned fine-grid concave-convex structure; the anti-counterfeiting dielectric layer is filled in the groove of the transparent material layer, and the light transmittance in a visible light wave band is not higher than 50% to form a patterned anti-counterfeiting characteristic network. The transparent anti-counterfeiting element has good transmissivity under natural light, and can observe fine patterns or specific anti-counterfeiting characteristic signals by using special equipment, so that the counterfeiting threshold is improved, and the user experience is improved.

CLAIM 1. A transparent security element, comprising: transparent material layer and anti-fake dielectric layer, wherein: the transparent material layer has a patterned fine-grid concave-convex structure; the anti-counterfeiting dielectric layer is filled in the groove of the transparent material layer, and the light transmittance in a visible light wave band is not higher than 50% to form a patterned anti-counterfeiting characteristic network.



P33878

BRAND PROTECTION

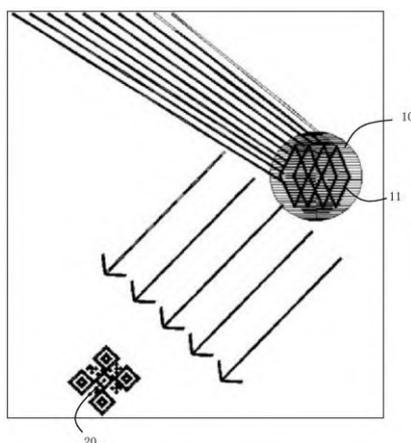
CN113160694

Priority Date: 12/01/2021

GUANGZHOU JINMENG JEWELLERY

ANTI-COUNTERFEITING STRUCTURE CAPABLE OF REFLECTING PROJECTION

The invention discloses a reflective projected anti-counterfeiting structure, which comprises a mark carrier and mark structures arranged on the surface of the mark carrier, wherein each mark structure comprises a plurality of carved structures which are combined to form a mark pattern, each carved structure is processed and molded on the surface of the mark carrier through a carved mechanism, and the mark structures can project the mark patterns on a plane through light beam irradiation. The reflective projected anti-counterfeiting structure is formed by combining a plurality of carved structures on the surface of the mark carrier, and an identifier irradiates the mark carrier obliquely through light beams, so that a pattern which is consistent with a mark pattern can be imaged on a plane through light reflection.



CLAIM 1. The anti-counterfeiting structure capable of reflecting projection is characterized by comprising a mark carrier and mark structures arranged on the surface of the mark carrier, wherein the mark structures comprise a plurality of carved structures which are combined to form a mark pattern, each carved structure is processed and molded on the surface of the mark carrier through a carved mechanism, and the mark structures can project the mark pattern on a plane through light beam irradiation.

P33885

PRINTING – BANKNOTE – THREAD – LUMINESCENCE

CN113147215

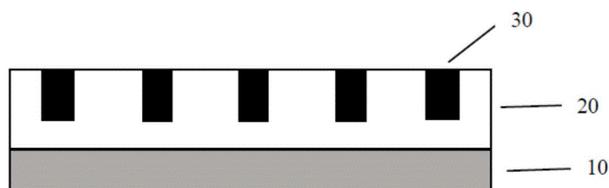
Priority Date: 24/05/2021

CHINA BANKNOTE PRINTING & MINT - CHINA BANKNOTE PRINTING TECHNOLOGY RESEARCH INSTITUTE

TRANSPARENT ANTI-COUNTERFEITING ELEMENT, MANUFACTURING METHOD AND DETECTION METHOD THEREOF, DETECTION EQUIPMENT THEREOF AND SECURITY ARTICLE

The disclosure relates to a transparent anti-counterfeiting element, a manufacturing method and a detection method and equipment thereof, and a security article. The transparent security element comprises: transparent flexible substrate layer, at least one transparent colloidal layer and at least one luminescent layer, wherein: the transparent colloidal layer is arranged above the transparent flexible substrate layer; the transparent colloid layer is provided with a patterned fine grid concave-convex structure; the luminous layer is filled in the groove of the transparent colloid layer to form a patterned luminous network. The transparent anti-counterfeiting element has good transmissivity under natural light, and fine patterns can be observed by using special equipment, so that the counterfeiting threshold is improved, and the user experience is improved.

CLAIM 1. A transparent security element, comprising: transparent flexible substrate layer, at least one transparent colloidal layer and at least one luminescent layer, wherein: the transparent colloidal layer is arranged above the transparent flexible substrate layer; the transparent colloid layer is provided with a patterned fine grid concave-convex structure; the luminous layer is filled in the groove of the transparent colloid layer to form a patterned luminous network.



Click on the title to return to table of contents

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

N8040

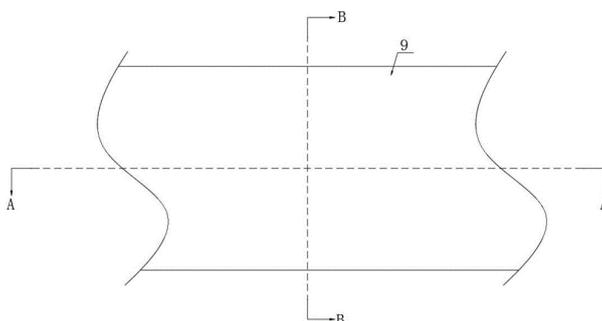
CN214002713U

Priority Date: 19/10/2020

HUBEI YI EMMETT HOLOGRAPHIC TECHNOLOGY

INKLESS HOLOGRAPHIC LASER CORRUGATED BOARD PACKAGING MATERIAL

The utility model discloses a holographic radium-shine corrugated container board packaging material of inkless type, concretely relates to packaging material technical field, including the division board, division board top and bottom are all fixed and are equipped with the corrugated container board layer, a terminal surface that the corrugated container board layer is close to the division board is fixed and is equipped with a plurality of buffering air cushions, and the even interval of a plurality of buffering air cushions sets up, a terminal surface that the division board was kept away from on the corrugated container board layer is fixed and is equipped with the protection bed course, the fixed wire mesh layer that is equipped with of a terminal surface that corrugated container board layer was kept away from on the protection bed course. The utility model discloses a cooperation of wire mesh layer and memory metal steel wire is used, and the wire mesh layer has strengthened holistic compressive capacity and horizontal support intensity, makes the wire mesh layer can bear and receive bigger pressure, and memory metal steel wire when the pressurized, has played the elastic support effect to corrugated container board layer in it, has improved holistic support intensity, resistance to compression, antidetonation and buffering's effect greatly, makes its use and packing effect better.



CLAIM 1. The utility model provides a laser corrugated container board packaging material of inkless type holography, includes division board (1), its characterized in that: the corrugated board layer (2) is fixedly arranged at the top and the bottom of the partition plate (1), a plurality of buffer air cushions (3) are fixedly arranged on one end face, close to the partition plate (1), of the corrugated board layer (2), the buffer air cushions (3) are uniformly arranged at intervals, a protective cushion layer (4) is fixedly arranged on one end face, far away from the partition plate (1), of the corrugated board layer (2), a metal wire mesh layer (5) is fixedly arranged on one end face, far away from the corrugated board layer (2), of the protective cushion layer (4), a memory metal steel wire (6) is fixedly arranged between the two metal wire mesh layers (5), one end of the memory metal steel wire (6) sequentially penetrates through the two protective cushion layers (4), the two corrugated board layers (2) and the partition plate (1), a flame-retardant layer (7) is fixedly arranged on one end face, far away from the protective cushion layer (4), of the flame-retardant layer (7) is fixedly arranged on one end face, far away from the metal wire mesh layer (5), of the waterproof coating (8), and a thin film layer (9) is fixedly arranged on the top of the waterproof coating (8) above the partition plate (1).

N8074

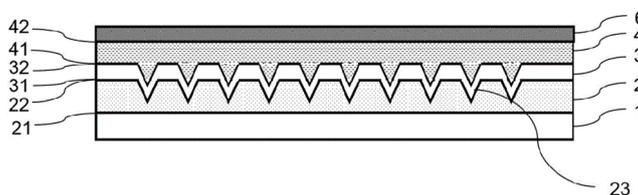
CN113173028

Priority Date: 20/05/2021

WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT

HOLOGRAPHIC THERMOPRINTING FILM WITH GLAZE COLOR JADE PORCELAIN EFFECT AND PREPARATION METHOD

The invention provides a holographic thermoprinting film with an enamel jade porcelain effect and a preparation method thereof, wherein the holographic thermoprinting film comprises a UV curing layer, a holographic enamel layer and a jade porcelain layer which are sequentially superposed; the UV curing layer comprises a first surface and a second surface, and a holographic micro-groove structure is arranged on the second surface; the holographic glaze color layer is formed on the second surface of the UV curing layer and comprises a third surface and a fourth surface, and holographic micro-groove structures are copied on the third surface and the fourth surface; the jade porcelain color layer is formed on the fourth surface of the holographic glaze color layer and comprises a fifth surface and a sixth surface, and the fifth surface is attached to the holographic glaze color layer and is also copied with a holographic micro-groove structure; according to the invention, the anti-reflection brightening holographic glaze color layer is added between the UV curing layer and the holographic color layer, the material formula of the holographic color layer is improved, a new reaction curing jade porcelain color layer is formed, the holographic film which is like jade porcelain and not transparent is realized, and the wear resistance of holographic patterns is good.



CLAIM 1. A holographic thermoprinting film with an enamel jade porcelain effect is of a layered structure and is characterized by comprising a UV curing layer (2), a holographic enamel layer (3) and a jade porcelain color layer (4) which are sequentially overlapped; the UV cured layer (2) comprises a first surface (21) and a second surface (22), and a holographic micro-groove structure (23) is arranged on the second surface (22); said holographic enamel layer (3) being formed on the second surface (22) of said UV cured layer (2), said holographic enamel layer (3) comprising a third surface (31) and a fourth surface (32), said third surface (31) and fourth surface (32) each being replicated with said holographic micro-groove structure (23); the jade porcelain color layer (4) is formed on a fourth surface (32) of the holographic glaze color layer (3), the jade porcelain color layer (4) comprises a fifth surface (41) and a sixth surface (42), and the fifth surface (41) is attached to the holographic glaze color layer (3) and is also copied with the holographic micro-groove structure (23); the holographic glaze color layer (3) is a transparent, luminous or non-luminous, colorless or colored layer, and the jade porcelain color layer (4) is an opaque or semitransparent or transparent, luminous or non-luminous, white or colored layer.

Click on the title to return to table of contents

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

N8007

WO2021151794

Priority Date: 28/01/2020

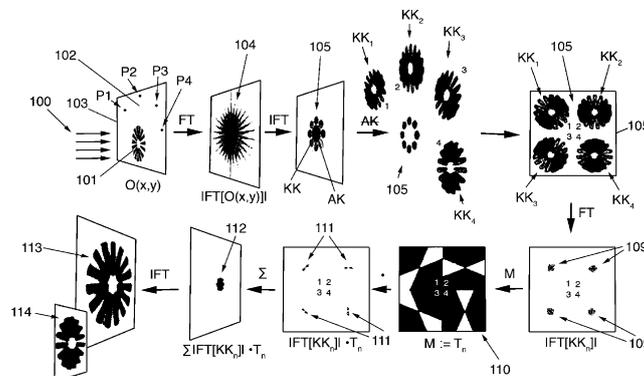
**FRAUNHOFER GES ZUR FOERDERUNG DER ANGEWANDTEN
TECHNIK E V - GSI HELMHOLTZZENTRUM FUER
SCHWERIONENFORSCHUNG - UNIVERSITY JENA FRIEDRICH
SCHILLER**

METHOD AND APPARATUS FOR LENSLESS IMAGING USING FOURIER TRANSFORM HOLOGRAPHY

Described are a method and a device for lensless imaging by means of Fourier transformation holography, for the reconstruction of an object (101) by irradiation of the object (101) with a coherent light field (100) in an object plane (103) in which the object (101) is arranged, and an intensity distribution of a diffraction image (104) of the light field (100) in a detector plane by means of a surface detector. As part of conventional Fourier transformation holography, it is proposed that at least two diffraction structures (102, P1, P2, P3, P4) are provided and are irradiated from the light field (100) together with the object (101). From the inverse Fourier transform (105) of the diffraction image (104), cross correlations (KK) are separated and a Fourier transformation (FT) of each of the separated cross correlations (KK) is carried out, wherein the Fourier transforms (109) of the separated cross correlations (KK) are masked by a Fourier mask (M) and blurred regions of the Fourier transforms (109) are blanked out. All masked Fourier transforms (111) are combined to form a mask image (112) of the diffraction image (104), and the inverse Fourier transform is generated from the mask image (112) by applying the inverse Fourier transformation (IFT) of the mask image (112).

PROCÉDÉ ET DISPOSITIF D'IMAGERIE SANS LENTILLE AU MOYEN DE L'HOLOGRAPHIE PAR TRANSFORMATION DE FOURIER

L'invention concerne un procédé et un dispositif d'imagerie sans lentille au moyen de l'holographie par transformation de Fourier, ceux-ci étant destinés à la reconstruction d'un objet (101) par l'irradiation de l'objet (101) avec un champ lumineux cohérent (100) dans un plan d'objet (103) dans lequel l'objet (101) est disposé, et d'une distribution d'intensité d'une image de diffraction (104) du champ lumineux (100) dans un plan de détecteur au moyen d'un détecteur de surface. Faisant partie de l'holographie par transformation de Fourier classique, la présente invention propose qu'au moins deux structures de diffraction (102, P1, P2, P3, P4) soient fournies et irradiées à partir du champ lumineux (100) conjointement avec l'objet (101). À partir de la transformée de Fourier inverse (105) de l'image de diffraction (104), des corrélations croisées (KK) sont séparées et une transformation de Fourier (FT) de chacune des corrélations croisées (KK) séparées est effectuée, les transformées de Fourier (109) des corrélations croisées (KK) séparées étant masquées par un masque de Fourier (M) et des zones floues des transformées de Fourier (109) étant effacées. Toutes les transformées de Fourier masquées (111) sont combinées pour former une image de masque (112) de l'image de diffraction (104), et la transformée de Fourier inverse est générée à partir de l'image de masque (112) par l'application de la transformation de Fourier inverse (IFT) de l'image de masque (112).



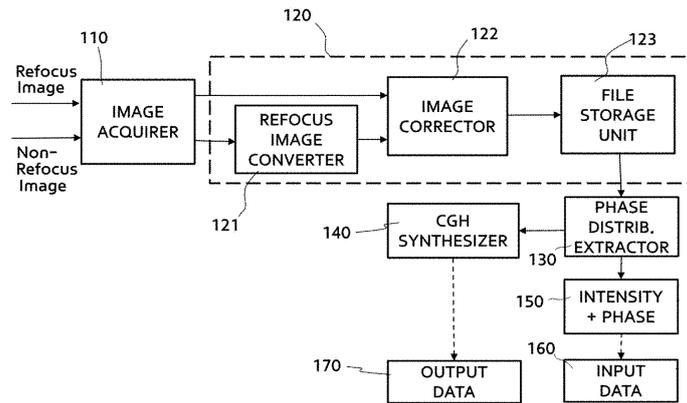
N8009

US20210264628
Priority Date: 25/02/2020

ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE

SYSTEM AND METHOD FOR DIGITAL HOLOGRAM SYNTHESIS AND PROCESS USING DEEP LEARNING

A system and method for hologram synthesis and processing capable of synthesizing holographic 3D data and displaying (or reconstructing) a full 3D image at high speed using a deep learning engine. The system synthesizes or generates a digital hologram from a light field refocus image input using the deep learning engine. That is, RGB-depth map data is acquired at high speed using the deep learning engine, such as a convolutional neural network (CNN), from real 360° multi-view color image information and the RGB-depth map data is used to produce hologram content. In addition, the system interlocks hologram data with user voice recognition and gesture recognition information to display the hologram data at a wide viewing angle and enables interaction with the user.



CLAIM 1. A system for digital hologram synthesis and process using deep learning, comprising: a learning database (DB) constructed with input learning data as a light field (LF) refocus complex amplitude image converted from an LF refocus image and output learning data as a computer-generated hologram (CGH) generated based on an RGB-depth map; a hologram data calculator configured to synthesize hologram data by training a deep learning engine using the learning DB; and a holographic display terminal configured to receive the hologram data from the hologram data calculator to display the received hologram data as hologram content.

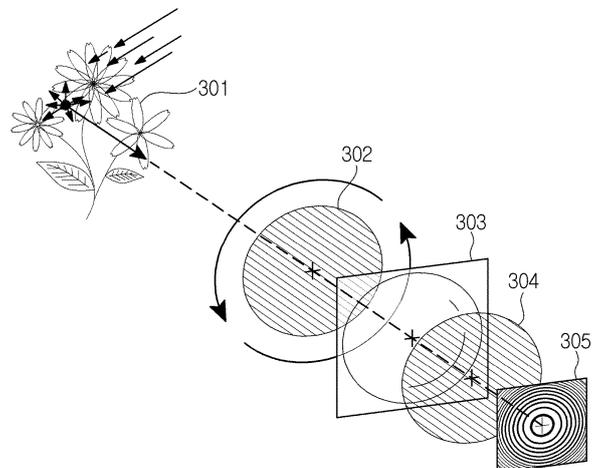
N8011

US20210255584
Priority Date: 18/02/2020

ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE

METHOD AND APPARATUS FOR GENERATING FULL-COLOR HOLOGRAPHIC IMAGE

The present disclosure provides a method and apparatus for generating a full-color holographic image. The method of generating a full-color holographic image includes forming images for each color channel based on complex hologram data extracted from rays propagating from a target object, and combining the formed images into one color image, wherein the images for each color channel are formed at reconstruction points for each color channel derived based on the complex hologram data.



CLAIM 1. A method of generating a full-color holographic image, the method comprising: forming images for each color channel based on complex hologram data extracted from rays propagating from a target object; and combining the formed images into one color image, wherein the images for each color channel are formed at reconstruction points for each color channel derived based on the complex hologram data.

N8019

RU-205459

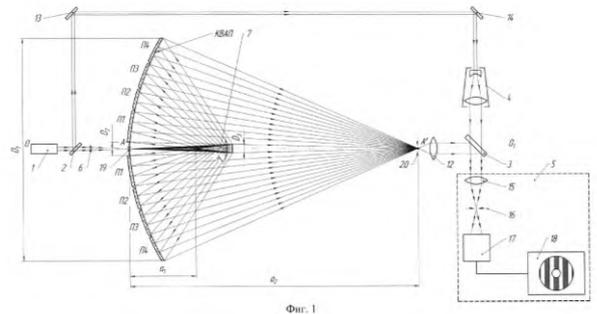
Priority Date: 25/02/2021

NAUCHNO PROIZVODSTVENNOE OBEDINENIE GOSUDARSTVENNYJ INSTITUT PRIKLADNOJ OPTIKI

HOLOGRAPHIC DEVICE FOR THE CONTROL OF THE FORM OF LARGE CLOGGED OPTICAL SURFACES

A useful model can be used for the control of large congested aspherical optical surfaces with a large slope and the gradient of the asphericity of both monolithic and composite aspherical mirrors and lenses. The holographic device contains a laser light source, a first light blower to divide the light beams into the measuring and support channels, a second light blower to combine the light beams of the measuring and support channels and to enter the image recording and processing channel. The support channel contains the lens of the beam, and the measuring channel contains a monochromatic point source, a center synthesized hologram with the working surface of the coaxial ring diffraction structure, and a collimating lens. A point diaphragm and a variable-diameter diaphragm have been introduced in the measuring channel. The working surface of the hologram of the optical unit is carried out as a circular cone facing towards a monochromatic point source of light. The hologram optical element is installed with the possibility of forming together with the optical-controlled image of the monochromatic point source in the plane of the light-colored diaphragm. A useful model allows for the control of the form of both monolithic and composite aspherical mirrors and lenses not only during their manufacture and certification, but also in space conditions for periodic monitoring of the form of composite mirrors of space telescopes.

CLAIM 1. The holographic device for the form control of large congested optical surfaces, containing a laser light source, the first light modulator to divide the light beams into the measuring and support channels, the second light selector to combine the light beams of the measuring and support channels and direction to the channel of recording and processing, with the support channel containing the lens of the beam and the measuring channel containing the device A monochromatic point source of light, an axially synthesized, hologram optical element with a working surface of the working surface of the coaxial ring diffraction structure and a collimating lens that is marked by the introduction in the measuring channel of a point diaphragm fitted with the possibility of placing at its center the top of the controlled optical surface, and dipid a variable-colored affrag located in the the focal plane of the collimating lens, with the surface of the axially synthesized hologram of the hologram complete in the form of a circular cone turned towards a monochromatic point source of light, with the center synthesized hologram unit installed with the optical-controlled surface of the monochromatic point source of light in the plane of diafafic light source a variable-colored frame.



N8023

KR20210100414

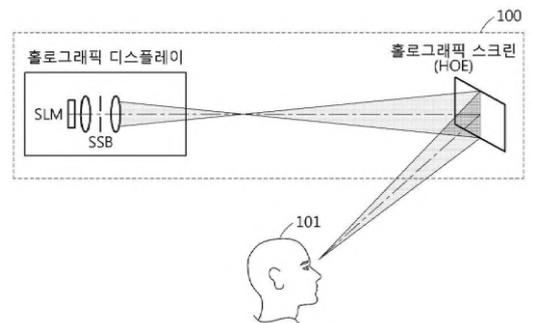
Priority Date: 06/02/2020

KOREA ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE

HOLOGRAM REPRODUCED IMAGE OUTPUT APPARATUS AND METHOD

A hologram reproduced image output apparatus includes at least one processor and a memory. The processor obtains holographic display color reproduction characteristic information from a color hologram generated based on the three-dimensional color image, obtains a converted three-dimensional color image by converting a color of the three-dimensional color image based on the holographic display color reproduction characteristic information and the holographic screen color reproduction characteristic information, Obtains a converted color hologram from the converted three-dimensional color image, and outputs an enhanced hologram reproduction image from the converted color hologram.

CLAIM 1. An image processing apparatus comprising: at least one processor; and a memory, wherein the processor is configured to obtain holographic display color reproduction characteristic information from a color hologram generated based on a three-dimensional color image, to obtain a converted three-dimensional color image by converting a color of the three-dimensional color image based on the holographic display color reproduction characteristic information and the holographic screen color reproduction characteristic information, Obtain a converted color hologram from the converted three-dimensional color image, and output an enhanced hologram reproduction image from the converted color hologram.



N8025

KR20210095433
Priority Date: 23/01/2020

KOREA ADVANCED INSTITUTE OF SCIENCE & TECHNOLOGY

DEEP LEARNING MODEL GENERATING PHASE HOLOGRAM AT HIGH SPEED AND LEARNING METHOD THEREOF

The present invention relates to a deep learning model specialized for generating a phase hologram using a hyperbolometric function and a Parsval equation. In order to develop a deep learning model which receives an arbitrary image and generates a phase hologram corresponding to the image, a learning method using a hyperbolometric function and a Parsval equation is developed. The present invention develops a learning method reflecting optical characteristics of a phase hologram in order to generate the phase hologram by deep learning. Normalizing to a range of (-1,1) using a hyperbolometric function to remove periodicity of a phase hologram generated by a deep learning model is made to be a one-to-one function. Since it is also difficult to evaluate its accuracy due to the insignificant form of the phase hologram, the original image and error are calculated after restoring the phase hologram to an image first and normalizing. In order to prevent confusion due to irregular normalization, a reconstructed image is normalized by using a coefficient of a parsfoot determined for each image. By generating a phase hologram using deep learning, a time required for generating the phase hologram is significantly reduced. As a result, it is possible to reproduce three-dimensional images in real time on a three-dimensional imaging platform such as Ar/VR. As a result, it is possible to open a new place of various content markets, such as text, education, and description based on a three-dimensional image.

CLAIM 1. A deep learning model for generating a phase hologram, the deep learning model comprising: receiving an image to be converted into a phase hologram; analyzing the image using deep learning to generate a phase hologram corresponding to the image; and removing periodicity of the phase hologram.

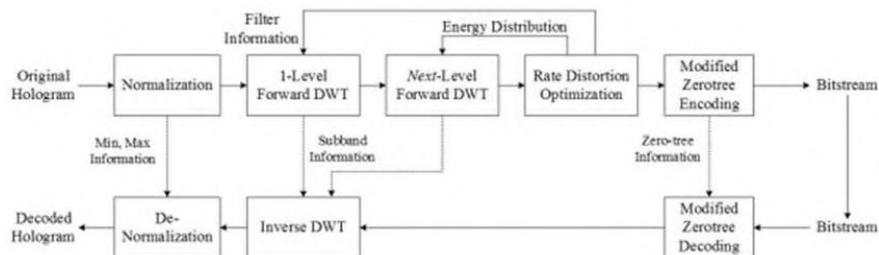
N8026

KR20210094990
Priority Date: 22/01/2020

KWANGWOON UNIVERSITY INDUSTRY ACADEMIC
COLLABORATION FOUNDATION

METHOD FOR COMPRESSION OF A FULL COMPLEX HOLOGRAM USING A MODIFIED ZEROTREE BASED ON ADAPTIVE WAVELET TRANSFORMATION

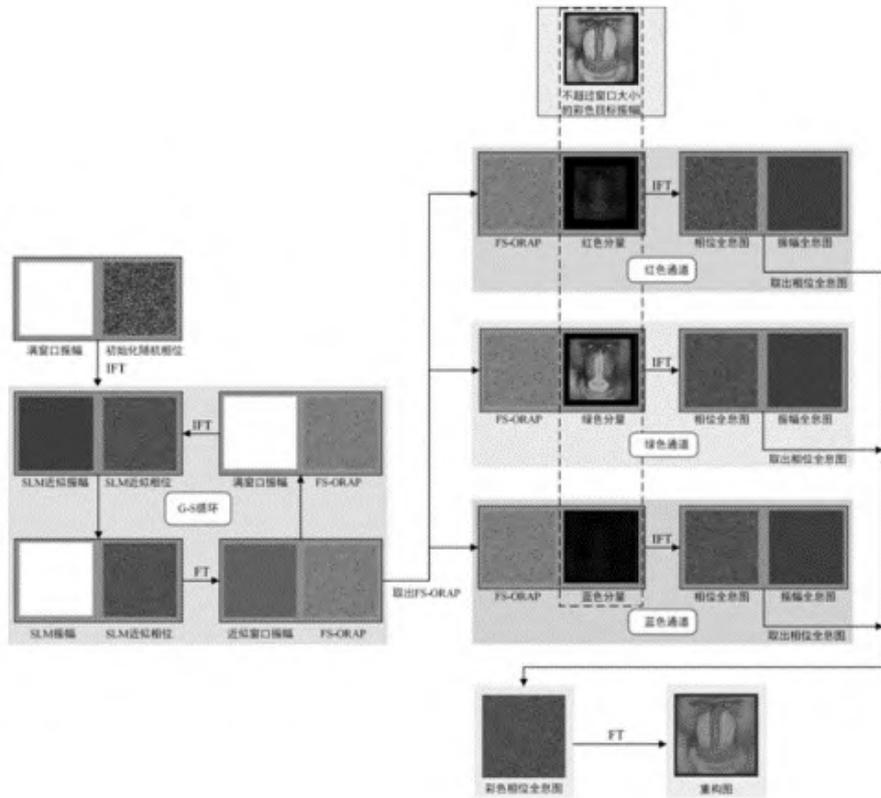
A method of compressing a digital hologram includes compressing the digital hologram using a standard codec, processing the digital hologram having various shapes and distributions into a shape capable of high efficiency compression while having a predetermined shape. The present invention relates to a method for fully complex hologram compression using a modified zero tree based on adaptive wavelet transform, the method comprising the steps of: (a) normalizing hologram data; (b) generating sub-bands for each filter using a plurality of filters, Repeatedly generating a sub-band having the highest energy distribution up to a maximum level, and finally selecting a filter having the highest energy concentration and a sub-band structure among sub-band structures of each filter, And (c) compressing the final selected sub-band structure, whereby hologram data is converted into a wavelet transform and a zero tree transform and then compressed, thereby increasing a compression ratio and minimizing loss of a hologram image due to the compression.



CLAIM 1. A method of fully complex hologram compression using a modified zerotree based on adaptive wavelet transform, the method comprising: normalizing hologram data; generating a subband for each filter using a plurality of filters, wherein the subband having a highest energy distribution is repeatedly generated to a maximum level, Finally selecting a filter having the highest energy distribution among the sub-band structures of the filters and the sub-band structure; and (c) compressing the finally selected sub-band structure.

NON-ITERATIVE COLOR PHASE HOLOGRAM GENERATION METHOD AND SYSTEM

The invention discloses a method and a system for generating a non-iterative color phase hologram, which belong to the technical field of color holographic display and comprise the following steps: obtaining a full-support optimized random phase based on a reconstruction plane and an initialized random phase, wherein the reconstruction plane is a full-support unit amplitude which is created in a spatial domain in advance and has the same size as the SLM plane; the random phase optimized for full support is combined with the monochromatic amplitudes of the RGB three-color channels to generate a color phase hologram. The non-iterative color phase hologram generation scheme does not need to perform G-S iteration respectively by channels, thereby greatly saving the calculation time.



CLAIM 1. A method of generating a non-iterative color phase hologram, comprising: obtaining a full-support optimized random phase based on a reconstruction plane and an initialized random phase, wherein the reconstruction plane is a full-support unit amplitude which is created in a spatial domain in advance and has the same size as the SLM plane; the random phase optimized for full support is combined with the monochromatic amplitudes of the RGB three-color channels to generate a color phase hologram.

Click on the title to return to table of contents

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

N8029

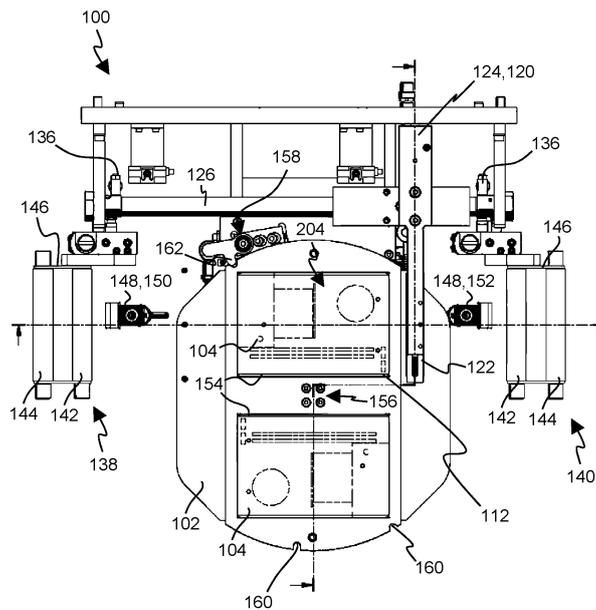
EP3869275

Priority Date: 12/02/2020

BUNDESDRUCKEREI

EXPOSURE TABLE FOR A HOLOGRAM EXPOSURE MACHINE

The invention relates to an exposure table (100) for a hologram exposure machine (300), having a holding device (102), in which a master receptacle (154) is formed or present, which is designed to receive a Master (104), and having a film guide, which is designed to guide a hologram film (200) relative to the holding device (102) and to position a film section (202) to be exposed in an exposure region (204) relative to the master (104) for hologram exposure, wherein the holding device (102) is formed as a plate with a plurality of master receptacles (154), and in that the orientation of the plate with respect to the exposure region (204) can be changed in such a way that selectively the Master (104) required for the hologram exposure is arranged with its master receptacle (154) in the exposure region (204).



CLAIM 1. Exposure table (100) for a hologram exposure machine (300), having a holding device (102), in which a master receptacle (154) is formed or present, which is designed to receive a Master (104), and having a film guide, which is designed to guide a hologram film (200) relative to the holding device (102) and to position a film section (202) to be exposed in an exposure region (204) relative to the master (104) for hologram exposure, characterized in that In that the holding device (102) is formed as a plate with a plurality of master receptacles (154), and in that the orientation of the plate with respect to the exposure region (204) can be changed in such a way that selectively the Master (104) required for the hologram exposure is arranged with its master receptacle (154) in the exposure region (204).

N8030

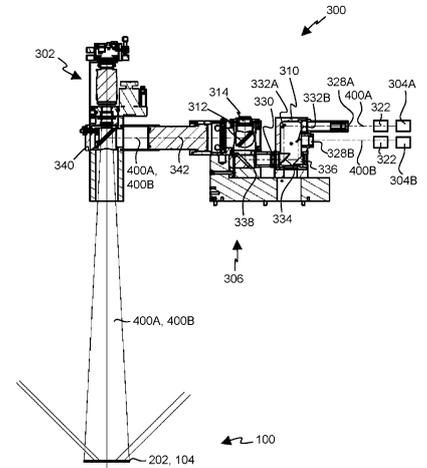
EP3865952

Priority Date: 12/02/2020

BUNDESDRUCKEREI

HOLOGRAM EXPOSURE MACHINE AND METHOD FOR INTRODUCING A PLURALITY OF VOLUME REFLECTION HOLOGRAMS INTO A HOLOGRAM FILM

The invention relates to a hologram exposure machine (300) for introducing a volume reflection hologram into a film section (202) of a hologram film (200), comprising a first light source (304 A) for emitting light (400 A), having a beam guiding optical system (306) for guiding the light (400 A) emitted by the first light source (304 A), having a spatial light modulator (314) which is designed to receive light (400 A) from the first light source (304 A) or from a part of the beam guiding optical system (306) and to return spatially modulated light (400 A), and having a Master (104) for the hologram exposure by means of the light (400) returned by the light modulator (314), wherein at least one second light source (304 B) is provided for emitting light (400 B), and in that the beam guiding optical system (306) is designed, also guide the light (400 B) of the second light source (304 B) to the spatial light modulator (314) configured to return spatially modulated light (400 B) of the second light source (304 B) for hologram exposure at the Master (104). The invention also relates to a method for introducing a plurality of volume reflection holograms into a hologram film (200).



CLAIM 1. Hologram exposure machine (300) for introducing a volume reflection hologram into a film section (202) of a hologram film (200), having a first light source (304 A) for emitting light (400 A), having beam guiding optics (306) for guiding the light (400 A) emitted by the first light source (304 A), having a spatial light modulator (314) which is designed to receive light (400 A) from the first light source (304 a) or from A part of the beam guiding optics (306) and to return spatially modulated light (400 a), and having A Master (104) for the hologram exposure by means of the light (400) returned by the light modulator (314), characterized in that In that at least one second light source (304 B) is provided for emitting light (400 B), and in that the beam guiding optical system (306) is designed to also guide the light (400 B) of the second light source (304 B) to the spatial light modulator (314) which is designed to return spatially modulated light (400 B) of the second light source (304 B) for hologram exposure at the Master (104).

N8031

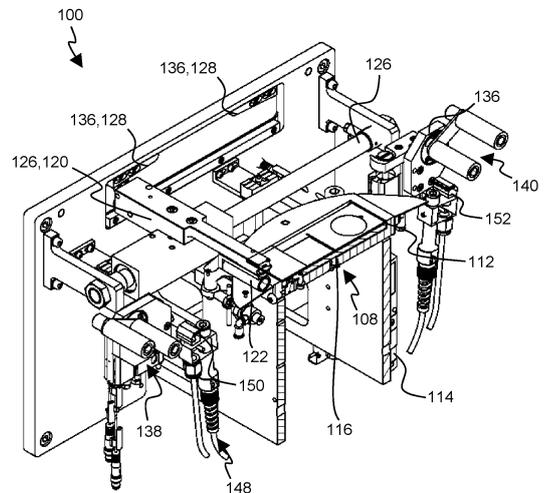
EP3865951

Priority Date: 12/02/2020

BUNDESDRUCKEREI

EXPOSURE TABLE FOR A HOLOGRAM EXPOSURE MACHINE AND METHOD FOR INTRODUCING A VOLUME HOLOGRAM INTO A FILM SECTION

The invention relates to an exposure table (100) for a hologram exposure machine (300), having a holding device (102), in which a Master (104) is accommodated, and having a film transport device (106), which is designed to transport a hologram film (200) relative to the holding device (102) and to position a film section (202) to be exposed relative to the master (104) for hologram exposure, wherein the holding device (102) is assigned a compressed-air device (108) which is designed to fix the film section (202) at least temporarily to the Master (104) held in the holding device (102) by means of a negative pressure. The invention also relates to a method for introducing a volume hologram into a film section (202) of a hologram film (200).



CLAIM 1. Exposure table (100) for a hologram exposure machine (300), having a holding device (102), in which a master (104) is accommodated, and having a film transport device (106), which is designed to transport the Master (104), transport a hologram film (200) relative to the holding device (102) and position a film section (202) to be exposed relative to the master (104) for hologram exposure, characterized in that In that the holding device (102) is assigned a compressed-air device (108) which is designed to fix the film section (202) at least temporarily by means of a negative pressure to the Master (104) held in the holding device (102).

N8032

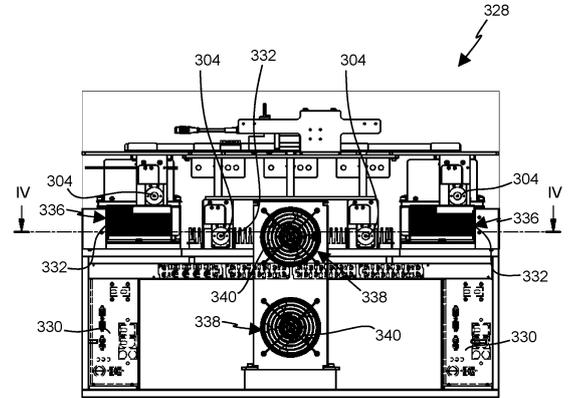
EP3865950

Priority Date: 12/02/2020

BUNDESDRUCKEREI

HOLOGRAM EXPOSURE MACHINE FOR INTRODUCING A VOLUME REFLECTION HOLOGRAM INTO A HOLOGRAM FILM

The invention relates to a hologram exposure machine (300) for introducing a volume reflection hologram into a film section (202) of a hologram film (200), having at least one light source (304), having beam-guiding optics (306) for guiding the light (400) emitted by the light source (304), having a spatial light modulator (314), which is designed to receive light (400) from the light source (400) or from the beam guiding optics (306) and to return spatially modulated light (400), and having an exposure table (100) which provides a Master (104) for the hologram exposure by means of the light (400) returned by the light modulator (314). The at least one light source (304) is accommodated in a light source chamber (328) which is spatially separated from the light modulator (314) and at least one part of the beam guiding optical system (306) and comprises at least one passage for the light (400) emitted by the light source (304).



CLAIM 1. Hologram exposure machine (300) for introducing a volume reflection hologram into a film section (202) of a hologram film (200), having at least one light source (304), having beam-guiding optics (306) for guiding the light (400) emitted by the light source (304), having a spatial light modulator (314), which is designed to receive light (400) from the light source (400) or from the beam guiding optics (306) and to return spatially modulated light (400), and having an exposure table (100) which provides a Master (104) for the hologram exposure by means of the light (400) returned by the light modulator (314), characterized in that In that the at least one light source (304) is accommodated in a light source chamber (328) which is spatially separated from the light modulator (314) and at least part of the beam guiding optics (306) and which comprises at least one passage for the light (400) emitted by the light source (304).

N8033

EP3865949

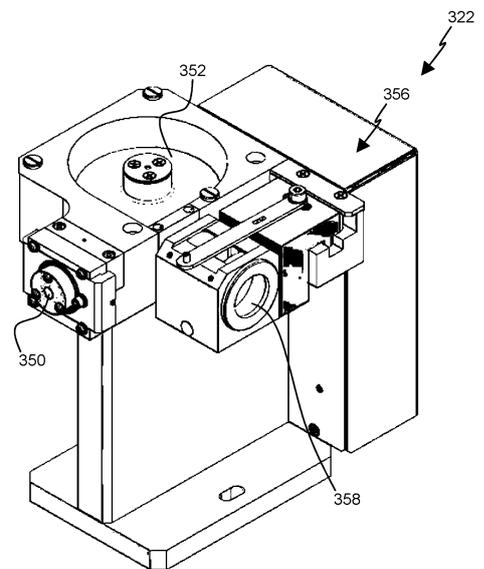
Priority Date: 12/02/2020

BUNDESDRUCKEREI

HOLOGRAM EXPOSURE MACHINE AND BEAM SHAPING DEVICE THEREFOR

The invention relates to a beam-shaping device (322) for a hologram exposure machine (300), having at least one inlet opening (350) for light (400) emitted by a light source (304), having a wheel (352) which has a base surface formed as a polygon, a top surface corresponding to the base surface and a lateral surface (354) which connects the base surface to the top surface and is formed from mirrored rectangles, having an electric drive unit (356) which is designed to drive the wheel (352) in rotation about an axis of rotation oriented perpendicularly with respect to the direction of incidence of the light (400), and having an outlet opening (358) for the light (400) reflected by the lateral surface (354). The invention also relates to a hologram exposure machine (300) comprising such a beam shaping device (322).

CLAIM 1. Beam-shaping device (322) for a hologram exposure machine (300), having at least one inlet opening (350) for light (400) emitted by a light source (304), having a wheel (352), which has a base surface formed as a polygon, a top surface corresponding to the base surface and a lateral surface (354) connecting the base surface to the top surface and formed from mirrored rectangles, having an electric drive unit (356) which is designed to drive the wheel (352) in rotation about an axis of rotation oriented perpendicularly with respect to the direction of incidence of the light (400), and having an outlet opening (358) for the light (400) reflected by the lateral surface (354).



N8034

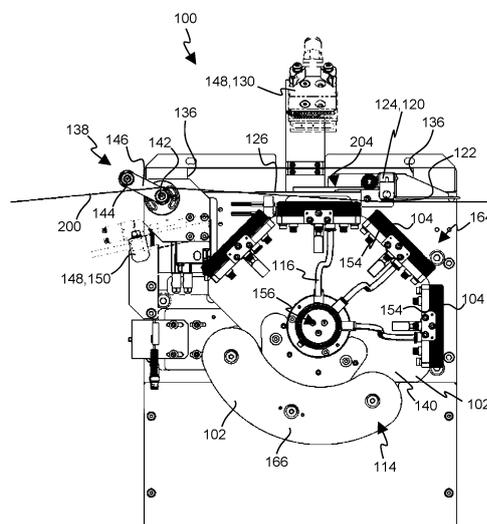
EP3865948

Priority Date: 12/02/2020

BUNDESDRUCKEREI

EXPOSURE TABLE FOR A HOLOGRAM EXPOSURE MACHINE AND METHOD FOR INTRODUCING A VOLUME REFLECTION HOLOGRAM INTO A FILM SECTION

The invention relates to an exposure table (100) for a hologram exposure machine (300), having a holding device (102), in which a master receptacle (154) is formed or present, which is designed to receive a Master (104), and having a film guide, which is designed to guide the master (104), guide a hologram film (200) relative to the holding device (102) and position a film section (202) to be exposed in an exposure region (204) relative to the master (104) for hologram exposure, wherein the holding device (102) is formed as a turret (114) with a plurality of radially oriented master receptacles (154), which is rotatably mounted perpendicularly with respect to the optical axis of the hologram exposure. The invention also relates to a method for introducing a volume reflection hologram into a film section (202) of a hologram film (200).



CLAIM 1. Exposure table (100) for a hologram exposure machine (300), having a holding device (102), in which a master receptacle (154) is formed or present, which is designed to receive a Master (104), and having a film guide, which is designed to guide a hologram film (200) relative to the holding device (102) and to position a film section (202) to be exposed in an exposure region (204) relative to the master (104) for hologram exposure, characterized in that In that the holding device (102) is formed as a turret (114) with a plurality of radially oriented master receptacles (154), which turret is mounted so as to be rotatable perpendicularly with respect to the optical axis of the hologram exposure.

N8035

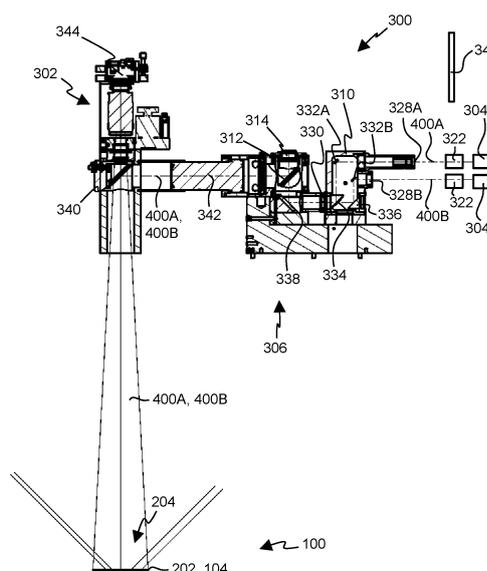
EP3865947

Priority Date: 12/02/2020

BUNDESDRUCKEREI

HOLOGRAM EXPOSURE MACHINE AND METHOD FOR ADJUSTING A HOLOGRAM EXPOSURE MACHINE

The invention relates to a hologram exposure machine (300) for introducing a volume reflection hologram into a film section (202) of a hologram film (200), comprising a light source (304 A, 304B) for emitting light (400 A, 400 B), with a beam guiding optical system (306) for guiding the light (400 A, 400 B) emitted by the light source (304 A, 304B), with a spatial light modulator (314, 400B) from the light source (304 A, 304B) or from A part of the beam guiding optics (306) and to return spatially modulated light (400 a, 400B), and having A Master (104) for hologram exposure by means of the light (400 a, 400B) returned from the light modulator (314) in An exposure region (204). The hologram exposure machine (300) comprises a camera (344) which is configured to optically detect the exposure area (204). The invention also relates to a method for adjusting a hologram exposure machine (300).



CLAIM 1. Hologram exposure machine (300) for introducing a volume reflection hologram into a film section (202) of a hologram film (200), having a light source (304 A, 304B) for emitting light (400 A, 400 B), having beam guiding optics (306) for guiding the light (400 A, 400 B) emitted by the light source (304 A, 304B), having a spatial light modulator (314, 400B) from the light source (304 A, 304B) or from A part of the beam guiding optics (306) and to return spatially modulated light (400 a, 400B), as well as with A Master (104) for the hologram exposure by means of the light (400 a, 400B) returned from the light modulator (314) in an exposure area (204), characterized by a camera (344) configured to optically capture the exposure area (204).

Click on the title to return to table of contents

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

N8005

WO2021158774

IPG PHOTONICS

Priority Date: 04/02/2020

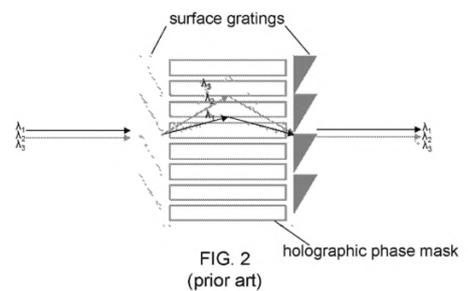
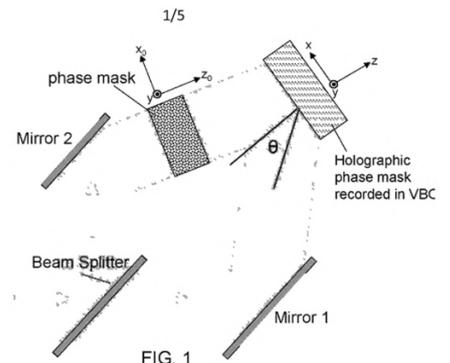
ACHROMATIC HOLOGRAPHIC PHASE MASKS

A method includes selecting a period for a volume Bragg grating (VBG) such that a spectral selectivity of the VBG is at least as wide as a spectral width of a broadband light beam that is to be spatially transformed, selecting a desired beam transformation for the broadband light beam, passing a first light beam from a recording light source through an optical device to a volume holographic recording medium where the optical device is configured to induce the desired beam transformation, directing a second light beam from the recording light source to the recording medium, and converging the first light beam and the second beam at a recording angle such that a spatial refractive index modulation profile is recorded in the recording medium that provides the VBG with the selected period, and a phase profile is embedded in the VBG that induces the desired beam transformation for each spectral component within a spectral width of the VBG.

MASQUES DE PHASE HOLOGRAPHIQUE ACHROMATIQUE

L'invention concerne un procédé comprenant la sélection d'une période pour un réseau de Bragg en volume (VBG) de sorte qu'une sélectivité spectrale du VBG soit au moins aussi large que la largeur spectrale d'un faisceau de lumière à large bande qui doit être transformé spatialement, la sélection d'une transformation de faisceau souhaitée pour le faisceau de lumière à large bande, le passage d'un premier faisceau lumineux à partir d'une source de lumière d'enregistrement à travers un dispositif optique vers un support d'enregistrement holographique en volume, le dispositif optique étant configuré pour induire la transformation de faisceau souhaitée, la direction d'un second faisceau de lumière à partir de la source de lumière d'enregistrement vers le support d'enregistrement, et la convergence du premier faisceau de lumière et du second faisceau selon un angle d'enregistrement de telle sorte qu'un profil de modulation d'indice de réfraction spatial est enregistré dans le support d'enregistrement qui fournit le VBG avec la période sélectionnée, et un profil de phase est intégré dans le VBG qui induit la transformation de faisceau souhaitée pour chaque composante spectrale à l'intérieur d'une largeur spectrale du VBG.

CLAIM 1. A method, comprising: selecting a period for a volume Bragg grating (VBG) such that a spectral selectivity of the VBG is at least as wide as a spectral width of a broadband light beam that is to be spatially transformed; selecting a desired beam transformation for the broadband light beam; passing a first light beam from a recording light source through an optical device to a volume holographic recording medium, the recording light source emitting light at a recording wavelength that is within a photosensitivity spectrum of the volume holographic recording medium, and the optical device configured to induce the desired beam transformation; directing a second light beam from the recording light source to the volume holographic recording medium; and converging the first light beam and the second beam at a recording angle such that: a spatial refractive index modulation profile is recorded in the volume holographic recording medium that provides the VBG with the selected period, and a phase profile is embedded in the VBG that induces the desired beam transformation for each spectral component within a spectral width of the VBG.



N8016

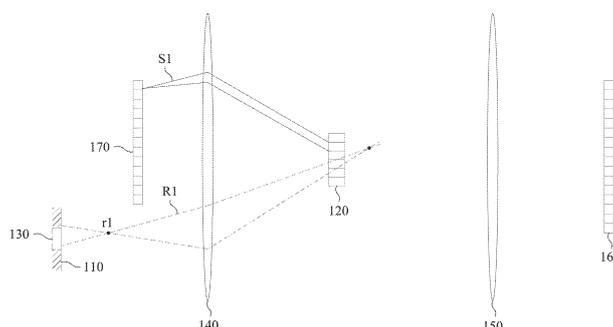
US11100950

Priority Date: 15/10/2020

NATIONAL CENTRAL UNIVERSITY

METHOD FOR READING AND WRITING WITH HOLOGRAPHIC SYSTEM AND HOLOGRAPHIC STORAGE SYSTEM

A method for reading and writing with holographic system includes the following operations: (a) providing a reference light and a signal light; (b) transferring the reference light and the signal light to an optical recording medium, for recording an interference grating; (c) changing the reference light and the signal light and repeating the operations (a) to (b) until M interference gratings are recorded on the optical recording medium; (d) providing a reading light to the optical recording medium, for reading the M interference gratings at the same time to generate an interference result, wherein the interference result is a result that diffraction signals of the M interference gratings interfere to each other; and (e) changing the reading light and repeating the operation (d), for obtaining N interference results. A holographic storage system is also disclosed herein.



CLAIM 1. A method for reading and writing with holographic system, comprising: (a) providing a reference light and a signal light; (b) transferring the reference light and the signal light to an optical recording medium, for recording an interference grating; (c) changing the reference light and the signal light and repeating the operations (a) to (b) until M interference gratings are recorded on the optical recording medium; (d) providing a reading light to the optical recording medium, for reading the M interference gratings at the same time to generate an interference result, wherein the interference result is a result that diffraction signals of the M interference gratings interfere to each other; and (e) changing the reading light and repeating the operation (d), for obtaining N interference results.

N8018

RU2752026

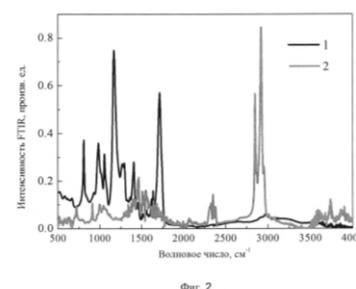
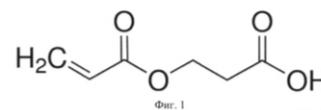
Priority Date: 15/12/2020

FEDERALNOE GOSUDARSTVENNOE AVTONOMNOE
OBRAZOVATELNOE UCHREZHDENIE VYSSHEGO OBRAZOVANIYA
NATSIONALNYJ ISSLEDOVATELSKIJ TEKHNOLOGICHESKIJ
UNIVERSITET MISIS

HOLOGRAPHIC PHOTOPOLYMERISABLE MATERIAL

FIELD: polymer materials. **SUBSTANCE:** invention relates to the field of photosensitive recording media, namely to liquid composite photopolymer materials for recording volumetric phase holograms. The holographic photopolymerisable material for recording phase holograms includes a photopolymerisable monomer, a polymerisation initiator and a neutral component, wherein luminescent semiconductor colloidal quantum dots with a surface stabilised by molecules of a monomer containing at least one free acrylate group are used as the neutral component. **EFFECT:** increased modulation range of the refraction coefficient and minimised level of scattered light in the finished holographic element,

CLAIM 1. Holographic photopolymerized material for the recording of phase holograms, including a photopolymerized monomer, a polymerization initiator and a neutral component, characterized by the use of fluorescent semiconductor colloidal points, the surface of which is stabilized by molecules of monomer, with at least one free acrylate free from the molecules.



N8057

CN113270119

Priority Date: 15/06/2021

TAN XIAODI

HOLOGRAPHIC OPTICAL DISK TRACK CHANGING METHOD AND TRACK CHANGING DEVICE

The invention belongs to the technical field of holographic optical storage, and discloses a holographic optical disk track transfer method and a track transfer device, wherein the track transfer method comprises the following steps: the reading and writing light sequentially passes through a first relay lens, a reflection assembly between the first relay lens and a second relay lens, and an information reading and writing assembly comprising the second relay lens; the information reading and writing component reciprocates along the radial direction of the holographic optical disk, and the reflecting component reciprocates along the incident direction of the reading and writing light; in the process of moving the information reading and writing component and the reflection component, the direction of the optical path of the reading and writing light is unchanged, and the optical path of the reading and writing light between the first relay lens and the second relay lens is unchanged; the optical system of the holographic optical disk can be ensured to be imaged stably, the number of optical components needing to be driven is reduced, and the information is read and written by track change; the system complexity is reduced, the mechanical control is simplified, the miniaturization of the holographic storage read-write device is realized, and the practicability is improved.

CLAIM 1. The holographic optical disk track changing method is characterized by comprising the following steps: reading and writing light formed by signal light and reference light sequentially passes through a first relay lens (9), a reflection assembly between the first relay lens (9) and a second relay lens (11) and an information reading and writing assembly comprising the second relay lens (11); reciprocating the information reading and writing component along the radial direction of the holographic optical disc (20), and reciprocating the reflection component along the incidence direction of the reading and writing light; and in the process of moving the information reading and writing component and the reflection component, the optical path direction of the reading and writing light is unchanged, and the optical path of the reading and writing light between the first relay lens (9) and the second relay lens (11) is unchanged.

N8065

CN113223564

Priority Date: 25/03/2021

SUZHOU PANGU INFORMATION OPTICAL

TEMPERATURE COMPENSATION METHOD AND TEMPERATURE COMPENSATION DEVICE FOR HOLOGRAPHIC STORAGE

The invention belongs to the technical field of holographic optical storage, and discloses a temperature compensation method and a temperature compensation device for holographic storage, wherein the temperature compensation method comprises the following steps: after the material of the holographic storage medium is deformed due to the temperature change, the laser wavelength is adjusted to be from λ to λ_1 ; (ii) a The direction of the incident light is adjusted to make the incident angle of the incident light from θ_B is adjusted to θ_{B1} ; (ii) a So that λ is λ_1 And θ_B is θ_{B1} The Bragg condition of the holographic storage medium in the material shrinkage state is satisfied again, and the Bragg mismatch caused by the material deformation of the holographic storage medium due to the temperature change is compensated; can effectively ensure that the information reproduction is not influenced by the environment temperature And the practicability of the holographic storage mode is greatly improved.

CLAIM 1. The temperature compensation method for holographic storage is characterized by comprising the following steps of: after the material of the holographic storage medium (4) deforms due to temperature change, the laser wavelength is adjusted, so that the laser wavelength is adjusted from λ to λ_1 ; The direction of the incident light (1) is adjusted so that the incident angle of the incident light (1) is θ_B is adjusted to θ_{B1} ; λ and θ_B Satisfies the formula (I): $d(\sin\theta_B + \sin\theta) = \lambda$ in formula (I), d is the constant of the diffraction grating (2), λ is the laser wavelength before adjustment, θ_B is the diffraction angle of the diffracted light (3); so that λ is λ_1 And θ_B is θ_{B1} Satisfies formula (II): $\sin\theta_{B1} - \sin\theta_{B1} = \lambda_1/d - \sin\theta_{B1}$ in the formula: d is a constant of the diffraction grating (2) after deformation under temperature change such that λ is λ_1 And θ_B is θ_{B1} The Bragg condition of the holographic storage medium (4) in a material shrinkage state is satisfied again, and the compensation of Bragg mismatch caused by material deformation of the holographic storage medium (4) due to temperature change is realized.

Click on the title to return to table of contents

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

N8006

WO2021151816

Priority Date: 30/01/2020

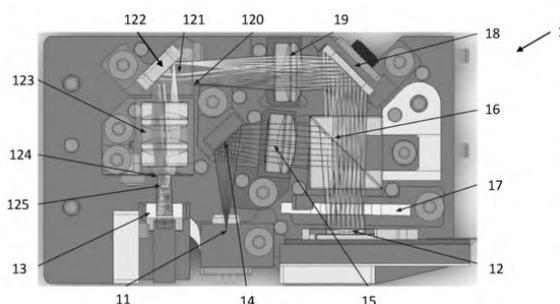
VIVIDQ

OPTICAL ASSEMBLY AND METHOD FOR REDUCING ZERO-ORDER LIGHT IN A HOLOGRAPHIC DISPLAY

An optical assembly 1 is provided for use in holographic display of a replay image. The optical assembly may be of particular use in an augmented reality headset. The optical assembly includes a light-modulation element 12 arranged to be illuminated off-axis by a light beam. The light-modulation element 12 modulates the incident light to generate a replay image and generates a zero-order light beam. A focussing system 19 is arranged after the light-modulation element. A light remover 120 is positioned after the focussing system and is configured to remove the zero-order light beam from the light focussed by the focussing system 19. The focussing system 19 is configured to focus zero-order light from the light-modulation element 12 in a first plane different from a second plane which is the plane of focus of parallel light of the replay image. The light remover removes the zero-order light in the first plane.

ENSEMBLE OPTIQUE ET PROCÉDÉ DE RÉDUCTION DE LA LUMIÈRE D'ORDRE ZÉRO DANS UN AFFICHAGE HOLOGRAPHIQUE

L'invention concerne un ensemble optique 1 destiné à être utilisé dans l'affichage holographique d'une image de relecture. L'ensemble optique peut être particulièrement utile dans un casque de réalité augmentée. L'ensemble optique comprend un élément de modulation de lumière 12 agencé pour être éclairé hors axe par un faisceau lumineux. L'élément de modulation de lumière 12 module la lumière incidente pour générer une image de relecture et génère un faisceau lumineux d'ordre zéro. Un système de focalisation 19 est disposé après l'élément de modulation de lumière. Un dispositif d'élimination de lumière 120 est positionné après le système de focalisation et est configuré pour éliminer le faisceau de lumière d'ordre zéro de la lumière focalisée par le système de focalisation 19. Le système de focalisation 19 est configuré pour focaliser la lumière d'ordre zéro provenant de l'élément de modulation de lumière 12 dans un premier plan, différent d'un second plan, qui est le plan de focalisation de la lumière parallèle de l'image de relecture. Le dispositif d'élimination de lumière élimine la lumière d'ordre zéro dans le premier plan.



CLAIM 1. An optical assembly for use in holographic display of a replay image comprising: a light source; a light-modulation element arranged to be illuminated off-axis by a light beam and configured to modulate the incident light, the light-modulation element comprising an array of pixels and being arranged to generate a replay image and a zero-order light beam; a focusing system arranged after the light-modulation element and configured to focus modulated light from the light-modulation element and the zero-order light beam; a light remover positioned after the focussing system configured to remove the zero-order light beam from the light focussed by the focussing system; and a terminal optical element for directing modulated light from which the zero-order light has been removed by the light remover from the optical assembly; wherein the focussing system is configured to focus the zero-order light from the light-modulation element in a first plane different from a second plane which is the plane of focus of parallel light of the replay image, and wherein the light remover is configured to remove the zero-order light in the first plane.

N8008

WO2021149479

Priority Date: 24/01/2020

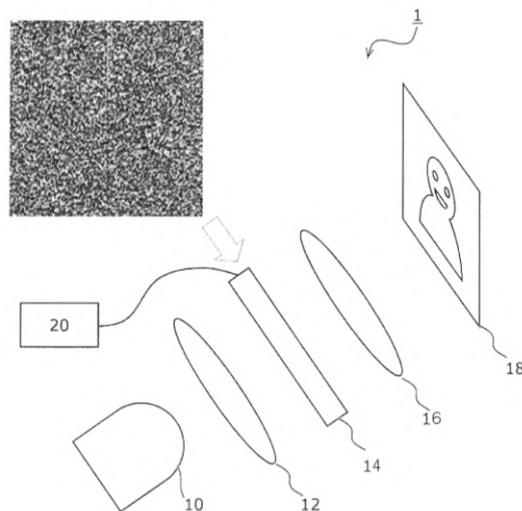
SONY SEMICONDUCTOR SOLUTIONS

PROJECTION APPARATUS, INFORMATION PROCESSING APPARATUS, AND DRIVE CIRCUIT

The present invention suppresses burning of a spatial light phase modulator. A projection apparatus (1) comprises an illumination optical system (12) that emits light, an information processing unit (20) that generates a hologram pattern based on an input image, a spatial light phase modulator (14) that forms the hologram pattern generated by the information processing unit and allows light emitted from the illumination optical system to pass therethrough, and a projection optical system (16) that projects the output from the spatial light phase modulator onto a projection surface to project an output image. The information processing unit generates, for each predetermined frame, a new hologram pattern generated by shifting the hologram pattern in a predetermined direction.

APPAREIL DE PROJECTION, APPAREIL DE TRAITEMENT D'INFORMATIONS ET CIRCUIT D'ATTAQUE

La présente invention supprime la combustion d'un modulateur spatial de phase de lumière. L'invention concerne un appareil de projection (1) qui comprend un système optique d'éclairage (12) qui émet de la lumière, une unité de traitement d'informations (20) qui génère un motif d'hologramme sur la base d'une image d'entrée, un modulateur spatial de phase de lumière (14) qui forme le motif d'hologramme généré par l'unité de traitement d'informations et qui permet à la lumière émise à partir du système optique d'éclairage de passer à travers celui-ci, et un système optique de projection (16) qui projette la sortie du modulateur spatial de phase de lumière sur une surface de projection pour projeter une image de sortie. L'unité de traitement d'informations génère, pour chaque trame prédéterminée, un nouveau motif d'hologramme généré en décalant le motif d'hologramme dans une direction prédéterminée.



CLAIM 1. An illumination optical system that emits light; an information processing unit that generates a hologram pattern based on an input image; a spatial light phase modulator that forms the hologram pattern generated by the information processing unit and transmits the light emitted by the illumination optical system; A projection optical system configured to project an output of the spatial light phase modulator onto a projection surface and project an output image, wherein the information processing unit generates a new hologram pattern by shifting the hologram pattern in a predetermined direction for each predetermined frame.

N8010

US20210263319

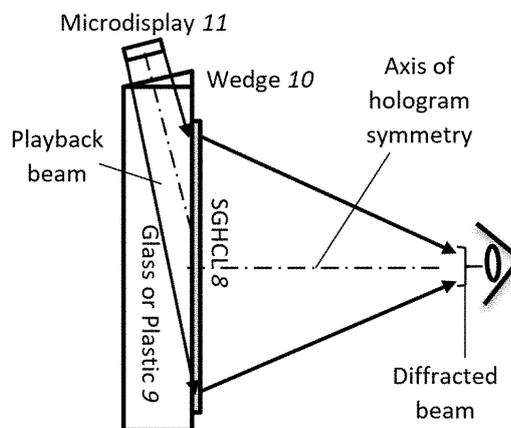
Priority Date: 25/02/2020

LUMINIT

HEAD-MOUNTED DISPLAY HAVING VOLUME SUBSTRATE-GUIDED HOLOGRAPHIC CONTINUOUS LENS OPTICS WITH LASER ILLUMINATED MICRODISPLAY

This application relates to a see-through head-mounted display using recorded substrate-guided holographic continuous lens (SGHCL) and a microdisplay with narrow spectral band source or laser illumination. The high diffraction efficiency of the volume SGHCL creates very high luminance of the virtual image.

CLAIM 1. A holographic substrate-guided head-mounted see-through display comprising: (a) an image source comprising a microdisplay with narrow spectral band illumination; (b) an edge-illuminated transparent substrate, and; (c) a single volume holographic lens.



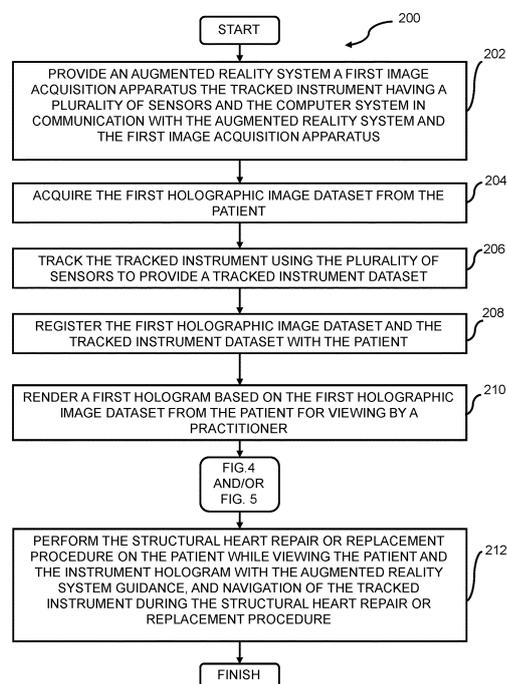
REAL TIME FUSED HOLOGRAPHIC VISUALIZATION AND GUIDANCE FOR DEPLOYMENT OF STRUCTURAL HEART REPAIR OR REPLACEMENT PRODUCT

A system and method for performing a structural heart repair or replacement procedure on a patient includes an augmented reality system, a tracked instrument, a first image acquisition system, and a computer system. The method includes a step of acquiring the first holographic image dataset from the patient. The computer system tracks, in a next step, the tracked instrument using the plurality of sensors to provide a tracked instrument dataset. The method also includes a step of registering the first holographic image dataset and the tracked instrument dataset with the patient. The augmented reality system then renders, in a next step, a first hologram based on the first holographic image dataset from the patient for viewing by a practitioner. The practitioner is thereby permitted to perform the procedure on the patient while viewing the patient and the first hologram with the augmented reality system.

VISUALISATION HOLOGRAPHIQUE FUSIONNÉE EN TEMPS RÉEL ET GUIDAGE PERMETTANT LA POSE D'UN PRODUIT DE RÉPARATION OU DE REMPLACEMENT STRUCTUREL DU CŒUR

Système (100) et procédé (200) de réalisation d'une intervention de réparation ou de remplacement structurelle du cœur sur un patient comprenant un système de réalité augmentée (102), un instrument suivi (104), un premier système d'acquisition d'image (108), et un système informatique (106). Le procédé comprend une étape consistant à acquérir le premier ensemble de données d'image holographique (122) provenant du patient. Le système informatique (106) suit, dans une étape suivante, l'instrument suivi (104) en utilisant la pluralité des capteurs (115, 117, 119, 121) pour fournir un ensemble de données d'instrument suivi (132). Le procédé (200) comprend également une étape consistant à enregistrer le premier ensemble de données d'image holographique (122) et l'ensemble de données d'instrument suivi (132) avec le patient. Le système de réalité augmentée (102) peut ensuite, dans une étape suivante, effectuer le rendu d'un premier hologramme (134) sur la base du premier ensemble de données d'image holographique (122) provenant du patient destiné à la visualisation par un praticien. Le praticien peut ainsi effectuer l'intervention sur le patient tout en visualisant le patient et le premier hologramme (134) au moyen du système de réalité augmentée (102).

CLAIM 1. A method for performing a structural heart repair or replacement procedure on a patient, the method comprising steps of: providing an augmented reality system, a tracked instrument, a first image acquisition system, and a computer system with a processor and a memory, the tracked instrument having a plurality of sensors, the first image acquisition system configured for acquiring a first holographic image dataset from the patient, and the computer system in communication with the augmented reality system, the tracked instrument, and the first image acquisition system; acquiring, by the first image acquisition system, the first holographic image dataset from the patient; tracking, by the computer system, the tracked instrument using the plurality of sensors to provide a tracked instrument dataset; registering, by the computer system, the first holographic image dataset and the tracked instrument dataset with the patient; rendering, by the augmented reality system, a first hologram based on the first holographic image dataset from the patient for viewing by a practitioner; and performing, by the practitioner, the structural heart repair or replacement procedure on the patient while viewing the patient and the first hologram with the augmented reality system, whereby the practitioner employs the augmented reality system for at least one of visualization, guidance, and navigation of the tracked instrument during the structural heart repair or replacement procedure.



N8014

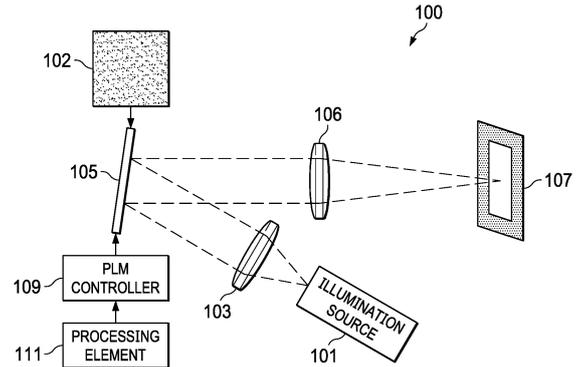
US20210232093
Priority Date: 27/01/2020

TEXAS INSTRUMENTS

PROJECTOR WITH PHASE HOLOGRAM MODULATOR

A projection system includes: an illumination source configured to output illumination light; a phase light modulator (PLM) optically coupled to the illumination source, the PLM configured to: receive the illumination light; phase modulate the illumination light while displaying a phase hologram, to produce modulated light; and projection optics coupled to the PLM, the projection optics configured to receive the modulated light and to project an image responsive to the modulated light; wherein both a mean in intensity and a variance in intensity in bright regions of the projected image is greater than the mean intensity and the variance in intensity in dark regions of the projected image.

CLAIM 1. A projection system comprising: an illumination source configured to output illumination light; a phase light modulator (PLM) optically coupled to the illumination source, the PLM configured to: receive the illumination light; phase modulate the illumination light while displaying a phase hologram, to produce modulated light; and projection optics coupled to the PLM, the projection optics configured to receive the modulated light and to project an image responsive to the modulated light; wherein both a mean in intensity and a variance in intensity in bright regions of the projected image is greater than the mean intensity and the variance in intensity in dark regions of the projected image.



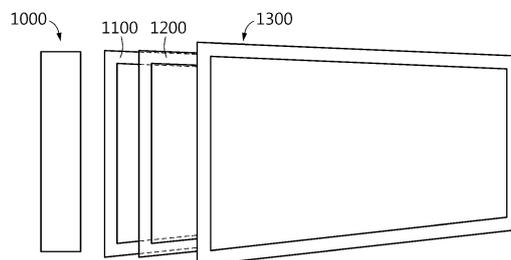
N8022

KR20210100904
Priority Date: 07/02/2020

KOREA ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE

COMPLEX MODULATED HOLOGRAPHIC DISPLAY DEVICE

A complex modulated holographic display apparatus is provided. The complex modulated holographic display apparatus includes: a light source configured to output coherent light; a display unit configured to reproduce a unit hologram by diffracting the output unit light through a plurality of pixels; And a processor configured to acquire complex hologram data corresponding to the unit hologram and control the display to complex modulate the output unit light based on the complex hologram data and device information of the plurality of pixels, The display unit may include a spatial light modulator including a plurality of first modulation pixels configured to modulate an amplitude and a phase of the output unit light, a phase mask including a plurality of second modulation pixels configured to modulate a phase of the amplitude-modulated unit light, and a sub-pixel mask configured to enlarge a diffraction angle of light output through the phase mask.



CLAIM 1. A holographic display apparatus includes a light source configured to output coherent light, a display unit configured to reproduce a unit hologram by diffracting the output unit light through a plurality of pixels, And a processor configured to control the display unit to complex modulate the output unit light based on the complex hologram data and element information of the plurality of pixels, Wherein the display unit comprises a spatial light modulator comprising a plurality of first modulation pixels for modulating an amplitude and a phase of the outputted unit light, a phase mask comprising a plurality of second modulation pixels for modulating a phase of the amplitude-modulated unit light, and a sub-pixel mask for enlarging a diffraction angle of light outputted through the phase mask.

N8027

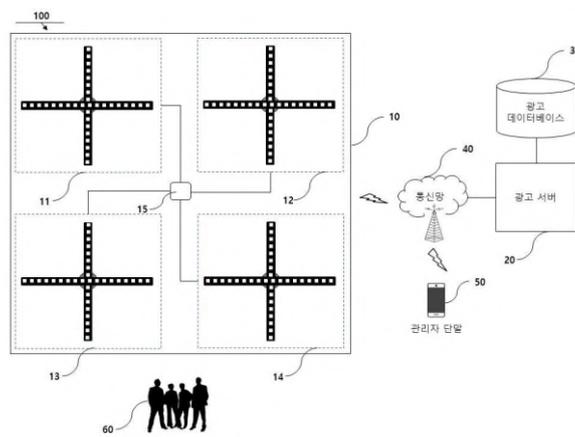
KR102282407

Priority Date: 23/01/2020

FUTURESHAPERS

HOLOGRAM ADVERTISEMENT PROVIDING METHOD AND SYSTEM

The present invention relates to a hologram advertisement providing method and an apparatus and system therefor, and more particularly, The hologram output apparatus includes a hologram fan configured to output a three-dimensional hologram image corresponding to a specific advertisement content by rotating at a constant speed in a state in which a wing unit including a light emitter is coupled to one side of a body unit, A driving unit configured to control an output and an output direction of the 3 D hologram image by controlling a rotation speed and a rotation axis direction of the wing unit, a light emission control unit configured to control lighting and light intensity of the light emitting body, and a control unit configured to control the 3 D A sensing unit configured to generate a sensing value corresponding to a customer reaction with respect to the hologram image, and a central processing unit configured to dynamically control the three-dimensional hologram image output through the hologram pan based on the sensing value.



N8036

CN214037640U

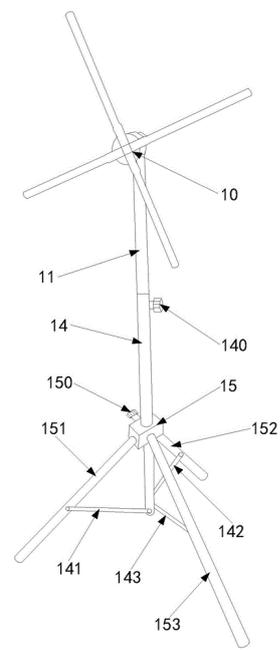
Priority Date: 28/12/2020

GUANGZHOU DASQI DIGITAL TECHNOLOGY

PORTABLE LED HOLOGRAPHIC DISPLAY DEVICE

The utility model discloses a holographic display device of LED convenient to carry, include: an LED holographic screen; a first support bar; the first mounting seat is detachably arranged in one end of the first supporting rod; the second mounting seat is detachably connected with the first mounting seat, and the LED holographic screen is fixedly arranged in the second mounting seat; a second support bar, one end of which is telescopically arranged in the other end of the first support bar; and the supporting table is movably arranged at the other end of the second supporting rod, a first supporting foot, a second supporting foot and a third supporting foot are arranged in the supporting table in a rotating mode at intervals, and the other end of the second supporting rod is rotatably connected with the first supporting foot, the second supporting foot and the third supporting foot through a first connecting rod, a second connecting rod and a third connecting rod. In this way, the utility model discloses a holographic display device of LED's portable holographic display device's LED can dismantle with first bracing piece and be connected, and easy to assemble and dismantlement also conveniently carry, and the flexibility is high, has promoted user's experience greatly.

CLAIM 1. The utility model provides a holographic display device of LED convenient to carry, includes the holographic screen of LED, and this holographic screen of LED includes the main control system and rotates the setting and be in a plurality of flabellums in the main control system, be provided with a plurality of LED lamps along its length direction interval in the flabellum, its characterized in that still includes: a first support bar; the first mounting seat is detachably arranged in one end of the first supporting rod; the second mounting seat is detachably connected with the first mounting seat, and the control host is fixedly arranged in the second mounting seat; the second supporting rod is provided with one end which can be telescopically arranged in the other end of the first supporting rod; the supporting table is movably arranged in the other end of the second supporting rod, a first supporting foot, a second supporting foot and a third supporting foot are arranged in the supporting table in a rotating mode at intervals, a first connecting rod, a second connecting rod and a third connecting rod are arranged at the bottom end of the other end of the second supporting rod in a rotating mode at intervals, the first connecting rod is connected with the first supporting foot in a rotating mode, the second connecting rod is connected with the second supporting foot in a rotating mode, and the third connecting rod is connected with the third supporting foot in a rotating mode.



N8037

CN214037573U

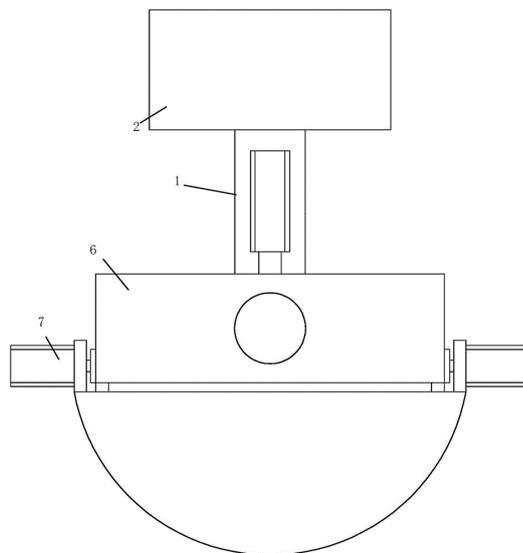
Priority Date: 11/11/2020

ANHUI QINGXIAO FANGTANG EDUCATION TECHNOLOGY

HOLOGRAPHIC IMAGE TECHNOLOGY PROJECTION DEVICE FOR TRAINING SCENE

One or more embodiments of the present disclosure provide a projection apparatus for training scene holography, including a connecting plate, a rotating component is installed on an upper portion of the connecting plate, a rotating shaft is rotatably installed on a lower portion of the connecting plate, an arc block is installed at one end of the rotating shaft, a platform is installed on an upper surface of the arc block, a projector is installed on the platform, centering components are installed on two sides of the arc block, a first bevel gear is installed at the other end of the rotating shaft, a clamping component for fixing the arc block is installed on one side of the connecting plate, and an adjusting component in transmission connection with the first bevel gear is installed on the other side of the connecting plate, the present disclosure realizes horizontal leveling of the projector by matching the arc block and the centering components, and when a center of gravity of the projector is not located in the middle portion, the projector can be leveled by the adjusting component, and further reducing the influence of the projection equipment on training.

CLAIM 1. The utility model provides a be used for training scene holographic image technique projection arrangement, a serial communication port, including the connecting plate, the runner assembly is installed on the upper portion of connecting plate, the rotatable pivot of installing in lower part of connecting plate, the arc piece is installed to the one end of pivot, the upper surface of arc piece is equipped with the platform, install the projecting apparatus on the platform, the centering subassembly is all installed to the both sides of arc piece, first bevel gear is installed to the other end of pivot, one side of connecting plate is installed fixedly the card of arc piece is fixed the subassembly, the opposite side of connecting plate install with the adjusting part that first bevel gear transmission is connected.



N8038

CN214011736U

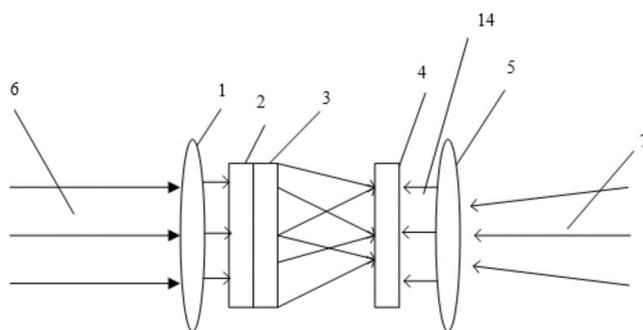
Priority Date: 29/12/2020

JOURNEY TECHNOLOGY

HOLOGRAPHIC OPTICAL ELEMENT RECORDING SYSTEM AND NEAR-TO-EYE DISPLAY SYSTEM

The present application provides a holographic optical element recording system, a near-eye display system, the holographic optical element recording system comprising: the holographic optical element comprises a first lens, a glass substrate, a holographic optical element, a diffuser and a second lens which are arranged in sequence; the signal light passes through the first lens and then is focused to the holographic optical element attached to the glass substrate; the reference light passes through the second lens to obtain parallel reference light, and the parallel light is incident on the holographic optical element through the diffuser. The near-eye display system can be manufactured by utilizing the transmission type organic light emitting display and the holographic optical element under the condition of not using an optical waveguide technology and a coupling structure, so that near-eye display is realized.

CLAIM 1. A holographic optical element recording system, comprising: the holographic optical element comprises a first lens, a glass substrate, a holographic optical element, a diffuser and a second lens which are arranged in sequence; the signal light passes through the first lens and then is focused to the holographic optical element attached to the glass substrate; the reference light passes through the second lens to obtain parallel reference light, and the parallel reference light is incident on the holographic optical element through the diffuser.



N8042

CN213934533U

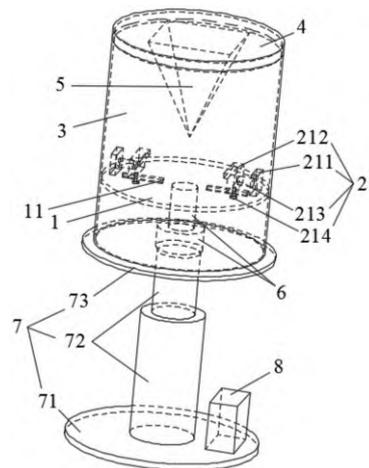
Priority Date: 16/12/2020

FOSHAN DREAM PLANET TECHNOLOGY

HOLOGRAPHIC PROJECTOR CAPABLE OF AUTOMATICALLY FOCUSING

The utility model belongs to the technical field of holographic projection, concretely relates to but holographic projector of auto focus, including carrying the thing board, chucking device, the translucent shell, the apron, the inverted pyramid imaging body, first elevating gear, second elevating gear and controlling means, carry the thing board and be connected with first elevating gear's output, chucking device sets up in carrying the thing board, and the translucent shell encloses to be located around carrying the thing board, carries thing board and translucent shell sliding connection, and the apron closes the setting with transparent cap, and the inverted pyramid imaging body sets up in the apron bottom surface, and second elevating gear includes the locating plate, elevating system and lifter plate, and elevating system sets up in the locating plate. The height of the holographic projector can be automatically adjusted to achieve the optimal viewing height; meanwhile, automatic focusing can be realized, and the use is convenient.

CLAIM 1. A holographic projector capable of automatically focusing is characterized in that: comprises a loading plate (1), a clamping device (2), a transparent shell (3), a cover plate (4), an inverted pyramid imaging body (5), a first lifting device (6), a second lifting device (7) and a control device (8), wherein the loading plate (1) is connected with the output end of the first lifting device (6), the clamping device (2) is arranged on the loading plate (1), the transparent shell (3) is arranged around the loading plate (1), the loading plate (1) is connected with the transparent shell (3) in a sliding way, the cover plate (4) is covered with the transparent shell (3), the inverted pyramid imaging body (5) is arranged on the bottom surface of the cover plate (4), the second lifting device (7) comprises a positioning plate (71), a lifting mechanism (72) and a lifting plate (73), the lifting mechanism (72) is arranged on the positioning plate (71), lifter plate (73) with the output of elevating system (72) is connected, first elevating gear (6) transparent shell (3) all set up in lifter plate (73), first elevating gear (6) second elevating gear (7) all with controlling means (8) electricity is connected, controlling means (8) are provided with wireless transmitting and receiving module.



N8043

CN213934514U

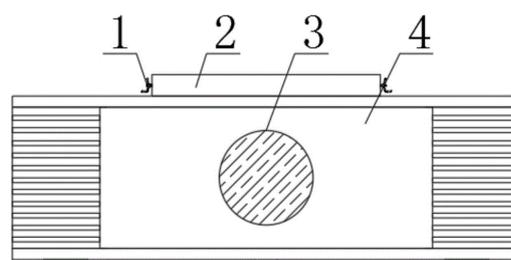
Priority Date: 20/01/2021

ANHUI FINANCIAL UNIVERSITY

MYTH PERSONAGE HOLOGRAPHIC PROJECTION EQUIPMENT

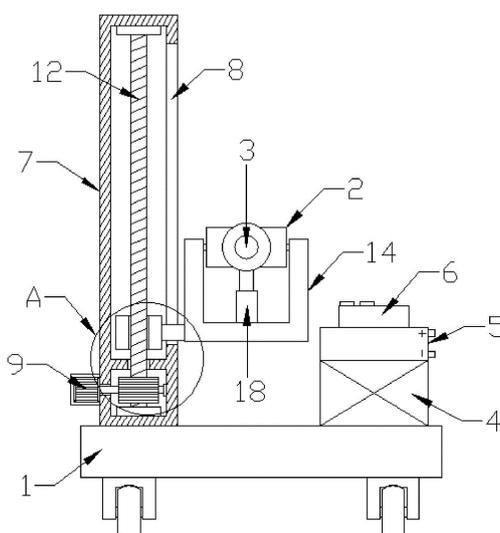
The utility model discloses a mythical personage holographic projection device, including the holographic projection device main body, the projection lens is fixedly installed at the middle position of the front surface of the holographic projection device main body, the frame is fixedly installed on the upper surface of the holographic projection device main body, a baffle is arranged in the frame, rubber pads are fixed on both sides of the baffle through the bonding of glue solution, a connecting shaft is integrally formed at the end part of the baffle, and connecting grooves are arranged on both sides of the frame; through the surface design frame at holographic projection equipment main part and at the internal design baffle of frame, can hold the hand wheel and drive connecting axle and baffle and rotate in the inside of frame, rotate through eight gears intermeshing when the connecting axle rotates this moment and constantly open eight baffles, when using the inside heat that produces frequently at holographic projection equipment main part, open the quick heat dissipation of being convenient for through the baffle this moment, easily increase of service life.

CLAIM 1. The holographic projection equipment for mythology characters comprises a holographic projection equipment body (4), wherein a projection lens (5) is fixedly installed at the middle position of the front surface of the holographic projection equipment body (4), and is characterized in that: the upper surface fixed mounting of holographic projection equipment main part (4) has frame (2), the inside of frame (2) is provided with baffle (9), the both sides of baffle (9) all are fixed with rubber pad (10) through the glue solution bonding, the tip integral type shaping of baffle (9) has connecting axle (11), spread groove (8) have all been seted up to the both sides of frame (2), the tip of connecting axle (11) is located the internally mounted of spread groove (8) has gear (7), the tip of connecting axle (11) is located hand wheel (1) is installed to one side of frame (2), and two baffle (9) are passed through rubber pad (10) sealing connection.



HOLOGRAPHIC PROJECTION EQUIPMENT BASED ON AUGMENTED REALITY TECHNOLOGY

The utility model relates to a holographic projection technical field specifically is a holographic projection equipment based on augmented reality technique, including moving platform, holographic projection host computer and image device, the one end that the axis of rotation was kept away from the adjusting cylinder is provided with servo motor, the fixed surface of axis of rotation is connected with the turbine, the inside vertical rotation of adjusting cylinder is connected with the scroll bar, and the scroll bar meshes with the turbine mutually, the surface spiro union of scroll bar has the movable block, one side fixedly connected with connecting rod that the movable block is close to the side channel, the one end fixedly connected with U type seat that the connecting rod kept away from the movable block, the inboard fixedly connected with dead lever of U type seat, the surface rotation of dead lever is connected with the sleeve pipe, the front surface fixedly connected with holographic projection host computer of sleeve pipe, the bottom fixedly connected with electric putter of holographic projection host computer; the utility model discloses a holographic projection equipment height and inclination ground effectively adjust, enlarge the application range of this equipment, use more conveniently, and the practicality is stronger.



CLAIM 1. A holographic projection device based on augmented reality technology comprises a mobile platform (1), a holographic projection host (2) and an imaging device (3), and is characterized in that one end of the top of the mobile platform (1) is fixedly connected with a weight increasing block (4), the top of the weight increasing block (4) is fixedly connected with a storage battery (5), the top of the storage battery (5) is provided with a control switch (6), one end of the top of the mobile platform (1), which is far away from the weight increasing block (4), is fixedly connected with an adjusting cylinder (7), one side, which is close to the weight increasing block (4), of the adjusting cylinder (7) is provided with a side groove (8), a rotating shaft (10) is connected below one side, which is far away from the side groove (8), of the adjusting cylinder (7), the end, which is far away from the adjusting cylinder (7), of the rotating shaft (10) is provided with a servo motor (9), and the surface of the rotating shaft (10) is fixedly connected with a turbine (11), the interior of the adjusting cylinder (7) is vertically and rotatably connected with a worm rod (12), the worm rod (12) is meshed with the turbine (11), a moving block (13) is screwed on the surface of the worm (12), a connecting rod (17) is fixedly connected on one side of the moving block (13) close to the side groove (8), one end of the connecting rod (17) far away from the moving block (13) is fixedly connected with a U-shaped seat (14), a fixed rod (15) is fixedly connected to the inner side of the U-shaped seat (14), a sleeve (16) is rotatably connected to the surface of the fixed rod (15), the front surface of the sleeve (16) is fixedly connected with a holographic projection host (2), an imaging device (3) is arranged on one side of the holographic projection host (2) far away from the sleeve (16), the bottom of the holographic projection host (2) is fixedly connected with an electric push rod (18), and the bottom of the electric push rod (18) is fixedly connected with the U-shaped seat (14).

N8045

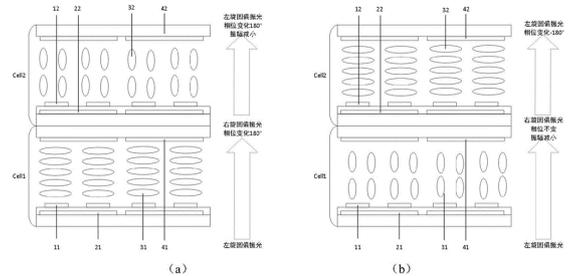
CN213876253U

Priority Date: 18/01/2021

CHONGQING INSTITUTE OF GREEN & INTELLIGENT TECHNOLOGY
CHINESE ACADEMY OF SCIENCES - CHONGQING UNIVERSITY

LIQUID CRYSTAL HOLOGRAPHIC DISPLAY SCREEN CAPABLE OF SIMULTANEOUSLY REALIZING AMPLITUDE AND PHASE MODULATION

The utility model relates to a can realize amplitude and phase modulation's holographic display screen of liquid crystal simultaneously belongs to the electron device field. The display screen includes Cell1 and Cell 2; cell1 includes: the liquid crystal display panel comprises a pixel electrode I, a common electrode I, liquid crystal molecules I and a control electrode I; cell2 includes: a second pixel electrode, a second common electrode, a second liquid crystal molecule and a second control electrode; cell1 and Cell2 are adjacent; the liquid crystal display panel is sequentially arranged into a first common electrode, a first pixel electrode, a first liquid crystal molecule, a first control electrode, a second common electrode, a second pixel electrode, a second liquid crystal molecule and a second control electrode; the first liquid crystal molecule is parallel or vertical to the first pixel electrode; the first liquid crystal molecules and the second liquid crystal molecules are vertical to each other. The pixel electrode controls the liquid crystal molecules to rotate in the plane, so that the phase of incident light can be modulated, the control electrode controls the liquid crystal molecules to rotate vertically, the intensity of the incident light can be modulated, and when the two are matched, the dual modulation of the phase and the intensity can be realized.



N8046

CN213872077U

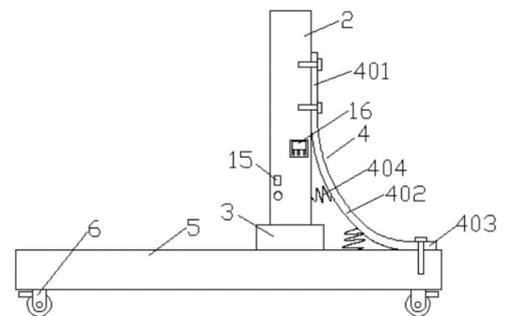
Priority Date: 12/11/2020

SHANGHAI CHENGYI PACKAGE TECHNOLOGY

ANTI-DUMPING 3D HOLOGRAPHIC LED DISPLAY SCREEN

The utility model relates to the technical field of LED display screens, in particular to an anti-toppling 3D holographic LED display screen, which comprises a display screen body and an anti-toppling display screen mounting seat; the display screen mounting seat comprises a display screen fixing frame, a display screen base, an auxiliary supporting arm and a movable base; two sets of removal pulleys are installed to the bottom of removing the base, and the display screen pedestal mounting is on removing the base, and the fixed frame fixed mounting of display screen is on the display screen base. The utility model provides an anti 3D holographically LED display screen of emptying passes through the mounting groove of mounting at the fixed frame of display screen of mounting screw to set up the auxiliary support arm of the dismounting of being convenient for at the back of the fixed frame of display screen, this auxiliary support arm mainly by vertical supporting part, the arc portion of bending and horizontal positioning portion are constituted, vertical supporting part and horizontal positioning portion are used for connecting the fixed frame of display screen and remove the base respectively, the arc portion of bending plays the effect of supporting and buffering to the display screen body, prevent that the display screen body from emptying.

CLAIM 1. The utility model provides an anti 3D holographic LED display screen that emptys which characterized in that: the anti-toppling display screen comprises a display screen body (1) and an anti-toppling display screen mounting seat; the display screen mounting seat comprises a display screen fixing frame (2), a display screen base (3), an auxiliary supporting arm (4) and a movable base (5); two groups of movable pulleys (6) are installed at the bottom of the movable base (5), the display screen base (3) is installed on the movable base (5), and the display screen fixing frame (2) is fixedly installed on the display screen base (3); the display screen fixing frame (2) is of a rectangular structure, the front side surface of the display screen fixing frame (2) is provided with a mounting groove (7) matched with the structure of the display screen body (1), and the rear side of the mounting groove (7) is provided with a heat dissipation cavity (8); the back at the fixed frame of display screen (2) is installed in auxiliary support arm (4), and auxiliary support arm (4) include vertical supporting portion (401), arc portion of bending (402) and horizontal location portion (403), and vertical supporting portion (401), arc portion of bending (402) and horizontal location portion (403) formula structure as an organic whole, and from last to setting gradually down.



N8047

CN213871841U

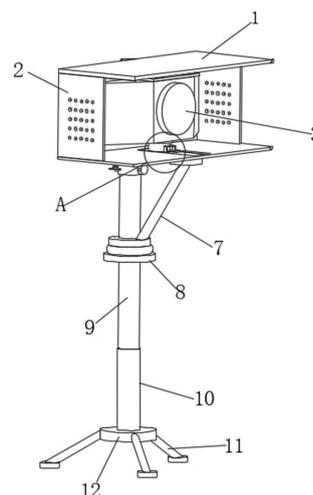
Priority Date: 16/11/2020

WUHAN INSTITUTE OF TECHNOLOGY

3D HOLOGRAPHIC PROJECTION DISPLAY DEVICE FOR ENVIRONMENTAL DESIGN

The utility model relates to the technical field of 3D holographic projection, in particular to a 3D holographic projection display device for environmental design, which comprises a 3D holographic projection device, wherein a U-shaped box is arranged outside the 3D holographic projection device, side plates are arranged on two sides of the U-shaped box, the length of the two side plates is smaller than that of the U-shaped box, a fixed disc is fixedly arranged at the bottom end of the 3D holographic projection device, the bottom end of the fixed disc is rotatably connected with a supporting seat, the bottom end of the supporting seat is provided with a sliding mechanism, the sliding mechanism is arranged at the bottom of the inner side of the U-shaped box, the rear end surface of the U-shaped box is fixedly connected with a supporting column, the bottom end of the supporting column is provided with a connecting mechanism, the top end of the connecting mechanism is provided with a fixing mechanism, the outer side of the connecting mechanism is provided with a supporting mechanism, the utility model can be flexibly used, and can adapt to multi-angle rotation as required, has practicability.

CLAIM 1. A 3D holographic projection display device for environmental design comprises a 3D holographic projection device (3), it is characterized in that a U-shaped box (1) is arranged at the outer side of the 3D holographic projection device (3), two sides of the U-shaped box (1) are respectively provided with a side plate (2), the length of the two side plates (2) is smaller than that of the U-shaped box (1), a fixed disc (13) is fixedly arranged at the bottom end of the 3D holographic projection device (3), the bottom end of the fixed disc (13) is rotatably connected with a supporting seat (16), the bottom end of the supporting seat (16) is provided with a sliding mechanism, the sliding mechanism is arranged at the bottom of the inner side of the U-shaped box (1), the rear end face of the U-shaped box (1) is fixedly connected with a supporting column (5), the support column (5) bottom is provided with coupling mechanism, coupling mechanism's the outside is provided with supporting mechanism.



N8048

CN213849773U

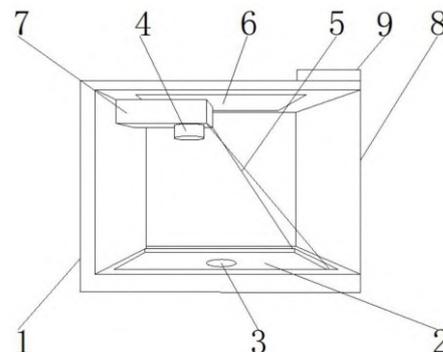
Priority Date: 24/11/2020

SUZHOU ZHENRONGSHANGPIN EXHIBITION EQUIPMENT

BOX TYPE HOLOGRAPHIC DISPLAY CABINET

The utility model discloses a box type holographic display cabinet, one side of the main body is provided with an acrylic transparent frame, the upper outer surface of the main body is provided with an alarm, one side of the inner wall of the main body is provided with a push plate, one side of the inner wall of the push plate is provided with a display groove, the upper outer surface of the display groove is provided with a remote projector, one side of the remote projector is provided with projection glass, the upper outer surface of the remote projector is provided with a connecting seat, the upper outer surface of the connecting seat is provided with a display screen, and the acrylic transparent plate material adopted by the arranged acrylic transparent frame has excellent rigidity, strength, chemical resistance and excellent rigidity due to the high molecular weight of the acrylic plate material, thereby reducing the external influence and directly replacing the early glass frame, bringing better use prospect.

CLAIM 1. A box type holographic display cabinet comprises a main body (1), and is characterized in that: one side of the main body (1) is provided with an acrylic transparent frame (8), the upper end outer surface of the main body (1) is provided with an alarm (9), one side of the inner wall of the main body (1) is provided with a push plate (2), one side of the inner wall of the push plate (2) is provided with a display groove (3), the upper end outer surface of the display groove (3) is provided with a remote projector (4), one side of the remote projector (4) is provided with projection glass (5), the upper end outer surface of the remote projector (4) is provided with a connecting seat (7) is provided with a display screen (6), the remote projector (4) comprises a receiving module (401), an analysis module (402) and an output module (403), the acrylic transparent frame (8) comprises an acrylic transparent plate material (801), a sealant (802) and a screw hole (803), the alarm (9) comprises a shell (901), a buzzer (902) and a sensing seat (903).



N8049

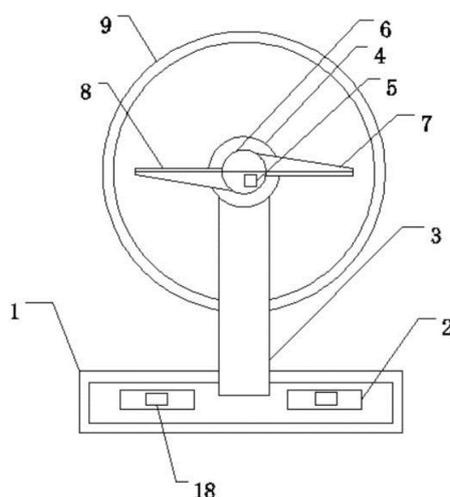
CN213844715U

Priority Date: 14/01/2021

ZHONGSHAN HUATAI DISPLAY PRODUCTS

3D HOLOGRAPHIC PROJECTOR FOR MANNEQUIN PROPS

The utility model discloses a 3D holographic projector for a dress model property, which belongs to the technical field of 3D holographic projection, and particularly relates to a 3D holographic projector for a dress model property, which comprises a bottom plate, wherein the left side and the right side inside the bottom plate are both provided with connecting holes, the upper wall of the bottom plate is connected with a supporting frame, the upper side of the supporting frame is connected with a host, the front wall of the host is rotatably connected with a rotating shaft, the front end of the rotating shaft is fixedly connected with a rotating wheel, the inside of the rotating wheel is connected with a motor, the output end of the motor is connected with the rotating shaft, the left side and the right side of the rotating wheel are both fixedly connected with fan blades, two fan blades are both internally connected with an LED lamp strip, the head part of the dress model property is connected with the bottom plate, the performance is more effective, and the bottom plate and the dress model property are more simply connected under the combined action of a chute, a slide block, a bolt, a fixed block, a buckle and a clamping rod, the integral structure after the connection is more stable, and plays a role in waterproof and dustproof protection through the transparent protective cover.



CLAIM 1. The utility model provides a mannequin props uses 3D holographically projected machine, includes bottom plate (1), its characterized in that: the LED lamp is characterized in that the left side and the right side of the inner part of the bottom plate (1) are respectively provided with a connecting hole (2), the upper wall of the bottom plate (1) is connected with a support frame (3), the upper side of the support frame (3) is connected with a host (4), the front wall of the host (4) is rotatably connected with a rotating shaft, the front end of the rotating shaft is fixedly connected with a rotating wheel (6), the inner part of the rotating wheel (6) is connected with a motor (5), the output end of the motor (5) is connected with the rotating shaft, the left side and the right side of the rotating wheel (6) are respectively and fixedly connected with fan blades (7), the side walls of the two fan blades (7) are respectively connected with an LED lamp strip (8), the inner parts of the two connecting holes (2) are respectively connected with clamping rods (18), the upper ends of the two clamping rods (18) are respectively connected with a supporting plate (12), the lower wall surface of the supporting plate (12) is provided with two sliding grooves (13), the inner parts of the two sliding grooves (13) are respectively connected with a sliding block (14), slider (14) and spout (13) inner chamber inner wall sliding connection, two slider (14) downside all is connected with buckle (15), two buckle (15) upper end left side all is connected with fixed block (16), two inside equal spiro union of fixed block (16) has bolt (17), bolt (17) run through inside fixed block (16) and extend to inside backup pad (12), backup pad (12) left end is connected with mounting bracket (11), mounting bracket (11) left side is connected with mannequin props head (10).

N8050

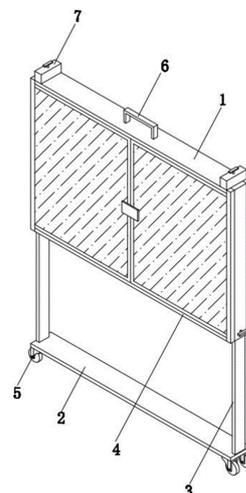
CN213844598U

TIANYIN YIYI TECHNOLOGY

Priority Date: 30/11/2020

TRANSPARENT SCREEN DEVICE FOR HOLOGRAPHIC DISPLAY

The utility model discloses a transparent screen device for holographic exhibition, which comprises a vertically arranged plate frame, wherein a handle is arranged on the top end surface of the plate frame in the middle, a transparent screen is vertically arranged in the plate frame, two cover plates are symmetrically arranged on the two end surfaces of the plate frame opposite to the transparent screen in a sliding way, and the two cover plates are buckled by a buckle lock; lie in the inside equal vertical spout of having seted up of sheet frame of transparent screen both sides, the inside vertical sliding device of spout has the slider, the bottom vertical fixation of slider has the support arm, the one end that the slider was kept away from to the support arm slides and runs through the spout diapire and lie in the sheet frame below, lies in the level is fixed with the bottom plate between two spinal branch strut arm tip of sheet frame below, but independent pivoted removal wheel is all installed to the four corners department of bottom plate bottom face. This a transparent screen device for holographic show, it is rational in infrastructure, solved the problem that exists among the prior art, be worth promoting.



CLAIM 1. The utility model provides a transparent screen device for holographic show, includes vertical setting's sheet frame (1), its characterized in that: a handle (6) is arranged in the middle of the top end face of the plate frame (1), a transparent screen (8) is vertically arranged in the plate frame (1), two cover plates (4) are symmetrically arranged on two end faces, opposite to the transparent screen (8), of the plate frame (1) in a sliding mode in a penetrating mode, and the two cover plates (4) are buckled through a buckle lock; be located equal vertical spout (10) of having seted up in sheet frame (1) of transparent screen (8) both sides, the inside vertical sliding device of spout (10) has slider (11), the bottom vertical fixation of slider (11) has support arm (3), the one end that slider (11) were kept away from in support arm (3) slides and runs through spout (10) diapire and is located sheet frame (1) below, is located the horizontal fixation has bottom plate (2) between two support arms (3) tip of sheet frame (1) below, independent pivoted removal wheel (5) are all installed to the four corners department of bottom plate (2) bottom face.

N8051

CN213843786U

TIANYIN YIYI TECHNOLOGY

Priority Date: 28/11/2020

INDOOR HOLOGRAPHIC PROJECTION DISPLAY DEVICE

The utility model discloses an indoor holographic projection's display device, including bearing platform, show stand, fly leaf and movable plate, the top fixedly connected with show stand of bearing platform, the top swing joint of show stand has protection machanism, protection machanism includes fly leaf, movable plate, micro motor and screw rod, the relative both ends lateral wall in show stand top articulates respectively has the fly leaf that the mirror image distributes, the fly leaf slides with the movable plate and cup joints, the inside of fly leaf is rotated and is connected with the screw rod of at least two sets of relative distributions, the accepting groove has been seted up to the bottom department placed in the middle of bearing platform, the roof fixedly connected with fixed plate of accepting groove, the bottom edge of fixed plate is fixed mounting respectively has electric telescopic handle, electric telescopic handle's flexible end mounting has the wheel that rolls. This indoor holographic projection's display device, rational in infrastructure, and effectively improved the drawback that exists among the prior art, be favorable to using widely.

CLAIM 1. The utility model provides an indoor holographic projection's display device, includes bearing platform (1), show stand (2), fly leaf (3) and movable plate (4), its characterized in that: the top end of the bearing table (1) is fixedly connected with a display table (2), the top end of the display table (2) is provided with a groove (8), the top end of the display table (2) is movably connected with a protection mechanism, the protection mechanism comprises a movable plate (3), a movable plate (4), a micro motor (7) and a screw rod (14), the movable plates (3) distributed in a mirror image mode are respectively hinged to the side walls of two opposite ends of the top end of the display table (2), an accommodating space is formed in the movable plate (3), the movable plate (3) is in sliding sleeve joint with the movable plate (4), at least two groups of screw rods (14) distributed oppositely are rotatably connected to the inside of the movable plate (3), and the screw rods (14) are in threaded sleeve joint with the movable plate (4); bearing platform (1) bottom department placed in the middle has seted up accepting groove (11), roof fixedly connected with fixed plate (10) of accepting groove (11), the bottom edge of fixed plate (10) respectively fixed mounting have electric telescopic handle (9), the flexible fixed mounting of electric telescopic handle (9) has rolling wheel (12).

N8052

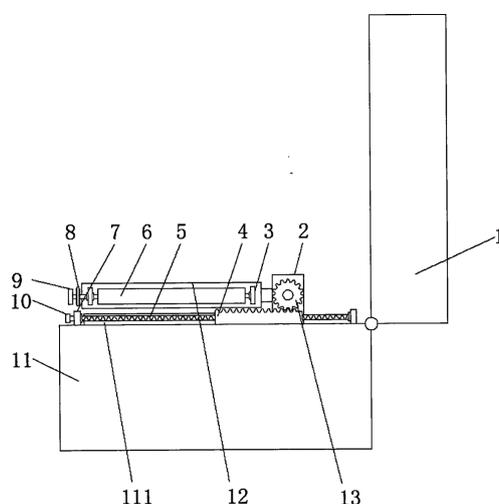
CN213840254U

Priority Date: 28/09/2020

SHANXI LUSHENG TRAFFIC ARCHITECTURAL DESIGN

HOLOGRAPHIC SIMULATION DEVICE FOR ARCHITECTURAL DESIGN

The utility model discloses a holographic analogue means for architectural design, including holographic projection arrangement main part, holographic projection arrangement main part includes the base, the upper surface of base adopts the screw fixation to have projection display, and projection display's display surface level sets up, projection display's top is equipped with holographic projection membrane mounting structure, holographic projection membrane mounting structure includes the installing frame. The utility model discloses when the holographic projection membrane of needs change, only need to rotate handle one and make two rotations of one of them gear, can drive two rotations of another gear through the chain, because two rotation directions of two gears are the same, can make two pivots rotate to the same emergence simultaneously, change the holographic projection membrane, and because two pivot pivoted speeds are unanimous, so only need make the holographic projection membrane keep tight when beginning, like this when changing the holographic projection membrane, make the holographic projection membrane keep tight rotation throughout, high durability and convenient use.



CLAIM 1. A holographic simulation device for architectural design comprises a holographic projection device main body, wherein the holographic projection device main body comprises a base (11), the upper surface of the base (11) is fixed with a projection display (111) through screws, the display surface level of the projection display (111) is arranged upwards, a holographic projection film mounting structure is arranged above the projection display (111), the holographic projection film mounting structure comprises a mounting frame (12), a display through groove (121) is arranged at the middle position of the mounting frame (12), slots (122) are arranged on two sides of the display through groove (121), a holographic projection film rolling and unwinding device is arranged on the side edge of the mounting frame (12) on one side of each slot (122), the holographic projection film rolling and unwinding device comprises a second shaft seat (3), a rotating shaft (6) and a holographic projection film (15), the second shaft seat (3) is arranged on the side wall of the mounting frame (12) on two sides of each slot (122), and be provided with pivot (6) through the bearing between two axle bed two (3), it is equipped with rectangular form holographic projection membrane (15) to show logical groove (121), and the side is moved about respectively and is passed adjacent slot (122) and respectively around rolling up on adjacent pivot (6) about holographic projection membrane (15), its characterized in that still includes angle adjusting part and linkage part, angle adjusting part includes axle bed one (2), cylinder pole (123), gear one (13), axle bed three (7), drive screw (5) and rack (4), base (11) top of the left and right sides in projection display (111) rear all is provided with axle bed one (2) perpendicularly, the both ends of installing frame (12) one side all are provided with cylinder pole (123) perpendicularly, and two cylinder poles (123) set up between two axle bed one (2) through the bearing, and one side fixedly connected with one (one) that one of them cylinder pole (123) extended to axle bed one (2) 13 And the top of the base (11) below the first gear (13) is provided with a rack (4) in a sliding manner, the rack (4) is meshed with the first gear (13), the tops of the bases (11) at the two ends of the rack (4) are all vertically provided with a third shaft seat (7), a driving screw (5) penetrating through the rack (4) is arranged between the two third shaft seats (7) through a bearing, the linkage component comprises a second gear (14) and a chain (8), one end, far away from the first shaft seat (2), of the rotating shaft (6) extends to the second gear (14) on one side of the second shaft seat (3), and the chain (8) is arranged between the two second gears (14).

N8053

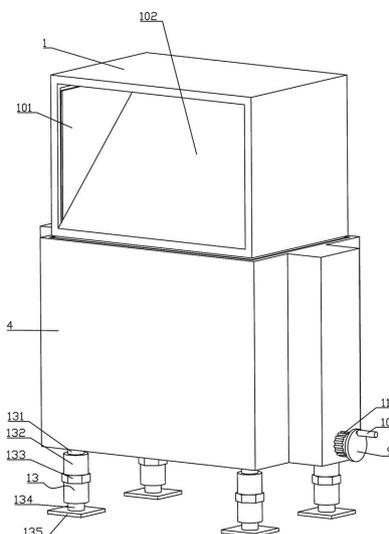
CN213814309U

Priority Date: 09/12/2020

SHENZHEN HENGXUN TONGDA TECHNOLOGY

DIGITAL 3D DISPLAY 5G-VR HOLOGRAPHIC CABINET

The utility model discloses a digital 3D display 5G-VR holographic cabinet, which comprises a cabinet body integrated with 5G-VR technology, wherein the cabinet body is connected with a rectangular seat, ear plates are connected on two sides of the rectangular seat, a lifting box is matched with the ear plates in a sliding way and is provided with two hanging openings, the lifting box is provided with a fixed plate, the fixed plate is rotationally connected with a first lead screw through the lifting box, the first lead screw is connected with a first helical gear, the lifting box is connected with a second lead screw, the second lead screw is connected with a turntable, the turntable is connected with a hand lever, the second lead screw is matched with a locking cap, the second lead screw is connected with a second helical gear, the lifting box is connected with an adjusting support part, the adjusting support part comprises an upper lead screw, the thread of the upper lead screw is matched with a rotary drum, and a hexagonal block is integrally connected on the outer side of the rotary drum, the thread of the rotary drum is matched with a lower screw rod, the thread of the lower screw rod is opposite to that of the upper screw rod, and the lower screw rod is connected with a supporting bottom plate.



CLAIM 1. The utility model provides a holographic cabinet of digital 3D demonstration 5G-VR, includes the cabinet body (1) that has integrated 5G-VR technique, glass screen (101) are all installed to the inside five sides of the cabinet body (1), the cabinet body (1) has set spectroscopic (102), its characterized in that along diagonal slant: the cabinet body (1) is integrally connected with a rectangular seat (2), two sides of the rectangular seat (2) are integrally connected with lug plates (3), the rectangular seat (2) and the lug plates (3) are matched with a lifting box (4) in a sliding mode, the back side of the lifting box (4) is provided with two hanging openings (41), the lifting box (4) is provided with two fixing plates (5), the fixing plates (5) and the lifting box (4) are connected with two first screw rods (6) in a rotating mode, the two first screw rods (6) are respectively matched with the lug plates (3) in a threaded mode, the two first screw rods (6) are integrally connected with first helical gears (7), the first helical gears (7) are located on the lower side of the fixing plates (5), the lifting box (4) is connected with second screw rods (8) in a rotating mode, one ends, located on the outer side of the lifting box (4), of the second screw rods (8) are connected with a rotating disc (9), the rotary table (9) is connected with a hand crank (10), a locking cap (11) is arranged on the second screw rod (8) in a threaded matching mode, two second bevel gears (12) are integrally connected with the second screw rod (8), the two second bevel gears (12) are meshed with the two first bevel gears (7) respectively, the bottom of the lifting box (4) is connected with four adjusting and supporting parts (13), each adjusting and supporting part (13) comprises an upper screw rod (131) connected with the lifting box (4), a rotary drum (132) is arranged on the upper screw rod (131) in a threaded matching mode, a hexagonal block (133) is integrally connected to the outer side of the rotary drum (132), a lower screw rod (134) is arranged on the rotary drum (132) in a threaded matching mode, the lower screw rod (134) is opposite to the upper screw rod (131) in threaded mode, and the lower screw rod (134) is connected with a supporting bottom plate (135).

N8054

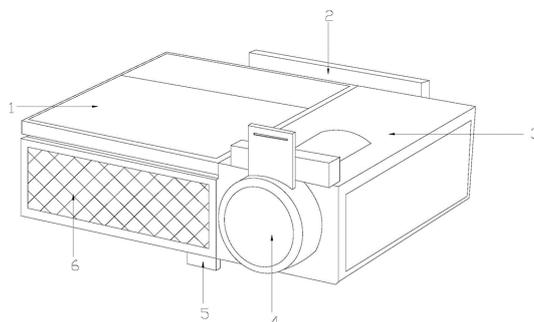
CN213814249U

Priority Date: 12/01/2021

FUZHOU ZHENCHUANG ADVERTISING

3D HOLOGRAPHIC PROJECTION DEVICE

The utility model discloses a 3D holographic projection device, which comprises a top plate, a hanging clamping plate, a machine body, a protective glasses connecting block, a supporting clamping block and a heat dissipation separation net, when the protective glass needs to be cleaned after being used for a period of time, the pull-down sliding plate on the top of the shell can be pressed to drive the cleaning wiping block on the connecting valve block to vertically move downwards on the protective glass, thereby cleaning the cleaning block, the connecting valve block is provided with a circulation groove which can extract the cleaning agent in the cleaning agent storage groove, so that the cleaning agent penetrates into the cleaning wiping block, the cleaning effect of the cleaning wiping block on the protective glass is enhanced, by improving the structure of the equipment, the equipment does not need to be cleaned by carrying a cleaning tool when being cleaned, and the speed is faster when the cleaning machine is used for cleaning, and the cleaning machine does not need to stay at a high place for a long time to clean.



CLAIM 1. The utility model provides a 3D holographic projection device, its structure includes roof (1), hangs cardboard (2), organism (3), goggles connecting block (4), supports fixture block (5), heat dissipation and separates net (6), its characterized in that: the top plate (1) is embedded in the top end of the machine body (3), the front end of the hanging clamping plate (2) is welded with the rear end of the machine body (3), the protective glasses connecting block (4) is embedded in the front end of the machine body (3), the supporting clamping block (5) is located below the heat dissipation separation net (6), the protective glasses connecting block (4) comprises a pull-down sliding plate (41), a detergent storage tank (42), a shell (43), a limiting block (44), a cleaning and wiping block (45), protective glass (46), a linking valve block (47) and a circulation tank (48), the pull-down sliding plate (41) is embedded in the top end of the shell (43), the top end of the shell (43) and the bottom end of the detergent storage tank (42) are of an integrated structure, the limiting block (44) is arranged on the top end of the valve block (47), the cleaning and wiping block (45) is embedded in the middle of the linking and mounting valve block (47), the left end of the protective glass (46) is movably touched with the right end of the cleaning wiping block (45), the connecting valve block (47) is located right left of the protective glass (46), the circulation groove (48) and the pull-down sliding plate (41) are of an integrated structure, and the shell (43) is embedded and installed at the front end of the machine body (3).

N8056

CN113299128

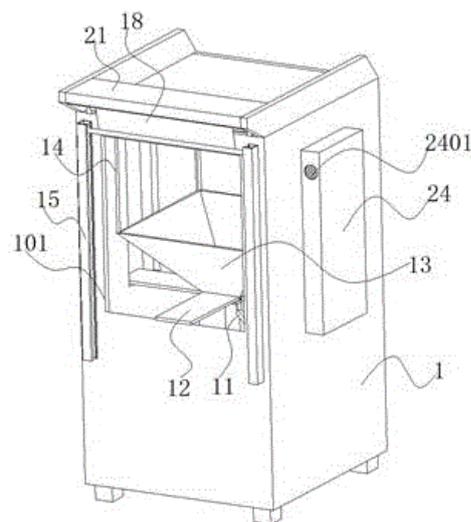
Priority Date: 30/04/2021

ANHUI WEIQUAN NETWORK TECHNOLOGY

VIDEO HOLOGRAPHIC PROJECTION CABINET BASED ON TEACHING

The invention belongs to the technical field of holographic projection, in particular to a video holographic projection cabinet based on teaching, and aims to solve the problem that holographic projection applied to the teaching field in the prior art is affected by a field space. The invention can project the contents played on the touch screen on the four screens at the bottom at the same time only by playing the video on the touch screen normally when in use.

CLAIM 1. A video holographic projection cabinet based on teaching comprises a cabinet body (1) with an internal cavity integrally in a cuboid structure, wherein an electric push rod (3) is fixed in the middle of the bottom of the cabinet body (1), a supporting plate (4) is fixed at the top end of an extension rod of the electric push rod (3), and is characterized in that four sides of the lower surface of the supporting plate (4) are hinged with a screen (12), the upper surface of the supporting plate (4) is connected with a rectangular iron ring (401) matched with the peripheral size of the supporting plate (4) in a clamping manner at the edge, the top end of the rectangular iron ring (401) adsorbs an absorption ring (5), an acrylic projection frame (13) is bonded at the top end of the absorption ring (5), a hanging rod (14) is fixed between four corners of the top end of the acrylic projection frame (13) and the inner wall of the top of the cabinet body (1), an observation window (101) is opened in the front of the cabinet body (1), and the cabinet body (1) can be used as a teaching platform at ordinary times, one side of opening there is observation window (101) just can appreciate stereographic image to student one side under the podium so that students can appreciate under the platform, and the width size of observation window (101) is greater than the biggest width on ya keli projection frame (13) top, the cabinet body (1) is kept away from the vertical inner wall of other three sides of observation window (101) and has all been opened the rectangular hole, and the width of rectangular hole is greater than the width of screen (12), and the end opening level of rectangular hole equals the level of ya keli projection frame (13) bottom.



N8061

CN113253551

Priority Date: 07/06/2021

JINGMEN CITY DREAM EXPLORATION TECHNOLOGY

HOLOGRAPHIC PROJECTOR AND HOLOGRAPHIC DISPLAY SYSTEM

The invention discloses a holographic projector and a holographic display system, which comprise an imaging chip arranged in the holographic projector and used for providing an equivalent image surface, a light source for providing light for the imaging chip, an imaging lens group corresponding to the equivalent image surface and used for optical imaging, and a power density rho of the light source satisfies the following conditions: by using a large number of experiments prove that the holographic projector provided by the invention obviously improves the imaging quality and the user comfort level, so that the product performance of the holographic projector is optimized.

CLAIM 1. A holographic projector, comprising an imaging chip arranged inside the holographic projector for providing an equivalent image plane, a light source for providing light to the imaging chip, and an imaging lens group corresponding to the equivalent image plane and for optical imaging, characterized in that the power density of the light source is ρ satisfies the following conditions: wherein the power density of the light source Has a unit of P is the light source power in W ; S_0 the aperture area of the light hole of the outermost lens in the imaging lens group is unit m^2 ; S_1 the area of a light spot projected by the holographic projector on a plane perpendicular to the main optical axis of the outermost lens is 10cm away from the outermost lens in the imaging lens group; S_{10} The area of a light spot projected by the holographic projector on a plane perpendicular to the main optical axis of the outermost lens is 100cm away from the outermost lens in the imaging lens group.

N8063

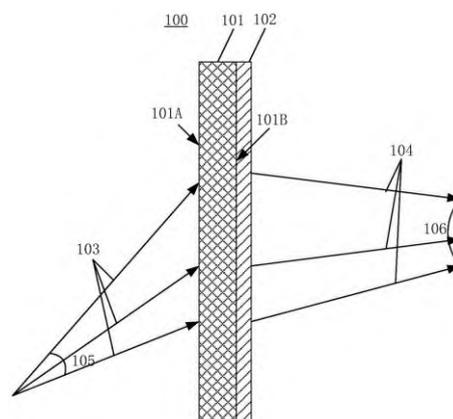
CN113238448

Priority Date: 11/06/2021

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

VOLUME HOLOGRAPHIC PROJECTION SCREEN, MANUFACTURING METHOD THEREOF AND VOLUME HOLOGRAPHIC PROJECTION SYSTEM

The invention discloses a volume holographic projection screen, a manufacturing method thereof and a volume holographic projection system, wherein the volume holographic projection screen comprises: a substrate comprising a first surface and a second surface disposed opposite one another; a photosensitive layer on the second surface; the substrate and the photosensitive layer form the volume holographic projection screen, and the volume holographic projection screen is used for receiving projection information light rays in a first constraint angle and converting the projection information light rays into diffuse reflection light rays to be emitted in a second constraint angle. Therefore, by the structure, the projection information on the volume holographic projection screen can be seen only in a certain distance and a certain angle range from the projection screen, the information on the projection screen can not be seen in other angles and positions, the energy utilization rate is extremely high, a high-brightness projector is not required to be used for supporting, and the information is prevented from being peeped by surrounding people; meanwhile, the projection screen is a transparent projection screen, and information communication on two sides of the projection screen is not influenced.



CLAIM 1. A volume holographic projection screen, comprising: a substrate comprising a first surface and a second surface disposed opposite one another; a photosensitive layer on the second surface; the substrate and the photosensitive layer form the volume holographic projection screen, and the volume holographic projection screen is used for receiving projection information light rays in a first constraint angle and converting the projection information light rays into diffuse reflection light rays to be emitted in a second constraint angle.

N8068

CN113206991

Priority Date: 23/04/2021

SHENZHEN REALIS MULTIMEDIA TECHNOLOGY

HOLOGRAPHIC DISPLAY METHOD, SYSTEM, COMPUTER PROGRAM PRODUCT AND STORAGE MEDIUM

The invention discloses a holographic display method, a holographic display system, a computer program product and a storage medium. The holographic display system includes: the motion capture module is used for acquiring three-dimensional position information of the holographic 3D glasses in the motion capture space and visual angle position information of a user wearing the holographic 3D glasses in the motion capture space through optical motion capture; the holographic calculation module is used for synchronizing the three-dimensional position information of the holographic 3D glasses in the motion capture space to the virtual three-dimensional scene, and taking the three-dimensional position of the holographic 3D glasses in the motion capture space as the position of a virtual camera in the virtual space so as to calculate the visual angle picture of the virtual camera; and the holographic display carrier is used for displaying the visual angle picture of the virtual camera and adjusting the visual angle picture in real time according to the visual angle position information of the user wearing the holographic 3D glasses in the motion capture space. This can greatly improve the effect of holographic display.

CLAIM 1. A system for holographic display, the system comprising: the motion capture module is used for acquiring three-dimensional position information of the holographic 3D glasses in a motion capture space and visual angle position information of a user wearing the holographic 3D glasses in the motion capture space through optical motion capture; the holographic calculation module is used for synchronizing the three-dimensional position information of the holographic 3D glasses in the motion capture space to a virtual three-dimensional scene, and taking the three-dimensional position of the holographic 3D glasses in the motion capture space as the position of a virtual camera in a virtual space so as to calculate the view angle picture of the virtual camera; and the holographic display carrier is used for displaying the visual angle picture of the virtual camera and adjusting and displaying the visual angle picture in real time according to the visual angle position information of the user wearing the holographic 3D glasses in the motion capture space.

N8069

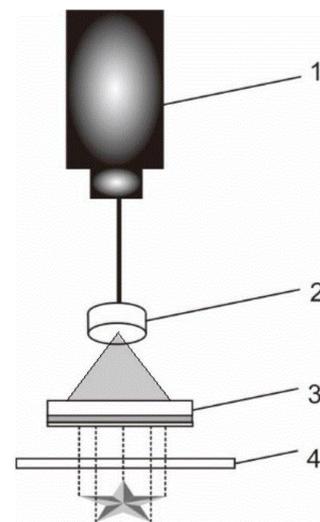
CN113204185

XIAMEN UNIVERSITY

Priority Date: 10/05/2021

PREPARATION METHOD OF HOLOGRAPHIC DISPLAY ELEMENT FOR HOLOGRAPHIC AUTOMOBILE TAIL LAMP

A method for preparing a holographic display element for a holographic automobile tail lamp relates to an automobile tail lamp. The method comprises the following steps: 1) exposing the first holographic film through a holographic imaging recording optical system I; 2) after post-processing, a transmission master plate holographic film is prepared; 3) reproducing the object image recorded by the transmission master plate hologram and using the object image as an object light source; 4) exposing the second hologram through the holographic imaging recording optical system II; 5) and after post-treatment, the holographic display element for the holographic automobile tail lamp is prepared. Based on a two-step holographic recording method, the diffraction efficiency is higher, and the aberration is small; the three-dimensional display has higher reality compared with the two-dimensional display; the holographic display element prepared by the two-step method forms a real image meeting the visual habits of people, and the added one-time holographic recording procedure is simpler, so that the method has no special requirements on preparation materials and does not need additional equipment and special elements.



N8070

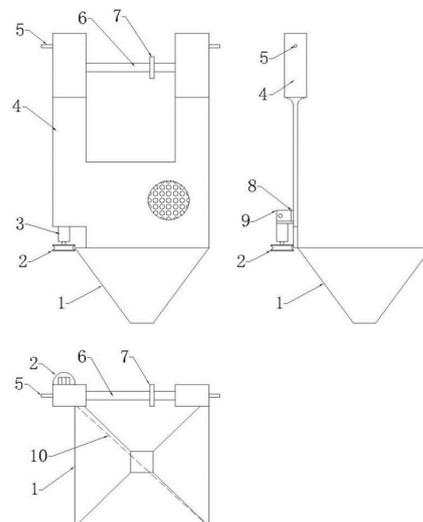
CN113192366

YAN HUACUN

Priority Date: 30/04/2021

HOLOGRAPHIC PROJECTION TEACHING DEVICE

The invention discloses a holographic projection teaching device, wherein a holographic projection pyramid is provided with a supporting and fixing structure and an opening and closing device, the holographic projection device comprises a turnover structure and a remote control device, wherein the supporting and fixing structure is a supporting plate, the supporting plate is connected with a fixing seat, a holographic projection pyramid is fixed on the supporting plate, the supporting and fixing structure is provided with an auxiliary fixing structure, the opening and closing device comprises a cable motor, a cable winding wheel and a telescopic rope, the cable motor is fixed on one side of the supporting plate through the cable motor fixing seat, the cable winding wheel is arranged at the shaft end of the cable motor, one end of the telescopic rope is fixed on the cable winding wheel, the other end of the telescopic rope passes through a wire passing hole in the upper end of the holographic projection pyramid, and the holographic projection device is turned to be parallel to a roof by using the turnover motor when not used, so that the lower space is vacated, the potential safety hazard is reduced, the safety protection of equipment is facilitated, meanwhile, the equipment framework is simple, and the maintenance of the equipment is easy; utilize the electro-magnet as supplementary fixing device, increase the daily steadiness of equipment, reduce the potential risk and take place.



CLAIM 1. The holographic projection teaching device comprises a holographic projection pyramid; the method is characterized in that: holographic projection pyramid be equipped with support fixed knot structure, open and shut device, flip structure and remote control unit, support fixed knot structure be the backup pad, the fixing base is connected to the backup pad, holographic projection pyramid is fixed in the backup pad, support fixed knot structure and be equipped with supplementary fixed knot structure, the device that opens and shuts be cable motor, cable winding wheel and flexible rope, the cable motor passes through cable motor fixing base to be fixed in backup pad one side, the axle head of cable motor is equipped with cable winding wheel, flexible rope one end is fixed on cable winding wheel, the line hole of crossing of the holographic projection pyramid upper end is passed through to the flexible rope other end, flip structure for setting up fixed axle and follow driving wheel in the concave type breach of backup pad, set up pivot, action wheel and the upset motor in the side of backup pad.

N8071

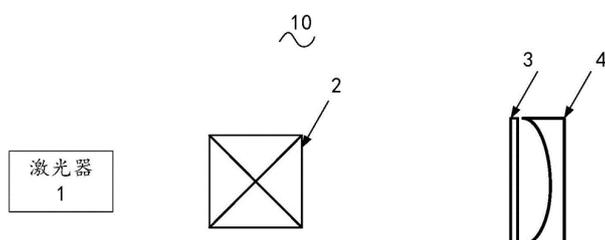
CN113189772

Priority Date: 15/04/2021

SHENZHEN LOCHN OPTICS TECHNOLOGY

DEVICE, HOLOGRAPHIC LENS AND MANUFACTURING METHOD THEREOF, AND NEAR-TO-EYE DISPLAY SYSTEM

The embodiment of the invention relates to the technical field of optics, in particular to a device for acquiring diopter information, a holographic lens, a manufacturing method of the holographic lens and a near-to-eye display system. The embodiment of the invention provides a device for acquiring diopter information, a holographic lens, a manufacturing method thereof and a near-to-eye display system, wherein the device comprises: the holographic optical film comprises at least one laser, and a beam combiner, a holographic dry plate and a refraction mirror which are sequentially arranged along a first optical path; the laser is arranged on the incident surface of the beam combiner, the holographic dry plate is arranged on the emergent surface of the beam combiner, and the reflecting surface of the refraction reflector is close to the holographic dry plate; the holographic dry plate containing diopter information can be obtained through the device, the holographic dry plate is developed, bleached and fixed to obtain the holographic lens, the holographic lens is applied to a near-to-eye display system, vision correction of people with abnormal vision can be achieved, and the size and the weight of the near-to-eye display system are reduced.



CLAIM 1. An apparatus for acquiring diopter information, comprising: the holographic optical film comprises at least one laser, and a beam combiner, a holographic dry plate and a refraction mirror which are sequentially arranged along a first optical path; the beam combiner is provided with an emergent surface and at least one incident surface, the laser is arranged on the incident surface, the holographic dry plate is arranged on the emergent surface, and the reflecting surface of the refraction reflector is close to the holographic dry plate; the laser is used for outputting laser beams, diopter information is recorded on a reflecting surface of the diopter reflecting mirror, and the holographic dry plate is used for acquiring interference fringes containing the diopter information.

N8073

CN113173120

Priority Date: 14/04/2021

ZHONGSHAN YILIAN INTELLIGENT TECHNOLOGY

3D HOLOGRAPHIC PROJECTION CURTAIN WALL PARKING WARNING SYSTEM AND WARNING METHOD

The invention relates to a 3D holographic projection curtain wall parking warning system and a warning method, wherein the 3D holographic projection curtain wall parking warning system comprises: a speed detection circuit for detecting a vehicle running speed to output a switching signal when the speed is lower than a set speed; the laser is used for emitting the 3D holographic projection curtain wall to the rear of the vehicle; and the emission control circuit is respectively electrically connected with the speed detection circuit and the laser device so as to control the laser device to be opened when receiving the switching signal. When being lower than the set speed, for example under the state of emergency STOP or brake deceleration, warning system can launch 3D holographic projection curtain, for example STOP to the car rear in time, realizes that the warning process is full automatic, judge accurate, ultra-low power consumption, rear vehicle driver visual impact feels strong, the parking warning effect is super strong.

CLAIM 1. The utility model provides a 3D holographic projection curtain warning system that parks, its characterized in that includes: a speed detection circuit for detecting a vehicle running speed to output a switching signal when the speed is lower than a set speed; the laser is used for emitting the 3D holographic projection curtain wall to the rear of the vehicle; and and the emission control circuit is respectively electrically connected with the speed detection circuit and the laser device so as to control the laser device to be opened when the switching signal is received.

N8075

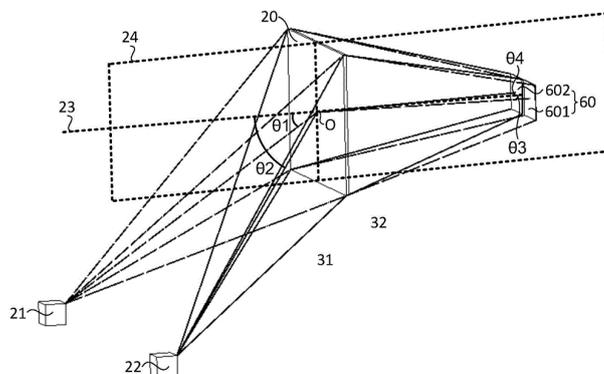
CN113163190

Priority Date: 25/05/2021

BEIJING KANGTEMAN ELECTRONIC SYSTEMS – TIANJIN
YANGGUANG TECHNOLOGY

NAKED EYE 3D DISPLAY BASED ON VOLUME HOLOGRAPHIC TECHNOLOGY AND PREPARATION METHOD THEREOF

The invention discloses a naked eye 3D display based on volume holography and a preparation method thereof, wherein the naked eye 3D display comprises a holographic projection screen, a first projector and a second projector, the first projector and the second projector are positioned on the first side of the holographic projection screen, the first projector is used for projecting a first image to the holographic projection screen, the second projector is used for projecting a second image to the holographic projection screen, and the holographic projection screen is used for projecting the first image and the second image to human eyes. According to the naked eye 3D display and the preparation method thereof provided by the embodiment of the invention, the first projector and the second projector which are arranged on the first side of the holographic projection screen project the first image and the second image to the holographic projection screen, and the first image and the second image are projected to human eyes through the holographic projection screen, so that the naked eye 3D display containing all information of object amplitude and phase is realized, and the display quality of the 3D image is improved.



CLAIM 1. A naked eye 3D display based on volume holographic technology is characterized by comprising a holographic projection screen, a first projector and a second projector; the first projector and the second projector are located on a first side of the holographic projection screen, the first projector for projecting a first image to the holographic projection screen, the second projector for projecting a second image to the holographic projection screen, the holographic projection screen for projecting the first image and the second image to the human eye.

N8078

CN113142773

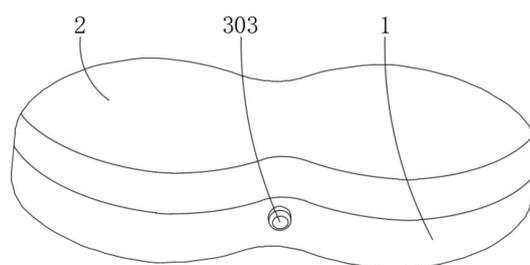
Priority Date: 27/04/2021

QIN YIYI

MAGNETIC SUSPENSION UNCOVERING JEWEL BOX CARRYING HOLOGRAPHIC PROJECTION SYSTEM

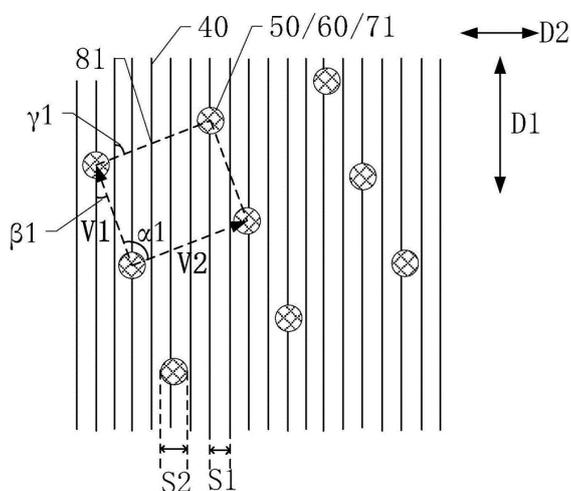
The invention discloses a magnetic suspension uncovering jewel box with a holographic projection system, belonging to the technical field of jewel boxes and comprising a bottom box and a box cover, wherein the bottom box and the box cover are fixedly connected through a clamping mechanism, and a magnetic suspension device is arranged between the bottom box and the box cover; according to the invention, through the arrangement of the holographic projection system, the camera can collect images of daily emotional expressions of a user, the temperature sensor can collect body temperature information of the user, and the collected image information and the collected body temperature information are stored and processed by the main processor and then are sent to the holographic projector for projection, so that the user can conveniently and visually see the daily emotional expressions and the body temperature states of the user.

CLAIM 1. The utility model provides a carry on holographic projection system's magnetic suspension bead box of uncapping, includes end box (1) and lid (2), end box (1) and lid (2) are through clamping mechanism (3) fixed connection, its characterized in that: be equipped with magnetic suspension device (4) between end box (1) and lid (2), magnetic suspension device (4) are including backup pad (401) and S utmost point magnet (402), backup pad (401) fixed mounting is in the inner chamber of end box (1), the four corners at backup pad (401) top all inlays and is equipped with N utmost point magnet (403), the inner chamber of lid (2) is located in S utmost point magnet (402), the inner chamber of end box (1) and lid (2) is equipped with holographic projection system.



GRATING AND HOLOGRAPHIC 3D DISPLAY DEVICE

The invention discloses a grating and holographic 3D display device, which relates to the technical field of display and comprises the following components: the grating structure comprises a first substrate, a second substrate, a grating electrode and a plurality of spacing columns, wherein the first substrate and the second substrate are oppositely arranged; the grating electrodes extend along a first direction and are arranged along a second direction; on a plane parallel to the first substrate, the position of the spacing column is called an array point; the plurality of spacing columns correspond to the plurality of lattice points, the plurality of lattice points comprise a plurality of first lattice point units which are arranged in an array mode, the minimum repeating unit comprises four first lattice point units which are positioned at four vertexes of a first quadrangle, two adjacent edges of the first quadrangle are respectively defined as a first unit vector and a second unit vector, and the included angle between the two unit vectors is 0 degrees and alpha 1 is smaller than or equal to 90 degrees; the first unit vector and the second potential vector are both non-parallel to the first direction. Therefore, the risk that the grating electrode is broken by the spacing column is reduced.



CLAIM 1. A grating, comprising: the grating structure comprises a first substrate, a second substrate, a plurality of grating electrodes and a plurality of spacing columns, wherein the first substrate and the second substrate are oppositely arranged, and the plurality of grating electrodes and the plurality of spacing columns are positioned between the first substrate and the second substrate; the grating electrodes extend along a first direction and are arranged along a second direction; on a plane parallel to the first substrate, the position of the spacing column is called as an array point; the plurality of spacers correspond to the plurality of lattice points, the plurality of lattice points comprise a plurality of first lattice unit, the plurality of first lattice units are arranged in an array on a plane parallel to the first substrate, the minimum repeating unit comprises four first lattice units, the four first lattice units are positioned at four vertexes of a first quadrangle, two adjacent sides of the first quadrangle are respectively defined as a first unit vector and a second unit vector, an included angle between the first unit vector and the second unit vector is alpha 1, and 0 degrees < alpha 1 is less than or equal to 90 degrees; wherein, first unit vector with contained angle between the first direction is beta 1, and beta 1 0, and beta 1 180, second unit vector with contained angle between the first direction is gamma 1, and gamma 1 0, and gamma 1 180.

Click on the title to return to table of contents

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

N8004

WO2021159084

Priority Date: 06/02/2020

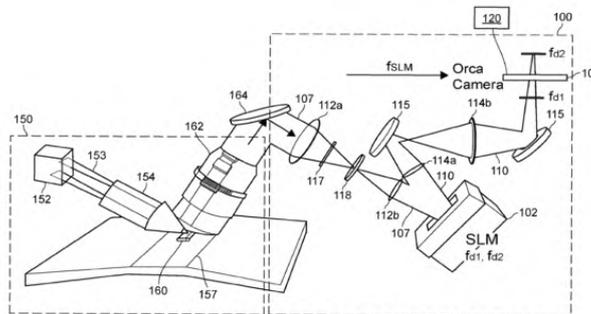
NORTHERN ARIZONA UNIVERSITY - UNIVERSITY OF ILLINOIS

LATTICE LIGHT-SHEET AND FRESNEL INCOHERENT CORRELATION HOLOGRAPHY

A method and system for performing incoherent holographic microscopy imaging, including modulating radiation to form one or more beams and detecting the modulated one or more beams at a detector. The one or more beams include phase information that is detected at the detector and holographic information is determined from the detected modulated one or more beams. A processor is configured to receive the holographic information via a signal generated by the detector and the processor further generates a three-dimensional image of a target.

NAPPE DE LUMIÈRE EN RÉSEAU ET HOLOGRAPHIE DE FRESNEL À CORRÉLATION INCOHÉRENTE

L'invention concerne un procédé et un système permettant de réaliser une imagerie par microscopie holographique incohérente, consistant à moduler un rayonnement de manière à former un ou plusieurs faisceaux, et à détecter lesdits faisceaux modulés au niveau d'un détecteur. Lesdits faisceaux comprennent des informations de phase qui sont détectées au niveau du détecteur et des informations holographiques sont déterminées à partir desdits faisceaux modulés détectés. Un processeur est configuré pour recevoir les informations holographiques par l'intermédiaire d'un signal généré par le détecteur et le processeur génère en outre une image tridimensionnelle d'une cible.



CLAIM 1. A microscopy system comprising: a source of radiation configured to provide radiation, the radiation having a (i) phase, (ii) amplitude, and (iii) Poynting vector, the Poynting vector having a direction indicative of a direction of propagation of the radiation; a modulator disposed along the direction of the Poynting vector, the modulator configured to modulate a phase of the radiation to generate a plurality of beams; a detector module disposed along the direction of the Poynting vector, the detector module configured to detect, at a detector plane of the detector module, the plurality of beams, the detector module further configured to generate a signal indicative of an interference pattern of the plurality of beams; and a processor communicative coupled to the detector module, the processor configured to receive the signal indicative of the interference pattern, and further configured to generate a holographic image from the signal.

N8067

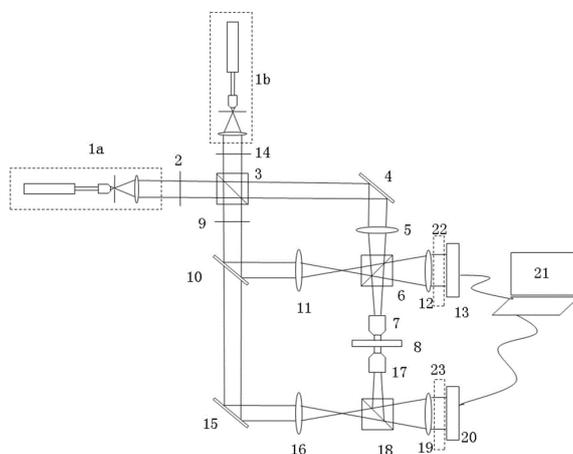
CN113219640

Priority Date: 21/05/2021

SHENZHEN TECHNOLOGY UNIVERSITY

TRANSMISSION-REFLECTION TYPE DIGITAL HOLOGRAPHIC MICROSCOPIC SYSTEM

The invention is suitable for the technical field of microscopes, and provides a transmission-reflection type digital holographic microscope system, which comprises a reflection type digital holographic microscope light path and a transmission type digital holographic microscope light path, wherein the reflection type digital holographic microscope light path comprises the following components in parts by weight: the first light beam changes the polarization direction through the first polaroid and is divided into two light waves with vertical polarization states, wherein the horizontal polarized light is transmitted through the polarization beam splitting cube to form an object light path reflected by the sample, and the vertical polarized light is reflected through the polarization beam splitting cube to form a reference light path reflected by the sample; the light path of the transmission type digital holographic microscope is as follows: the second light beam changes the polarization direction through the second polaroid and is divided into two light waves with vertical polarization states, wherein the vertical polarized light is reflected through the polarization beam splitting cube to form an object light path transmitted by the sample, and the horizontal polarized light is transmitted through the polarization beam splitting cube to form a reference light path transmitted by the sample. The invention can simultaneously test the thickness and the surface profile of the sample.



CLAIM 1. A transmission-reflection type digital holographic microscope system comprises a reflection type digital holographic microscope light path and a transmission type digital holographic microscope light path, the light path of the reflective digital holographic microscope is as follows: the polarization direction of a first light beam (1a) is changed through a first polarizing film (2), the first light beam is divided into two light waves with vertical polarization states after passing through a polarization beam splitting cube (3), wherein the light transmitted through the polarization beam splitting cube (3) is a first object light beam to form a first object light path, and the light reflected through the polarization beam splitting cube (3) is a first reference light beam to form a first reference light path; the light path of the transmission type digital holographic microscope is as follows: the polarization direction of the second light beam (1b) is changed through a second polarizing film (14), the second light beam passes through the polarization beam splitting cube (3) and then is divided into two light waves with vertical polarization states, wherein the light reflected by the polarization beam splitting cube (3) is the second light beam to form a second light path, and the light transmitted by the polarization beam splitting cube (3) is a second reference light beam to form a second reference light path; the first reference beam is reflected by a dichroic mirror (10) and the second reference beam is transmitted by said dichroic mirror (10).

Click on the title to return to table of contents

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

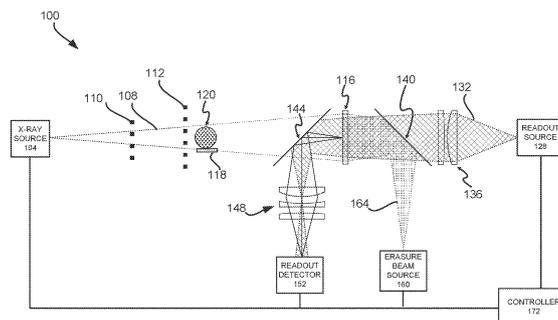
N8012

US20210247330
 Priority Date: 07/02/2020

LELAND STANFORD JUNIOR UNIVERSITY

HOLOGRAPHIC X-RAY DETECTION

An apparatus for X-ray imaging is provided. An X-ray source provides an X-ray along an X-ray beam path. A holographic medium is along the X-ray beam path. An X-ray phase grating is between the X-ray source and the holographic medium along the X-ray beam path. A readout beam source provides a readout beam along a readout beam path. A readout detector is along the readout beam path, wherein the holographic medium is along the readout beam path.



N8015

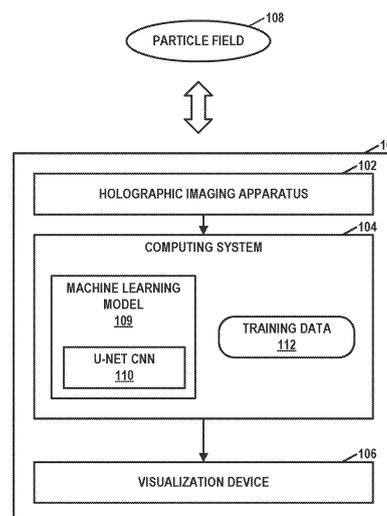
US20210232091
 Priority Date: 29/01/2020

UNIVERSITY OF MINNESOTA

MACHINE LEARNING HOLOGRAPHY FOR PARTICLE FIELD IMAGING

A method comprises obtaining input data comprising a hologram of a 3-dimensional (3D) particle field, a depth map of the 3D particle field, and a maximum phase projection of the 3D particle field. The method also comprises applying a U-net convolutional neural network (CNN) to the input data to generate output data. Encoder blocks have residual connections between a first layer and a second layer that skips over a convolution layer of the encoder block. Decoder blocks have residual connections between a first layer and a second layer that skips over a convolution layer of the decoder block. The output data includes a channel in which pixel intensity corresponds to relative depth of particles in the 3D particle field and an output image indicating locations of centroids of the particles in the 3D particle field.

CLAIM 1. A method for particle/tracer localization or particle field imaging, the method comprising: obtaining input data, the input data comprising at least one of an original hologram of a 3-dimensional (3D) particle field, a depth map of the 3D particle field, or a maximum phase projection of the 3D particle field; and applying a U-net convolutional neural network (CNN) to the input data to generate output data, wherein: the U-net CNN comprises a set of one or more encoder blocks and a set of one or more decoder blocks, for each respective encoder block of the set of encoder blocks, the respective encoder block has a residual connection between a first layer of the respective encoder block and a second layer of the respective encoder block that skips over a convolution layer of the respective encoder block between the first layer of the respective encoder block and the second layer of the respective encoder block, for each respective decoder block of the set of decoder blocks, the respective decoder block has a residual connection between a first layer of the respective decoder block and a second layer of the respective decoder block that skips over a convolution layer of the respective decoder block between the first layer of the respective decoder block and the second layer of the respective decoder block, output of a last-occurring encoder block of the set of encoder blocks is input to a first-occurring decoder block of the set of decoder blocks, and the output data includes a first output image and a second output image, the first output image comprising a channel in which pixel intensity corresponds to relative depth of particles in the 3D particle field, and the second output image indicating locations of centroids of the particles in the 3D particle field.



N8017

US11099523

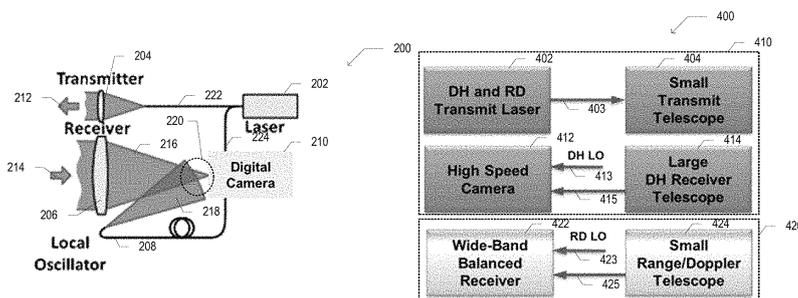
Priority Date: 22/05/2019

LOCKHEED MARTIN

DIGITAL HOLOGRAPHY RANGE DOPPLER RECEIVER

Systems and methods are provided for a digital holography range Doppler receiver. The subject system transmits outgoing electromagnetic radiation to a target, and provides a first reference local oscillator (LO) beam to a first detector and a second reference LO beam to a second detector, based on the outgoing electromagnetic radiation. The system receives reflected electromagnetic radiation from the target through a first optical receiver and a second optical receiver having a smaller diameter, and determines range and velocity of the target simultaneously using an interference with the second reference LO beam. The system applies time and frequency offsets to the first reference LO beam based on the measured range and velocity to align the first reference LO beam with the reflected electromagnetic radiation, and produces an image of the target using the first reference LO beam having the applied time and frequency offsets.

CLAIM 1. An optical system, comprising: a digital holography (DH) system comprising a first optical receiver and a first detector, wherein the DH system is configured to: provide a first reference local oscillator (LO) beam signal to the first detector, and receive reflected electromagnetic radiation from a target at the first detector through the first optical receiver; and a range Doppler (RD) system comprising a second detector, wherein the RD system is configured to: provide a second reference LO beam signal to the second detector, receive the reflected electromagnetic radiation from the target at the second detector, determine simultaneously range and velocity of the target from the reflected electromagnetic radiation using an interference with the second reference LO beam signal, and apply time and frequency offsets to the first reference LO beam signal based on the range and velocity of the target to align the first reference LO beam signal with the reflected electromagnetic radiation at the first detector, and wherein the DH system produces an image of the target using the reflected electromagnetic radiation and the first reference LO beam signal having the applied time and frequency offsets.



N8020

RU-205424

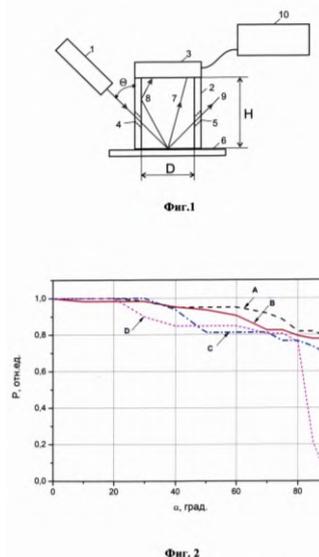
Priority Date: 19/02/2021

NESTEROVICH LAZARYUK SERGEY - NIKOLAEVICH MIKHAILOV VIKTOR

DEVICE TO MONITOR DIFFRACTION EFFICIENCY OF HOLOGRAM

A useful model refers to optical-electronic devices controlling the diffraction efficiency of reflective holograms and can be used for rapid control of different types of holographic products and appointments in its production and operation conditions. The technical result of a useful model is to create a device to control the diffraction efficacy of holograms, allowing measurements in a wide range of frequencies and angles of device on the plane of the hologram on the angles of diffraction, without requiring the use of large aperture high-value optics. The device contains a source of 1 laser radiation and a photo receiver 3, rigidly connected to cylindrical reflector 2, with two holes 4 and 5 in the shell, diametrically opposite. The cylindrical shape of the reflector enables the measurement of diffraction efficiency of holograms in a wide range of diffraction arrays from 800 to 1,400 lines/mm without the need for expensive and wide-scale optics. In addition, source 1 of laser radiation and photo receiver 3 with cylindrical reflector 2 makes the design and usability of the proposed device easy. In general, the device is a low-cost compact device, simple and easy to use.

CLAIM 1. A device for controlling diffraction efficiency of holograms, which includes the source of laser radiation directed at a hologram, reflector and photoreceiver, which is characterized by the reflector being shaped in the shape of the cylinder, two holes situated diametrically opposite in the shell of the cylindrical reflector, with the source of laser radiation and the photoreceiver tightly connected to the cylindrical reflector.



N8021

KR20210102830

Priority Date: 30/11/2020

KAKAOBANK

HOLOGRAM DETECTION SERVICE PROVIDING SERVER AND HOLOGRAM DETECTION METHOD

A hologram detection method capable of automatically detecting a hologram from a detection target using a deep learning-based neural network model includes setting at least one detection unit region in the detection target, Obtaining a first image by photographing the detection target in a flash off state, obtaining a first detection result value including whether a hologram is detected per at least one detection unit region and a detection region from the first image by using a neural network model, Changing a flash intensity in a flash on state, obtaining a second image by rephotographing the detection target with the changed flash intensity, Obtaining a second detection result value including whether a hologram is detected per at least one detection unit region and a detection region from a second image, and comparing the first detection result value with the second detection result value to determine whether the detection target is authentic. The neural network model learns using a plurality of learning images, wherein each of the learning images includes a plurality of regions in which presence or absence of a hologram is confirmed, and each of the regions includes a labeling value indicating presence or absence of a hologram.

CLAIM 1. An image processing method, comprising: setting at least one detection unit region within a detection target; obtaining a first image by photographing the detection target in a flash off state; obtaining a first detection result value including whether a hologram is detected and a detection region for each of the at least one detection unit region from the first image by using a neural network model; Changing a Flash intensity in a Flash on state; obtaining a second image by rephotographing the detection target with the changed Flash intensity; generating, by using the neural network model, Obtaining a second detection result value including whether a hologram is detected per at least one detection unit region and a detection region from a second image; and determining whether the detection target is authentic by comparing the first detection result value with the second detection result value, Wherein the neural network model is learned using a plurality of learning images, wherein each of the learning images includes a plurality of regions in which presence or absence of a hologram is confirmed, and wherein each of the regions includes a labeling value indicating presence or absence of a hologram.

N8024

KR20210096981

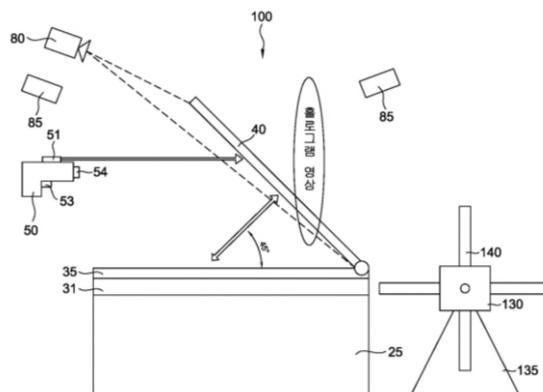
Priority Date: 29/01/2020

NEXT EDITION

SENSITIVE HOLOGRAPHIC IMAGE SHOOTING APPARATUS CAPABLE OF MOTION TRACKING

The present invention relates to a sensitive hologram image shooting apparatus capable of motion tracking. The holographic image fraud apparatus includes a storage unit which processes and stores a central point of a laser emitted to a holographic image as a coordinate value, a beam projector which is connected to the storage unit, projects an unexpected image randomly or sequentially, A reflection film provided at an angle of 45 ° with respect to the rear screen to reflect an image of the rear screen; a hologram image formed on a rear surface of the reflection film to represent an image; A roller supported by the support and spaced apart from the hologram image by a predetermined interval, and a background image panel installed at one or more intervals on the roller to provide a background of the hologram image.

CLAIM 1. A motion tracking type holographic image shooting apparatus, which is applied to a shooting training process, includes: a storage unit 10 for processing and storing a center point of a laser emitted to a holographic image as a coordinate value; a projection unit 10 formed in a box 25, A flat panel display (31) for irradiating a projected image onto a reflective film (40); an auxiliary screen (35) formed on the flat panel display (31) to close the upper portion of the box (25); the reflective film (40) installed at an angle of 45 or 135 with the auxiliary screen (35) to reflect the image of the flat panel display (31); A hologram image formed on the rear surface of the reflection film (40) to display an image; tracking devices (85) formed at both sides of the upper portion of the auxiliary screen (35) to be spaced apart from each other by a predetermined distance to rotate, enlarge and reduce the hologram image; A roller 130 spaced apart from the hologram image by a predetermined interval and supported by a support 135; and at least one background image panel 140 installed at a predetermined interval on the roller 130 to provide a background of the hologram image.



N8028

KR102282347

Priority Date: 05/02/2020

FUTURESHAPERS

HOLOGRAM GENERATION METHOD AND APPARATUS

The present invention relates to a hologram generating method and apparatus, and more particularly, A method of generating a hologram in a hologram generating apparatus interworking with a hologram output apparatus and a manager terminal through a communication network is provided. the method includes receiving an advertisement target object to be output through the hologram output apparatus from the manager terminal Acquiring general three-dimensional image data corresponding to the selected advertisement target object from an object image database; classifying the advertisement target object as an element object based on the general three-dimensional image data; Generating a sub-hologram for each classified element object and recording the generated sub-hologram in a sub-hologram database; generating a digital hologram corresponding to the advertisement object by synthesizing the generated Checking whether to correct the digital hologram by transmitting the digital hologram to the manager terminal, and transmitting the generated digital hologram to the hologram output device according to a result of the checking.

CLAIM 1. A method of generating a hologram in a hologram generating apparatus interworking with a hologram outputting apparatus and a manager terminal through a communication network, the method comprising: receiving a selection of an advertisement target object to be output through the hologram outputting apparatus from the manager terminal and obtaining general purpose three-dimensional image data corresponding to the selected advertisement target object from an object image database; Classifying the advertisement target object as an element object based on the general-purpose three-dimensional image data; generating a sub-hologram for each classified element object and recording the generated sub-hologram in a sub-hologram database; Generating a digital hologram corresponding to the advertisement target object by synthesizing the generated sub-holograms; transmitting the generated digital hologram to the administrator terminal to confirm whether to modify the digital hologram; Transmitting information on a selectable element object corresponding to the transmitted digital hologram to the administrator terminal according to an object modification request from the administrator terminal; transmitting information on a replaceable element object corresponding to an element object selected by the administrator terminal among the selectable element objects to the administrator terminal; Modifying the digital hologram based on an element object selected by the manager terminal among the replaceable element objects; and transmitting the modified digital hologram to the hologram output device, A size and a resolution of the sub-hologram are determined according to an effective output radius of a hologram pan provided in the hologram output device, when a customer entering an advertisement target area is detected by the hologram output device, an image captured by a camera is analyzed to identify a reaction of the detected customer to a digital hologram currently being output, Adaptively determine the advertisement target object according to the identified customer's reaction, generate the digital hologram corresponding to the determined advertisement target object and transmit the digital hologram to the hologram output device, And generating a special effect around the hologram image output by the hologram output device based on at least one of the type of the advertisement target object and the configuration of the manager terminal.

N8055

CN113299320

Priority Date: 04/06/2021

BEIJING DINGDANG CAT TECHNOLOGY

HOLOGRAPHIC RECORDING METHOD AND SYSTEM BASED ON VIRTUAL REALITY

The application relates to a holographic recording method and system based on virtual reality, and relates to the technical field of internet. The method comprises the following steps: starting a scene, and initializing a recording module; monitoring the change data of at least one object in the scene, and sending data of at least two data types to a module corresponding to the data types; storing the change data as recording data; and executing playback on the recorded data. According to the holographic recording method and system based on virtual reality, the picture and the audio file are synchronously recorded by recording the microphone data, and the simultaneous reading, recording and playback are realized by utilizing a multithreading mode, so that the user experience is comprehensively improved.

CLAIM 1. A holographic recording method based on virtual reality is characterized by comprising the following steps: starting a scene, and initializing a recording module; monitoring the change data of at least one object in the scene, and sending data of at least two data types to a module corresponding to the data types; storing the change data as recording data; and executing playback on the recorded data.

N8058

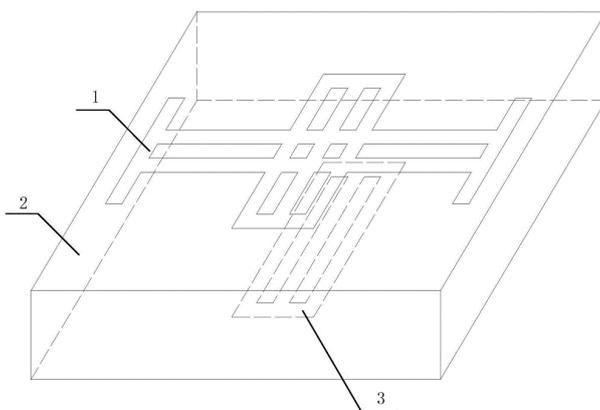
CN113258299

Priority Date: 13/05/2021

QIQIHAR UNIVERSITY

SINGLE LAYER ENCODED SUPER SURFACE FOR FULL SPACE ELECTROMAGNETIC HOLOGRAPHIC IMAGING

A super surface of single-deck code for full space electromagnetism holographic imaging relates to the super surface technical field of code. The invention aims to solve the problems that the super-surface holographic structure realized by the traditional multilayer medium cascade structure has large volume and is not beneficial to being integrated with a modern electromagnetic device or system. The coding unit comprises an upper metal layer and a lower metal layer, wherein the upper metal layer comprises a II-shaped first metal sheet and a second metal sheet formed by arranging two rectangular rings in parallel, the first metal sheet and the second metal sheet are overlapped and are in a cross-shaped structure, one edge of the second metal sheet is parallel to one edge of the dielectric layer, the lower metal layer can completely cover the lower surface of the dielectric layer, a hollowed-out structure which is completely the same as the second metal sheet in shape is arranged on the lower metal layer, the hollowed-out structure is in mirror symmetry with the second metal sheet, and the geometric centers of the upper metal layer, the lower metal layer and the dielectric layer are overlapped.



CLAIM 1. A single-layer coding super surface for full-space electromagnetic holographic imaging, includes a plurality of super surface units that are arranged in an array, and each super surface unit all includes: coding units and a rectangular medium layer (2), it is characterized in that the coding unit comprises an upper metal layer (1) positioned on the upper surface of the dielectric layer (2) and a lower metal layer (3) positioned on the lower surface of the dielectric layer (2), the upper metal layer (1) comprises a first metal sheet in a shape like a Chinese character 'II' and a second metal sheet formed by two rectangular rings which are arranged in parallel, the two rectangular rings are arranged in parallel, two adjacent edges of the two rectangular rings are overlapped, the first metal sheet and the second metal sheet are overlapped and are in a cross-shaped structure, one edge of the second metal sheet is parallel to one edge of the dielectric layer (2), the lower metal layer (3) is a metal sheet capable of completely covering the lower surface of the dielectric layer (2), a rectangular hollow structure is arranged on the metal sheet, the two opposite edges of the hollow structure are communicated through a strip-shaped gap, the hollow structure is in mirror symmetry with the second metal sheet, the geometric centers of the upper metal layer (1), the lower metal layer (3) and the dielectric layer (2) are overlapped.

N8059

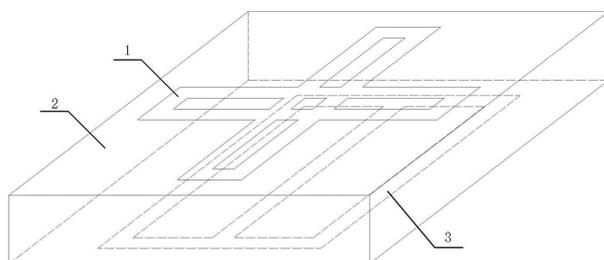
CN113258294

QIQIHAR UNIVERSITY

Priority Date: 13/05/2021

SINGLE-LAYER BROADBAND AMPLITUDE CODING SUPER SURFACE FOR FULL-SPACE HOLOGRAPHIC IMAGING

A single-layer wide-band amplitude coding super-surface for full-space holographic imaging relates to the technical field of coding super-surfaces. The invention aims to solve the problems of more cascade layers and narrow working frequency band of the existing coding super surface in the aspect of regulating and controlling electromagnetic waves in a full space. The coding unit comprises a cross-shaped metal layer and a rectangular metal layer, wherein strip gaps are formed in the metal strips of the cross-shaped metal layer along the length direction of the metal strips, the middle points of the two metal strips are intersected and form a cross shape, the rectangular metal layer can cover the lower surface of a dielectric layer, the rectangular metal layer is provided with a rectangular annular hollow structure, the middle points of two opposite sides of the hollow structure are communicated through strip openings, and the geometric centers of the cross-shaped metal layer, the rectangular metal layer and the dielectric layer are overlapped.



CLAIM 1. A single-layer broadband amplitude-coded super-surface for full-space holographic imaging, comprising a plurality of super-surface units arranged in an array, each super-surface unit comprising: coding units and a rectangular medium layer (2), it is characterized in that the coding unit comprises a cross-shaped metal layer (1) positioned on the upper surface of the dielectric layer (2) and a rectangular metal layer (3) positioned on the lower surface of the dielectric layer (2), the cross-shaped metal layer (1) comprises two metal strips, strip-shaped gaps are arranged on the metal strips along the length direction of the metal strips, the middle points of the two metal strips are intersected and form a cross shape, one metal strip is parallel to one edge of the dielectric layer (2), the rectangular metal layer (3) is a metal sheet capable of covering the lower surface of the dielectric layer (2), a rectangular annular hollow structure is arranged at the central position of the metal sheet, the middle points of two opposite sides of the hollow structure are communicated through a strip-shaped opening, one side of the hollow structure is parallel to one side of the dielectric layer (2), the geometric centers of the cross-shaped metal layer (1), the rectangular metal layer (3) and the dielectric layer (2) are overlapped.

N8060

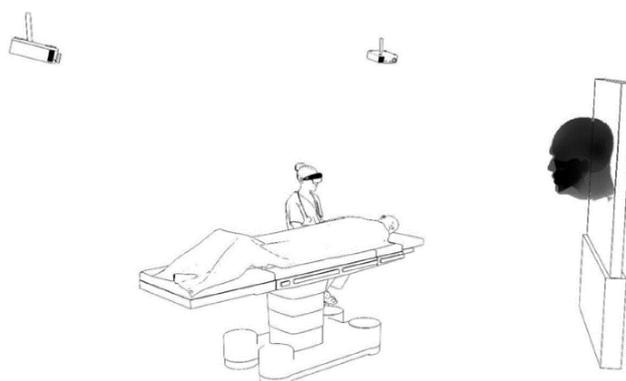
CN113256791

UNIVERSITY OF NANKAI

Priority Date: 24/05/2021

HOLOGRAPHIC AUGMENTED REALITY ASSISTED HUMAN-COMPUTER INTERACTION DIAGNOSIS AND TREATMENT SYSTEM IN SURGICAL OPERATION

The invention provides a holographic augmented reality assisted human-computer interaction diagnosis and treatment system in a surgical operation, which comprises a two-dimensional display module, a three-dimensional display module, a user interaction module and a holographic projection module, wherein the two-dimensional display module is used for displaying a three-dimensional image; the two-dimensional display module can calculate and process the imported DICOM image file; the three-dimensional display module can perform three-dimensional reconstruction and rendering on the medical image by utilizing open source image processing and visualization tool function libraries VTK and ITK; the user interaction module can perform scaling and rotation pose transformation on the model; the holographic projection module can push a rendered or cut three-dimensional model to a screen capable of being interactively displayed in a polarization type 3D mode, and different three-dimensional effects can be achieved by adjusting the visual distance. The system designed by the invention has high integration level, has an intelligent diagnosis and treatment system with a holographic augmented reality technology, and also has great reference value for other intelligent medical operation interaction systems.



CLAIM 1. A holographic augmented reality assisted human-computer interaction diagnosis and treatment system in a surgical operation is characterized by comprising a two-dimensional display module, a three-dimensional display module, a user interaction module and a holographic projection module; the two-dimensional display module can calculate and process the imported DICOM image file and display a coronal plane, a sagittal plane and a transverse plane; the three-dimensional display module can carry out three-dimensional reconstruction and rendering on the medical image by utilizing the open source image processing and visualization tool function libraries VTK and ITK, and the three-dimensional model is convenient for a user to observe virtual stereo information more intuitively; the user interaction module can zoom and rotate the pose of the model, can cut and display the three-dimensional model in real time by dragging a mouse or rotating an operation cutting surface, and can also calculate and plan imported models in various forms and auxiliary lines by coordinate calculation to perform animation rendering; the holographic projection module can push a rendered or cut three-dimensional model to an interactive display screen in a polarized 3D mode, and different three-dimensional effects can be achieved by adjusting the visual distance.

N8062

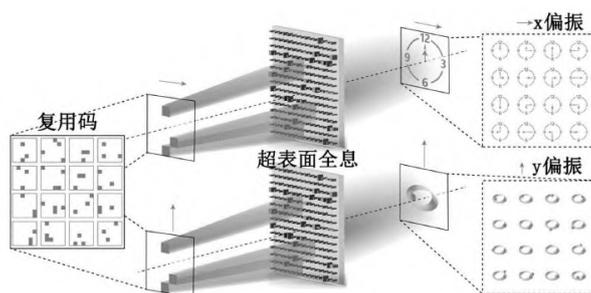
CN113238470

Priority Date: 14/05/2021

BEIJING UNIVERSITY OF TECHNOLOGY

CODE DIVISION MULTIPLEXING METHOD BASED ON METASURFACE HOLOGRAPHY

The invention relates to a code division multiplexing method based on a metasurface, which realizes multi-channel optical information coding and belongs to the field of micro-nano optics and holography application. On the basis of phase control of the metamaterial surface anisotropic unit structure, the metamaterial surface structure design original is obtained according to the code division multiplexing iterative optimization algorithm, and then processing is guided. The method can realize the completely independent image reconstruction function of each channel under the condition of specific polarization state and reference light illumination, and can effectively improve the information density of the metasurface holography. The method can effectively improve the information density of a single metasurface, and can be applied to occasions such as dynamic holographic display, optical information storage, optical information encryption and the like.



CLAIM 1. A code division multiplexing method based on metasurface holography comprises the following steps: step one, designing a hologram Dividing target optical information to be stored in the metasurface hologram into N groups according to the number of the polarization channels, wherein each group corresponds to one polarization channel, and the maximum value of the number of the channels of each group is the number of multiplexing codes required in the code division multiplexing technology; after determining the basic physical parameters of the reconstructed image according to the actual situation, obtaining a basic formula by a code division multiplexing principle: wherein, $t_m(x, y)$ is the target complex amplitude of the mth channel in the planar active area of the metasurface, $C_m(x, y)$ and $C_n(x, y)$ are the complex amplitudes of the multiplexing codes of the m-th channel and the n-th channel respectively, $F \{ \}$ represents the coding process of the iterative optimization algorithm improved by the Fidoc algorithm and the ping-pong algorithm, $P \{ \}$ represents the diffraction propagation process of the optical wave, and a is a complex constant; multiplexing codes satisfying the formula (1) can be selected; and the phase distribution information of N groups of computation holograms can be obtained by the encoding process $F \{ \}$ The basic physical parameters include: the number of pixels, the pixel interval/period of the hologram, the wavelength of the light source used, and the spatial position of the reconstructed image; step two: designing metasurfaces Determining the shape, material and height of the processable metamaterial surface unit structure according to the wavelength and pixel size of the hologram determined in the step one; and performing parametric structure scanning on the shape to establish a group of shape sizes of the metamaterial surface unit structures and corresponding complex amplitude transmission coefficients t in N orthogonal polarization directions; step three: processing and reconstruction According to the lookup table established in the second step, based on the bit distribution information obtained in the first step Selecting the minimum size deviation of each unit structure on the metasurface and generating a corresponding processing file; then, various micro-nano processing methods are utilized for preparation; after the metasurfaces are prepared, multiplexing code structure illumination with correct polarization states is formed by using an auxiliary optical system and is irradiated on the metasurface holograms, and reconstruction of optical information of corresponding channels can be achieved.

N8064

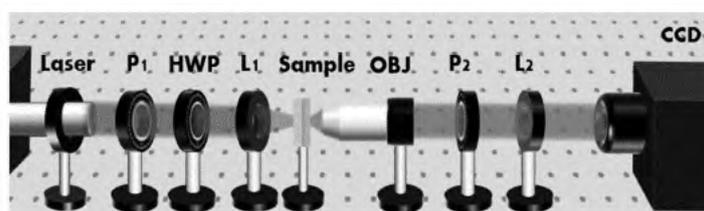
CN113238302

Priority Date: 11/05/2021

BEIJING UNIVERSITY OF TECHNOLOGY

METHOD FOR REALIZING DYNAMICALLY ADJUSTABLE METASURFACE BASED ON VECTOR HOLOGRAPHIC TECHNOLOGY

The invention discloses a method for realizing a dynamically adjustable metasurface based on a vector holographic technology, belonging to the technical field of micro-nano optics, optical metering, holographic imaging and holographic optical tweezers application. The metasurface related by the invention is composed of medium nano-column arrays with rectangular cross sections and azimuth angles of different sizes, and can realize flexible modulation on amplitude, phase and polarization of an optical field; according to the vector holographic encoding process, the reconstruction of any and various vector holographic light fields can be realized simultaneously, and dynamic wave front regulation and control can be realized according to the selection of the incident/emergent polarization state. The number of polarization states generated by the method provided by the invention is not limited, the information capacity of the metasurface is greatly expanded, and the method has the characteristics of accuracy, ultra-thin compactness and sub-wavelength pixels, and can be applied to the application fields of dynamic display, optical encryption and anti-counterfeiting, all-solid-state scanning, holographic optical tweezers and the like.



CLAIM 1. The method for realizing the dynamically adjustable metasurface based on the vector holographic technology is characterized by comprising the following steps of: the method comprises the following steps: in order to realize the dynamic metasurface based on adjustable polarization, firstly, the metasurface needs to have flexible modulation capability of amplitude, phase and polarization so as to encode multi-polarization holographic optical field information; by using 5 kinds of nano-pillar structures with different geometric sizes and different azimuth angles, the flexible modulation of the amplitude, the phase and the polarization of the light field is realized; step two: deriving amplitude, phase and polarization distribution of the metasurface serving as a modulation device according to target vector holographic optical field distribution based on a vector holographic algorithm, and arranging a nano-pillar unit array according to the result to generate a processing file of the transmission metasurface; step three: and (4) preparing the metamaterial surface of the medium by using a micro-nano processing technology mainly based on electron beam etching according to the processing file obtained in the step two.

N8072

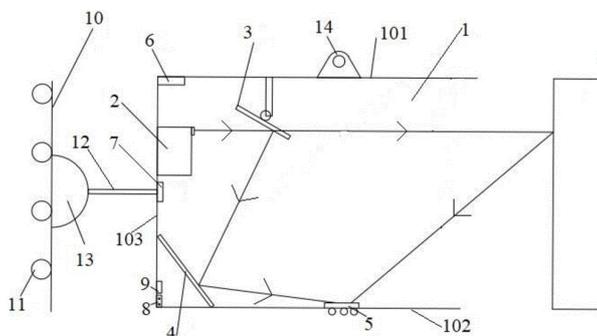
CN113178153

Priority Date: 11/05/2021

SHANGHAI INSTITUTE OF TECHNOLOGY

HOLOGRAPHIC IMAGE DEVICE AND METHOD FOR ANCIENT BUILDING FACADE

The invention discloses a holographic imaging device for a vertical surface of a historic building, wherein the opening direction of a groove body faces to the outside of the historic building to be tested; the laser emitter is arranged at the bottom of the tank body and used for emitting laser along the opening direction of the tank body; the beam splitter is optically connected with the laser transmitter and is used for receiving laser and splitting the laser into first laser and second laser; the reflecting mirror is optically connected with the beam splitter and used for receiving and reflecting the first laser; the holographic negative film is respectively optically connected with the reflector and the beam splitter and is used for respectively receiving the first laser reflected by the reflector and the second laser reflected by an external historic building to be detected so as to obtain a holographic image; the signal processing unit is in signal connection with the holographic negative film and is used for receiving the holographic image and uploading the holographic image to an external terminal for data processing and three-dimensional reconstruction. The three-dimensional image of the historic building can be conveniently and quickly reproduced and stored through the holographic principle under the conditions of not contacting the historic building, not damaging the historic building and keeping the original state of the historic building.



CLAIM 1. The utility model provides a holographic image device of ancient building facade which characterized in that includes: the holographic negative film laser comprises a tank body, and a laser emitter, a beam splitter, a reflector, a holographic negative film and a signal processing unit which are arranged in the tank body; the opening direction of the groove body faces to the outside of the ancient building to be tested; the laser emitter is arranged at the bottom of the tank body and is used for emitting laser along the opening direction of the tank body; the beam splitter is optically connected with the laser transmitter and is used for receiving laser and splitting the laser into a first laser and a second laser, and the first laser and the second laser are coherent light sources; the reflecting mirror is optically connected with the beam splitter and used for receiving and reflecting the first laser; the holographic negative film is respectively optically connected with the reflector and the beam splitter and is used for respectively receiving the first laser reflected by the reflector and the second laser reflected by an external historic building to be tested so as to obtain a holographic image; and the signal processing unit is in signal connection with the holographic negative film and is used for receiving the holographic image and uploading the holographic image to an external terminal for data processing and three-dimensional reconstruction.

N8076

CN113156792

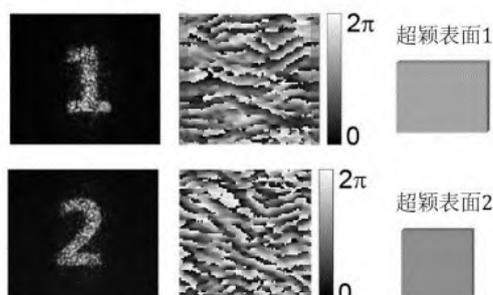
Priority Date: 09/02/2021

BEIJING UNIVERSITY OF TECHNOLOGY

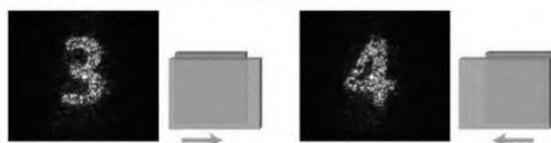
TRANSLATION HOLOGRAPHIC MULTIPLEXING METHOD BASED ON CASCADE METASURFACES

The invention relates to a translation holographic multiplexing method based on a cascading metasurface, and belongs to the technical field of micro-nano optics, holographic display and channel multiplexing application. The method uses an iterative gradient descent optimization algorithm to obtain the phase distribution of multiple metasurface holograms, and encodes the metasurface holograms on different glass substrates by using amorphous silicon nanorod antennas through the processes of deposition, photoetching, stripping, etching and the like. When the method is used for holographic encryption, only two single-layer metasurface holograms are stacked according to correct relative translation positions, the encrypted information can be read, and the method can be applied to the fields of information security, encryption, anti-counterfeiting and the like needing to hide confidential data. Furthermore, the holographic representation of the translating holographic multiplexed cascaded metasurface system can be encoded at discrete and equidistant spatial locations, which makes it potentially useful as an optical scale.

单层超颖表面全息图的实验再现像



级联超颖表面系统的实验再现像



CLAIM 1. The translation holographic multiplexing method based on the cascade metasurfaces is characterized by comprising the following steps of: the method comprises the following steps: the method comprises the following steps of firstly, efficiently and directly obtaining the phase distribution of two metasurface holograms A and B forming a translation holographic multiplexing cascade metasurface system by using an iterative gradient descent optimization algorithm; the two metasurface holograms A and B respectively correspond to a reproduction image which is independent of each other, and when the two metasurface holograms are stacked at a preset distance, a plurality of brand new reproduction images can be reproduced according to different relative translation positions; step two, encoding the phase distribution of the metasurface hologram obtained in the step one through a medium nano antenna; the encoding is realized by modulating the phase by a geometric phase modulation principle, and the specific method comprises the following steps: determining different in-plane azimuth angles of the dielectric nano-antennas at various positions in the metasurface by using the dielectric nano-antennas with higher reverse circular polarization transmissivity according to the spatial phase distribution of the target light field; based on the phase regulation and control characteristic of the chiral selectivity of the geometric phase, when left/right-handed circularly polarized incident light is incident on the dielectric nano antenna with the azimuth angle theta, the mutually conjugated phase modulation with the size of $\pm 2\theta$ can be formed on the right/left-handed circularly polarized emergent light, wherein \pm -or $< - >$ is determined by the specific polarization state combination of the incident light and the emergent light; and step three, processing all-dielectric metasurface holograms A' and B formed by the dielectric nano antennas on different glass substrates by deposition, photoetching, stripping and etching methods, and stacking at a preset distance to form the designed translation holographic multiplexing cascade metasurface system.

IHMA - AUGUST 2021 - 111 ISSUED PATENTS - PAGE 1

HOLOGRAMS - 17 PATENTS

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P33747	WO	2021157695	12/08/2021	TOPPAN PRINTING	JP	07/02/2020	JP202000019313	WO2021157695	OPTICAL IDENTIFICATION BODY AND PRINTED MATTER	OVD
P33802	CN	214012356	20/08/2021	HENAN WEIQUN TECHNOLOGY DEVELOPMENT	CN	25/01/2021	CN2021000193866	CN214012356U	LOCAL HOLOGRAPHIC ANTI-COUNTERFEIT LABEL THAT OPENS	
P33803	CN	214012355	20/08/2021	HENAN WEIQUN TECHNOLOGY DEVELOPMENT	CN	25/01/2021	CN2021000193844	CN214012355U	VOID OPENS AND DESTROYS ANTIFALSIFICATION LABEL	
P33817	CN	213947682	13/08/2021	SHANGHAI SHUN HAO NEW MATERIALS POLYTRON TECHNOLOGIES	CN	09/11/2020	CN202000256624	CN213947682U	LIGHT-TRANSMITTING VISIBLE ANTI-COUNTERFEITING LAMINATING PAPER	
P33825	CN	213861236	03/08/2021	YIWU INDUSTRIAL & COMMERCIAL COLLEGE	CN	13/10/2020	CN2020002275768	CN213861236U	INK SUPPLY MECHANISM FOR HOLOGRAPHIC CODING IMAGE PRINTING MACHINE	
P33827	CN	213844569	30/07/2021	GUANGZHOU TIMES PRINTING FACTORY	CN	30/12/2020	CN2020003262063	CN213844569U	NOVEL ANTI-COUNTERFEIT LABEL	
P33828	CN	213844568	30/07/2021	SHENZHEN YANRUN TECHNOLOGY	CN	14/12/2020	CN2020002992690	CN213844568U	HOLOGRAPHIC LASER POSITIONING ANTI-COUNTERFEIT LABEL	
P33829	CN	213844567	30/07/2021	SHENZHEN YANRUN TECHNOLOGY	CN	14/12/2020	CN2020002992659	CN213844567U	MULTIFUNCTIONAL HOLOGRAPHIC ANTI-COUNTERFEITING MARK	
P33831	CN	213844565	30/07/2021	WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT	CN	26/11/2020	CN2020002786371	CN213844565U	ENCRYPTED HOLOGRAPHIC MARK	
P33832	CN	213836095	30/07/2021	SHANGHAI SHUN HAO NEW MATERIALS POLYTRON TECHNOLOGIES	CN	09/11/2020	CN2020002568544	CN213836095U	LIGHT-TRANSMITTING VISIBLE ANTI-COUNTERFEITING TRANSFER PAPER	
P33835	CN	213815275	27/07/2021	BEIJING PAN PASS INFO TECHNOLOGY	CN	24/11/2020	CN2020002747596	CN213815275U	COMPOSITE ANTI-COUNTERFEITING MARK	
P33839	CN	113299180	24/08/2021	SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP	CN	25/05/2021	CN2021000573079	CN113299180	MAGNETIC OPTICALLY-VARIABLE ANTI-COUNTERFEITING HOLOGRAPHIC ANTI-COUNTERFEITING LABEL AND PREPARATION METHOD THEREOF	
P33840	CN	113299179	24/08/2021	SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP	CN	25/05/2021	CN2021000573070	CN113299179	PRINTED HOLOGRAPHIC UNCOVERING INFORMATIZATION ANTI-COUNTERFEIT LABEL AND PREPARATION METHOD THEREOF	
P33845	CN	113284409	20/08/2021	SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP	CN	11/06/2021	CN2021000655067	CN113284409	BARRELED WATER SEALING LABEL AND PREPARATION METHOD THEREOF	
P33854	CN	113263849	17/08/2021	GUANGDONG HENGLI NEW PACKING MATERIAL	CN	08/06/2021	CN2021000638250	CN113263849	CIGARETTE ANTI-COUNTERFEITING HOLOGRAPHIC TWO-DIMENSIONAL CODE ELECTROCHEMICAL ALUMINUM AND PREPARATION METHOD THEREOF	
P33876	CN	113160696	23/07/2021	SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP	CN	31/03/2021	CN2021000350498	CN113160696	ANTI-COUNTERFEITING CARD WITH UNCOVERING VERIFICATION INFORMATION AND PREPARATION METHOD THEREOF	
P33877	CN	113160695	23/07/2021	SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP	CN	31/03/2021	CN2021000350470	CN113160695	LASER CONCEALED ANTI-FAKE MARK AND ITS PREPARING METHOD	

VARIOUS OPTICAL EFFECTS - 20 PATENTS

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P33739	WO	2021165640	26/08/2021	DE LA RUE INTERNATIONAL	GB	20/02/2020	GB2020000002395	WO2021165640 GB202002395 GB2592235	A SECURITY SHEET	
P33744	WO	2021159183	19/08/2021	CCL SECURE	AU	12/02/2020	AU2020000900385	WO2021159183 FR3107004	AN OPTICAL EFFECT DEVICE	
P33746	WO	2021157706	12/08/2021	TOPPAN PRINTING	JP	07/02/2020	JP2020000020046	WO2021157706	OPTICAL DEVICE AND METHOD FOR MANUFACTURING OPTICAL DEVICE	

IHMA - AUGUST 2021 - 111 ISSUED PATENTS - PAGE 2

VARIOUS OPTICAL EFFECTS - 20 PATENTS (continuation)

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P33747	WO	2021157695	12/08/2021	TOPPAN PRINTING	JP	07/02/2020	JP2020000019313	WO2021157695	OPTICAL IDENTIFICATION BODY AND PRINTED MATTER	Hologram
P33749	WO	2021155999	12/08/2021	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	04/02/2020	DE102020000732	DE102020000732 WO2021155999	OPTICALLY VARIABLE SECURITY ELEMENT	
P33752	WO	2021153761	05/08/2021	ZEON	JP	31/01/2020	JP2020000015438	WO2021153761	IDENTIFICATION MEDIUM, ARTICLE, AND IDENTIFICATION MEDIUM USE METHOD	
P33755	WO	2021151699	05/08/2021	ORELL FÜSSLER	WO	27/01/2020	WO2020510000878	WO2021151459 WO2021151699	SECURITY DOCUMENT WITH LIGHTGUIDE HAVING A SPARSE OUTCOUPLER STRUCTURE	
P33756	WO	2021151460	05/08/2021	ORELL FÜSSLER	WO	27/01/2020	WO2020510000881	WO2021151460	DOCUMENT OF IDENTIFICATION WITH OPTICAL LIGHTGUIDE	
P33758	WO	2021148292	29/07/2021	KURZ DIGITAL SOLUTIONS - OVD KINEGRAM	DE	23/01/2020	DE202010101559	WO2021148292 DE102020101559	METHOD FOR AUTHENTICATING A SECURITY DOCUMENT	
P33764	US	20210163752	03/06/2021	VIAVI SOLUTIONS	US	29/11/2019	US2019062942004	US20210163752 WO2021108699 IN202014004305	COMPOSITION INCLUDING A COLOR SHIFTING PIGMENT HAVING A DIFFERENT PARTICLE SIZE	
P33781	JP	2021110779	02/08/2021	DAI NIPPON PRINTING	JP	07/01/2020	JP202000000992	JP2021110779	DIFFRACTION OPTICAL ELEMENT, ILLUMINATION DEVICE, AND METHOD FOR MANUFACTURING DIFFRACTION OPTICAL ELEMENT	
P33790	EP	3865312	18/08/2021	HUECK FOLIE	EP	14/02/2020	EP2020000157388	EP3865312	METHOD FOR MANUFACTURING A SAFETY ELEMENT	
P33791	EP	3865311	18/08/2021	HUECK FOLIE	EP	14/02/2020	EP2020000157387	EP3865311	METHOD FOR MANUFACTURING A SAFETY ELEMENT	
P33819	CN	213919911	10/08/2021	DONGGUAN PAIHONG INDUSTRIAL	CN	17/09/2020	CN2020002046304	CN213919911U	INVISIBLE ANTI-FAKE RIBBON	
P33826	CN	213844570	30/07/2021	GUANGZHOU JINMENG JEWELLERY	CN	12/01/2021	CN2021000074291	CN213844570U	REFLECTIVE PROJECTION SURFACE ANTI-COUNTERFEITING STRUCTURE	
P33855	CN	113263847	17/08/2021	ANHUI JINCAI ANTI COUNTERFEITING TECHNOLOGY	CN	17/05/2021	CN2021000532441	CN113263847	HEAT TRANSFER GOLD STAMPING STAINED PAPER AND HEAT TRANSFER ANTI-COUNTERFEITING PRINTING PROCESS	
P33863	CN	113232444	10/08/2021	SHEN BOZHONG - SHEN SU - YANG LI	CN	20/05/2021	CN2021000552374	CN113232444	MOTION SAFETY LINE WATER TRANSFER PAPER, MANUFACTURING METHOD, APPLICATION AND PRODUCT	
P33875	CN	113173022	27/07/2021	CHINA BANKNOTE PRINTING & MINT - CHINA BANKNOTE PRINTING TECHNOLOGY RESEARCH INSTITUTE	CN	24/05/2021	CN2021000565734	CN113173022	TRANSPARENT ANTI-COUNTERFEITING ELEMENT, MANUFACTURING METHOD AND DETECTION METHOD THEREOF, DETECTION EQUIPMENT THEREOF AND SECURITY ARTICLE	
P33878	CN	113160694	23/07/2021	GUANGZHOU JINMENG JEWELLERY	CN	12/01/2021	CN2021000038517	CN113160694	ANTI-COUNTERFEITING STRUCTURE CAPABLE OF REFLECTING PROJECTION	
P33885	CN	113147215	23/07/2021	CHINA BANKNOTE PRINTING & MINT - CHINA BANKNOTE PRINTING TECHNOLOGY RESEARCH INSTITUTE	CN	24/05/2021	CN2021000564472	CN113147215	TRANSPARENT ANTI-COUNTERFEITING ELEMENT, MANUFACTURING METHOD AND DETECTION METHOD THEREOF, DETECTION EQUIPMENT THEREOF AND SECURITY ARTICLE	

NON SECURITY HOLOGRAMS - 75 PATENTS

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
N8004	WO	2021159084	12/08/2021	NORTHERN ARIZONA UNIVERSITY - UNIVERSITY OF ILLINOIS	US	06/02/2020	US2020062971081	WO2021159084	LATTICE LIGHT-SHEET AND FRESNEL INCOHERENT CORRELATION HOLOGRAPHY	
N8005	WO	2021158774	12/08/2021	IPG PHOTONICS	US	04/02/2020	US2020062970001	WO2021158774	ACHROMATIC HOLOGRAPHIC PHASE MASKS	

IHMA - AUGUST 2021 - 111 ISSUED PATENTS - PAGE 3

NON SECURITY HOLOGRAMS - 75 PATENTS (continuation)

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
N8006	WO	2021151816	05/08/2021	VIVIDQ	GB	30/01/2020	GB202000001289	WO2021151816 GB202001289	OPTICAL ASSEMBLY AND METHOD FOR REDUCING ZERO-ORDER LIGHT IN A HOLOGRAPHIC DISPLAY	
N8007	WO	2021151794	05/08/2021	FRAUNHOFER GES ZUR FOERDERUNG DER ANGEWANDTEN TECHNIK E V - GSI HELMHOLTZZENTRUM FUER SCHWERIONENFORSCHUNG - UNIVERSITY JENA FRIEDRICH SCHILLER	DE	28/01/2020	DE202010101994	DE102020101994 WO2021151794	METHOD AND APPARATUS FOR LENSLESS IMAGING USING FOURIER TRANSFORM HOLOGRAPHY	
N8008	WO	2021149479	29/07/2021	SONY SEMICONDUCTOR SOLUTIONS	JP	24/01/2020	JP202000010225	WO2021149479	PROJECTION APPARATUS, INFORMATION PROCESSING APPARATUS, AND DRIVE CIRCUIT	
N8009	US	20210264628	26/08/2021	ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE	KR	25/02/2020	KR202000022989	US20210264628	SYSTEM AND METHOD FOR DIGITAL HOLOGRAM SYNTHESIS AND PROCESS USING DEEP LEARNING	
N8010	US	20210263319	26/08/2021	LUMINIT	US	25/02/2020	US2020016800531	US20210263316 US20210263319	HEAD-MOUNTED DISPLAY HAVING VOLUME SUBSTRATE-GUIDED HOLOGRAPHIC CONTINUOUS LENS OPTICS WITH LASER ILLUMINATED MICRODISPLAY	
N8011	US	20210255584	19/08/2021	ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE	KR	18/02/2020	KR2020000019498	US20210255584	METHOD AND APPARATUS FOR GENERATING FULL-COLOR HOLOGRAPHIC IMAGE	
N8012	US	20210247330	12/08/2021	LELAND STANFORD JUNIOR UNIVERSITY	US	07/02/2020	US2020062971677	US20210247330	HOLOGRAPHIC X-RAY DETECTION	
N8013	US	20210236209	05/08/2021	MEDIVIEW XR	US	01/02/2020	US2020062969035	US20210236209 WO2021155349	REAL TIME FUSED HOLOGRAPHIC VISUALIZATION AND GUIDANCE FOR DEPLOYMENT OF STRUCTURAL HEART REPAIR OR REPLACEMENT PRODUCT	
N8014	US	20210232093	29/07/2021	TEXAS INSTRUMENTS	US	27/01/2020	US2020062966283	US20210232093	PROJECTOR WITH PHASE HOLOGRAM MODULATOR	
N8015	US	20210232091	29/07/2021	UNIVERSITY OF MINNESOTA	US	29/01/2020	US2020062967330	US20210232091	MACHINE LEARNING HOLOGRAPHY FOR PARTICLE FIELD IMAGING	
N8016	US	11100950	24/08/2021	NATIONAL CENTRAL UNIVERSITY	TW	15/10/2020	TW2020000135784	US11100950	METHOD FOR READING AND WRITING WITH HOLOGRAPHIC SYSTEM AND HOLOGRAPHIC STORAGE SYSTEM	
N8017	US	11099523	24/08/2021	LOCKHEED MARTIN	US	22/05/2019	US2019016420022	US11099523	DIGITAL HOLOGRAPHY RANGE DOPPLER RECEIVER	
N8018	RU	2752026	22/07/2021	FEDERALNOE GOSUDARSTVENNOE AVTONOMNOE OBRAZOVATELNOE UCHREZHDENIE VYSSHEGO OBRAZOVANIYA NATSIONALNYJ ISSLEDOVATELSKIJ TEKHNOLOGICHESKIJ UNIVERSITET MISIS	RU	15/12/2020	RU2020000141309	RU2752026	HOLOGRAPHIC PHOTOPOLYMERISABLE MATERIAL	
N8019	RU	205459	15/07/2021	NAUCHNO PROIZVODSTVENNOE OBDENIENIE GOSUDARSTVENNYJ INSTITUT PRIKLADNOJ OPTIKI	RU	25/02/2021	RU2021000105136	RU-205459	HOLOGRAPHIC DEVICE FOR THE CONTROL OF THE FORM OF LARGE CLOGGED OPTICAL SURFACES	
N8020	RU	205424	14/07/2021	NESTEROVICH LAZARYUK SERGEY - NIKOLAEVICH MIKHAILOV VIKTOR	RU	19/02/2021	RU2021000104358	RU-205424	DEVICE TO MONITOR DIFFRACTION EFFICIENCY OF HOLOGRAM	
N8021	KR	20210102830	20/08/2021	KAKAOBANK	KR	30/11/2020	KR2020000164326	KR20210102830	HOLOGRAM DETECTION SERVICE PROVIDING SERVER AND HOLOGRAM DETECTION METHOD	
N8022	KR	20210100904	18/08/2021	KOREA ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE	KR	07/02/2020	KR2020000014847	KR20210100904	COMPLEX MODULATED HOLOGRAPHIC DISPLAY DEVICE	
N8023	KR	20210100414	17/08/2021	KOREA ELECTRONICS & TELECOMMUNICATIONS RESEARCH INSTITUTE	KR	06/02/2020	KR2020000014366	KR20210100414	HOLOGRAM REPRODUCED IMAGE OUTPUT APPARATUS AND METHOD	
N8024	KR	20210096981	06/08/2021	NEXT EDITION	KR	29/01/2020	KR2020000010735	KR20210096981	SENSITIVE HOLOGRAPHIC IMAGE SHOOTING APPARATUS CAPABLE OF MOTION TRACKING	

IHMA - AUGUST 2021 - 111 ISSUED PATENTS - PAGE 4

NON SECURITY HOLOGRAMS - 75 PATENTS (continuation)

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
N8025	KR	20210095433	02/08/2021	KOREA ADVANCED INSTITUTE OF SCIENCE & TECHNOLOGY	KR	23/01/2020	KR202000009319	KR20210095433	DEEP LEARNING MODEL GENERATING PHASE HOLOGRAM AT HIGH SPEED AND LEARNING METHOD THEREOF	
N8026	KR	20210094990	30/07/2021	KWANGWOON UNIVERSITY INDUSTRY ACADEMIC COLLABORATION FOUNDATION	KR	22/01/2020	KR202000008939	KR20210094990	METHOD FOR COMPRESSION OF A FULL COMPLEX HOLOGRAM USING A MODIFIED ZEROTREE BASED ON ADAPTIVE WAVELET TRANSFORMATION	
N8027	KR	102282407	28/07/2021	FUTURESHAPERS	KR	23/01/2020	KR202000009206	KR102282407	HOLOGRAM ADVERTISEMENT PROVIDING METHOD AND SYSTEM	
N8028	KR	102282347	28/07/2021	FUTURESHAPERS	KR	05/02/2020	KR2020000013504	KR102282347	HOLOGRAM GENERATION METHOD AND APPARATUS	
N8029	EP	3869275	25/08/2021	BUNDESDRUCKEREI	DE	12/02/2020	DE202010103614	DE102020103614 EP3869275	EXPOSURE TABLE FOR A HOLOGRAM EXPOSURE MACHINE	
N8030	EP	3865952	18/08/2021	BUNDESDRUCKEREI	DE	12/02/2020	DE202010103617	DE102020103617 EP3865952	HOLOGRAM EXPOSURE MACHINE AND METHOD FOR INTRODUCING A PLURALITY OF VOLUME REFLECTION HOLOGRAMS INTO A HOLOGRAM FILM	
N8031	EP	3865951	18/08/2021	BUNDESDRUCKEREI	DE	12/02/2020	DE202010103612	DE102020103612 EP3865951	EXPOSURE TABLE FOR A HOLOGRAM EXPOSURE MACHINE AND METHOD FOR INTRODUCING A VOLUME HOLOGRAM INTO A FILM SECTION	
N8032	EP	3865950	18/08/2021	BUNDESDRUCKEREI	DE	12/02/2020	DE202010103615	DE102020103615 EP3865950	HOLOGRAM EXPOSURE MACHINE FOR INTRODUCING A VOLUME REFLECTION HOLOGRAM INTO A HOLOGRAM FILM	
N8033	EP	3865949	18/08/2021	BUNDESDRUCKEREI	DE	12/02/2020	DE202010103616	DE102020103616 EP3865949	HOLOGRAM EXPOSURE MACHINE AND BEAM SHAPING DEVICE THEREFOR	
N8034	EP	3865948	18/08/2021	BUNDESDRUCKEREI	DE	12/02/2020	DE202010103613	DE102020103613 EP3865948	EXPOSURE TABLE FOR A HOLOGRAM EXPOSURE MACHINE AND METHOD FOR INTRODUCING A VOLUME REFLECTION HOLOGRAM INTO A FILM SECTION	
N8035	EP	3865947	18/08/2021	BUNDESDRUCKEREI	DE	12/02/2020	DE202010103618	DE102020103618 EP3865947	HOLOGRAM EXPOSURE MACHINE AND METHOD FOR ADJUSTING A HOLOGRAM EXPOSURE MACHINE	
N8036	CN	214037640	24/08/2021	GUANGZHOU DASQI DIGITAL TECHNOLOGY	CN	28/12/2020	CN2020003209119	CN214037640U	PORTABLE LED HOLOGRAPHIC DISPLAY DEVICE	
N8037	CN	214037573	24/08/2021	ANHUI QINGXIAO FANGTANG EDUCATION TECHNOLOGY	CN	11/11/2020	CN2020002607517	CN214037573U	HOLOGRAPHIC IMAGE TECHNOLOGY PROJECTION DEVICE FOR TRAINING SCENE	
N8038	CN	214011736	20/08/2021	JOURNEY TECHNOLOGY	CN	29/12/2020	CN2020003256258	CN214011736U	HOLOGRAPHIC OPTICAL ELEMENT RECORDING SYSTEM AND NEAR-TO-EYE DISPLAY SYSTEM	
N8039	CN	214011710	20/08/2021	GUANGDONG XINTAO TECHNOLOGY	CN	02/02/2021	CN2021000299778	CN214011710U	OMNIBEARING THREE-DIMENSIONAL HOLOGRAPHIC IMAGING PROJECTION DEVICE	
N8040	CN	214002713	20/08/2021	HUBEI YI EMMETT HOLOGRAPHIC TECHNOLOGY	CN	19/10/2020	CN2020002326218	CN214002713U	INKLESS HOLOGRAPHIC LASER CORRUGATED BOARD PACKAGING MATERIAL	
N8041	CN	213935501	10/08/2021	SHANGHAI XINMU INTELLIGENT TECHNOLOGY	CN	01/12/2020	CN2020002863486	CN213935501U	MULTI-SURFACE DISPLAY HOLOGRAPHIC ADVERTISEMENT MACHINE	
N8042	CN	213934533	10/08/2021	FOSHAN DREAM PLANET TECHNOLOGY	CN	16/12/2020	CN2020003061841	CN213934533U	HOLOGRAPHIC PROJECTOR CAPABLE OF AUTOMATICALLY FOCUSING	
N8043	CN	213934514	10/08/2021	ANHUI FINANCIAL UNIVERSITY	CN	20/01/2021	CN2021000153394	CN213934514U	MYTH PERSONAGE HOLOGRAPHIC PROJECTION EQUIPMENT	
N8044	CN	213930078	10/08/2021	HANGZHOU XUELU ENTERPRISE MANAGEMENT	CN	26/11/2020	CN2020002779675	CN213930078U	HOLOGRAPHIC PROJECTION EQUIPMENT BASED ON AUGMENTED REALITY TECHNOLOGY	
N8045	CN	213876253	03/08/2021	CHONGQING INSTITUTE OF GREEN & INTELLIGENT TECHNOLOGY CHINESE ACADEMY OF SCIENCES - CHONGQING UNIVERSITY	CN	18/01/2021	CN2021000125017	CN213876253U	LIQUID CRYSTAL HOLOGRAPHIC DISPLAY SCREEN CAPABLE OF SIMULTANEOUSLY REALIZING AMPLITUDE AND PHASE MODULATION	
N8046	CN	213872077	03/08/2021	SHANGHAI CHENGYI PACKAGE TECHNOLOGY	CN	12/11/2020	CN2020002605128	CN213872077U	ANTI-DUMPING 3D HOLOGRAPHIC LED DISPLAY SCREEN	

IHMA - AUGUST 2021 - 111 ISSUED PATENTS - PAGE 5

NON SECURITY HOLOGRAMS - 75 PATENTS (continuation)

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
N8047	CN	213871841	03/08/2021	WUHAN INSTITUTE OF TECHNOLOGY	CN	16/11/2020	CN2020002650346	CN213871841U	3D HOLOGRAPHIC PROJECTION DISPLAY DEVICE FOR ENVIRONMENTAL DESIGN	
N8048	CN	213849773	03/08/2021	SUZHOU ZHENRONGSHANGPIN EXHIBITION EQUIPMENT	CN	24/11/2020	CN2020002738121	CN213849773U	BOX TYPE HOLOGRAPHIC DISPLAY CABINET	
N8049	CN	213844715	30/07/2021	ZHONGSHAN HUATAI DISPLAY PRODUCTS	CN	14/01/2021	CN2021000098340	CN213844715U	3D HOLOGRAPHIC PROJECTOR FOR MANNEQUIN PROPS	
N8050	CN	213844598	30/07/2021	TIANYIN YIYI TECHNOLOGY	CN	30/11/2020	CN2020002819400	CN213844598U	TRANSPARENT SCREEN DEVICE FOR HOLOGRAPHIC DISPLAY	
N8051	CN	213843786	30/07/2021	TIANYIN YIYI TECHNOLOGY	CN	28/11/2020	CN2020002803505	CN213843786U	INDOOR HOLOGRAPHIC PROJECTION DISPLAY DEVICE	
N8052	CN	213840254	30/07/2021	SHANXI LUSHENG TRAFFIC ARCHITECTURAL DESIGN	CN	28/09/2020	CN2020002236109	CN213840254U	HOLOGRAPHIC SIMULATION DEVICE FOR ARCHITECTURAL DESIGN	
N8053	CN	213814309	27/07/2021	SHENZHEN HENGXUN TONGDA TECHNOLOGY	CN	09/12/2020	CN2020002958287	CN213814309U	DIGITAL 3D DISPLAY 5G-VR HOLOGRAPHIC CABINET	
N8054	CN	213814249	27/07/2021	FUZHOU ZHENCHUANG ADVERTISING	CN	12/01/2021	CN2021000075814	CN213814249U	3D HOLOGRAPHIC PROJECTION DEVICE	
N8055	CN	113299320	24/08/2021	BEIJING DINGDANG CAT TECHNOLOGY	CN	04/06/2021	CN2021000623074	CN113299320	HOLOGRAPHIC RECORDING METHOD AND SYSTEM BASED ON VIRTUAL REALITY	
N8056	CN	113299128	24/08/2021	ANHUI WEIQUN NETWORK TECHNOLOGY	CN	30/04/2021	CN2021000481794	CN113299128	VIDEO HOLOGRAPHIC PROJECTION CABINET BASED ON TEACHING	
N8057	CN	113270119	17/08/2021	TAN XIAODI	CN	15/06/2021	CN2021000659247	CN113270119	HOLOGRAPHIC OPTICAL DISK TRACK CHANGING METHOD AND TRACK CHANGING DEVICE	
N8058	CN	113258299	13/08/2021	QIQIHAR UNIVERSITY	CN	13/05/2021	CN2021000522865	CN113258299	SINGLE LAYER ENCODED SUPER SURFACE FOR FULL SPACE ELECTROMAGNETIC HOLOGRAPHIC IMAGING	
N8059	CN	113258294	13/08/2021	QIQIHAR UNIVERSITY	CN	13/05/2021	CN2021000521838	CN113258294	SINGLE-LAYER BROADBAND AMPLITUDE CODING SUPER SURFACE FOR FULL-SPACE HOLOGRAPHIC IMAGING	
N8060	CN	113256791	13/08/2021	UNIVERSITY OF NANKAI	CN	24/05/2021	CN2021000566989	CN113256791	HOLOGRAPHIC AUGMENTED REALITY ASSISTED HUMAN-COMPUTER INTERACTION DIAGNOSIS AND TREATMENT SYSTEM IN SURGICAL OPERATION	
N8061	CN	113253551	13/08/2021	JINGMEN CITY DREAM EXPLORATION TECHNOLOGY	CN	07/06/2021	CN2021000633207	CN113253551	HOLOGRAPHIC PROJECTOR AND HOLOGRAPHIC DISPLAY SYSTEM	
N8062	CN	113238470	10/08/2021	BEIJING UNIVERSITY OF TECHNOLOGY	CN	14/05/2021	CN2021000533777	CN113238470	CODE DIVISION MULTIPLEXING METHOD BASED ON METASURFACE HOLOGRAPHY	
N8063	CN	113238448	10/08/2021	BEIJING KANGTEMAN ELECTRONIC SYSTEMS - BEIJING SPECTRUM YINBAO TECHNOLOGY - TIANJIN YANGGUANG TECHNOLOGY	CN	11/06/2021	CN2021000652944	CN113238448	VOLUME HOLOGRAPHIC PROJECTION SCREEN, MANUFACTURING METHOD THEREOF AND VOLUME HOLOGRAPHIC PROJECTION SYSTEM	
N8064	CN	113238302	10/08/2021	BEIJING UNIVERSITY OF TECHNOLOGY	CN	11/05/2021	CN2021000525412	CN113238302	METHOD FOR REALIZING DYNAMICALLY ADJUSTABLE METASURFACE BASED ON VECTOR HOLOGRAPHIC TECHNOLOGY	
N8065	CN	113223564	06/08/2021	SUZHOU PANGU INFORMATION OPTICAL	CN	25/03/2021	CN2021000318315	CN113223564	TEMPERATURE COMPENSATION METHOD AND TEMPERATURE COMPENSATION DEVICE FOR HOLOGRAPHIC STORAGE	
N8066	CN	113219806	06/08/2021	ANHUI UNIVERSITY	CN	14/05/2021	CN2021000533804	CN113219806	NON-ITERATIVE COLOR PHASE HOLOGRAM GENERATION METHOD AND SYSTEM	
N8067	CN	113219640	06/08/2021	SHENZHEN TECHNOLOGY UNIVERSITY	CN	21/05/2021	CN2021000560573	CN113219640	TRANSMISSION-REFLECTION TYPE DIGITAL HOLOGRAPHIC MICROSCOPIC SYSTEM	
N8068	CN	113206991	03/08/2021	SHENZHEN REALIS MULTIMEDIA TECHNOLOGY	CN	23/04/2021	CN2021000446950	CN113206991	HOLOGRAPHIC DISPLAY METHOD, SYSTEM, COMPUTER PROGRAM PRODUCT AND STORAGE MEDIUM	

IHMA - AUGUST 2021 - 111 ISSUED PATENTS - PAGE 6

NON SECURITY HOLOGRAMS - 75 PATENTS (continuation)

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
N8069	CN	113204185	03/08/2021	XIAMEN UNIVERSITY	CN	10/05/2021	CN2021000505886	CN113204185	PREPARATION METHOD OF HOLOGRAPHIC DISPLAY ELEMENT FOR HOLOGRAPHIC AUTOMOBILE TAIL LAMP	
N8070	CN	113192366	30/07/2021	YAN HUACUN	CN	30/04/2021	CN2021000486325	CN113192366	HOLOGRAPHIC PROJECTION TEACHING DEVICE	
N8071	CN	113189772	30/07/2021	SHENZHEN LOCHN OPTICS TECHNOLOGY	CN	15/04/2021	CN2021000405783	CN113189772	DEVICE, HOLOGRAPHIC LENS AND MANUFACTURING METHOD THEREOF, AND NEAR-TO-EYE DISPLAY SYSTEM	
N8072	CN	113178153	27/07/2021	SHANGHAI INSTITUTE OF TECHNOLOGY	CN	11/05/2021	CN2021000512382	CN113178153	HOLOGRAPHIC IMAGE DEVICE AND METHOD FOR ANCIENT BUILDING FACADE	
N8073	CN	113173120	27/07/2021	ZHONGSHAN YILIAN INTELLIGENT TECHNOLOGY	CN	14/04/2021	CN2021000401816	CN113173120	3D HOLOGRAPHIC PROJECTION CURTAIN WALL PARKING WARNING SYSTEM AND WARNING METHOD	
N8074	CN	113173028	27/07/2021	WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT	CN	20/05/2021	CN2021000552477	CN113173028	HOLOGRAPHIC THERMOPRINTING FILM WITH GLAZE COLOR JADE PORCELAIN EFFECT AND PREPARATION METHOD	
N8075	CN	113163190	23/07/2021	BELJING KANGTEMAN ELECTRONIC SYSTEMS - TIANJIN YANGGUANG TECHNOLOGY	CN	25/05/2021	CN2021000573643	CN113163190	NAKED EYE 3D DISPLAY BASED ON VOLUME HOLOGRAPHIC TECHNOLOGY AND PREPARATION METHOD THEREOF	
N8076	CN	113156792	23/07/2021	BELJING UNIVERSITY OF TECHNOLOGY	CN	09/02/2021	CN2021000212584	CN113156792	TRANSLATION HOLOGRAPHIC MULTIPLEXING METHOD BASED ON CASCADE METASURFACES	
N8077	CN	113156562	23/07/2021	TIANMA MICROELECTRONICS	CN	26/02/2021	CN2021000220729	CN113156562	GRATING AND HOLOGRAPHIC 3D DISPLAY DEVICE	
N8078	CN	113142773	23/07/2021	QIN YIYI	CN	27/04/2021	CN2021000458247	CN113142773	MAGNETIC SUSPENSION UNCOVERING JEWEL BOX CARRYING HOLOGRAPHIC PROJECTION SYSTEM	