

IHMA PATENT NEWSLETTER

Limited circulation patent news bulletin for the Holography Industry

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Published and granted patents

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Marie-Laure Lebreton
23 route de Chaunu - Lieudit Les Vorges
74 150 MARCELLAZ-ALBANAIS - FRANCE
Mobile: 33 6 61 19 14 24 - E-mail: mll74patents@outlook.fr

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

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**P36689 SECURITY HOLOGRAMS' COLUMN
PRINTING – BANKNOTE - THREAD – DEMETALLIZATION**

WO2023148511 **SUN CHEMICAL**
Inventor(s): MCHARDY ROBERT | WILSON AARON
Application Nber / Date: WOGB2023/050270 2023-02-07
Priority Nber / Date / Country: GB202201538 2022-02-07

WATER-BASED DE-METALLIZATION RESIST

The present invention relates to a method of protecting a metal surface from damage or removal during an alkaline de-metallization process, comprising printing a water- based resist composition onto a metal-coated filmic substrate, thereby protecting the 5 metal surface from damage or removal during the de-metallization process, wherein the water-based resist composition comprises a cationic acid-soluble resin or cationic acid-stabilized resin and water.

RÉSERVE DE DÉMÉTALLISATION À BASE D'EAU

La présente invention concerne un procédé de protection d'une surface métallique contre les dommages ou le retrait pendant un processus de démétallisation alcaline, comprenant l'impression d'une composition de réserve à base d'eau sur un substrat métallique revêtu de métal, ce qui permet de protéger la surface métallique contre les dommages ou le retrait pendant le processus de démétallisation, la composition de réserve à base d'eau comprenant une résine soluble dans l'acide cationique ou une résine stabilisée par un acide cationique et de l'eau.

Material	%
Ethanol	60
nPropyl Acetate	20
Nitrocellulose	16
Plasticizer	4
Total	100

CLAIMS 1. A method of protecting a metal surface from damage or removal during a demetallization process, comprising printing a water-based resist composition onto a metal-coated filmic substrate, thereby protecting the metal surface from damage or removal during the de-metallization process, wherein the waterbased resist composition comprises a cationic acid-soluble resin or cationic acid-stabilized resin, and water.

No equivalent

Status: Pending

Research Report:

INTERNATIONAL SEARCH REPORT		International application No PCT/GB2023/050270
A. CLASSIFICATION OF SUBJECT MATTER INV. B42D25/445 B42D25/378 B42D25/373 B42D25/355 B42D25/328 B42D25/29 C09D11/00 ADD. According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) B42D C09D Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 268 256 A (GOETZ JONATHAN D [US] ET AL) 7 December 1993 (1993-12-07) column 3, line 10 - column 13, line 45; claims 1-15	1-8, 10-14, 34 9, 15-33, 35-38
X	US 5 721 088 A (MARTIN JAMES W [US] ET AL) 24 February 1998 (1998-02-24) column 2, line 26 - column 11, line 16; claims 1-7	1-8, 10-14, 34 9, 15-33, 35-38
X	US 4 671 854 A (ISHIKAWA KATSUKIYO [JP] ET AL) 9 June 1987 (1987-06-09) column 2, line 41 - column 6, line 56; claims 1-9	1-8, 10-14, 34 9, 15-33, 35-38

INTERNATIONAL SEARCH REPORT		International application No PCT/GB2023/050270
C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 2 848 423 A1 (ANDREWS & WYKHAM LTD [GB]) 18 March 2015 (2015-03-18) paragraph [0005] - paragraph [0039]; claims 1-15; figures 1-4	1-38
A	US 2009/317595 A1 (BREHM LUDWIG [DE] ET AL) 24 December 2009 (2009-12-24) paragraph [0137] - paragraph [0270]; claims 1-84; figures 1-24	1-38

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

P36684

BANKNOTE – CARD

WO2023156485

COVESTRO DEUTSCHLAND

Priority Date: 21/02/2022

TRIARYLALKYL BORATE SALTS AS COINITIATORS IN NIR PHOTOPOLYMER COMPOSITIONS

The invention relates to photopolymer compositions comprising a) matrix polymers, b) writing monomers, c) at least one photoinitiator system, d) optionally at least one non-photopolymerizable component, e) optionally catalysts, radical stabilizers, solvents, additives, and other auxiliary agents and/or admixtures, wherein the at least one photoinitiator system c) consists of at least one dye and at least one coinitiator, at least one of the dyes has a structure according to formula (II), and the at least one coinitiator has a calculated oxidation potential (A) which is ascertained according to the formula (1) indicated below by means of a quantum mechanical computation of the Gibbs free energy of the base state and the oxidized state of the triarylalkyl borate at 298 K after a successful geometry optimization, consisting of a compliant energy minimization by means of the AMI force field followed by an ab initio compliant energy computation on the basis of the previously ascertained molecular geometry coordinates, in the solvent acetonitrile using a solvent field correction according to the PCM method, ranging from 1.01 V to 1.31 V with respect to the calomel electrode (SCE) saturated in acetonitrile (1).

SELS DE TRIARYLALKYLBORATE SERVANT DE CO-AMORCEURS DANS DES COMPOSITIONS DE PHOTOPOLYMERES NIR

L'invention concerne des compositions de photopolymères comprenant a) des polymères matriciels, b) des monomères d'enregistrement, c) au moins un système photoamorceur, d) éventuellement au moins un constituant non photopolymérisable, e) éventuellement des catalyseurs, des stabilisateurs de radicaux, des solvants, des additifs ainsi que d'autres adjuvants et/ou additifs, ledit au moins un système photoamorceur c) étant constitué d'au moins un colorant et d'au moins un co-amorceur, au moins l'un des colorants ayant une structure de formule (II) et ledit au moins un co-amorceur présentant un potentiel d'oxydation calculé (A), déterminé selon la formule (1) ci-dessous, par le calcul mécanique quantique des énergies de Gibbs à 298 K de l'état de base et de l'état oxydé du triarylalkylborate une fois l'optimisation de la géométrie effectuée, laquelle consiste en une minimisation de l'énergie conformationnelle au moyen du champ de force AMI suivie d'un calcul d'énergie conformationnelle ab initio à partir des coordonnées de géométrie moléculaire précédemment déterminées, dans le solvant acétonitrile, avec correction de champ de solvant selon la méthode PCM, dans la plage de 1,01 V à 1,31 V vs électrode au calomel saturée (SCE) dans l'acétonitrile (1).

CLAIM 1. A photopolymer composition comprising a) matrix polymers, b) writing monomers, c) at least one photoinitiator system, d) optionally at least one non-photopolymerizable component, e) optionally catalysts, radical stabilizers, solvents, Additives and other auxiliaries and/or additives, the at least one photoinitiator system c) consisting of at least one dye and at least one co-initiator, characterized in that at least one of the dyes has a structure according to formula (II) wherein

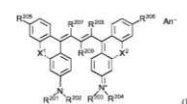
R205 for hydrogen, halogen, C1- to C4- alkyl, C1- to C4- alkoxy or NR210R211 R206 for hydrogen, halogen, C1- to C4- alkyl, C1- to C4- alkoxy or NR212R213 R201 to R204 and R210 to R213 each independently represents hydrogen, C1- to C16- alkyl, C4- to C7 - Cycloalkyl, C7 - to C16- Aralkyl, C6- to C10- aryl or a heterocyclic radical,

NR201R202, NR203R204, NR210R211 and NR212R213 independently of one another represent a five- or six-membered saturated ring which is attached via N and which may additionally contain an n or O and/or may be substituted by nonionic radicals,

R207 to R209 independently of one another, hydrogen, C1- to C16- alkyl, C4- to C7 - Cycloalkyl, C7 - to C16- Aralkyl, C6- to C10- aryl, halogen or Cyano, the two optional bridging groups X1 and X2 independently of one another for SiR214R215CR216R217 or O, and

R214 to R217 independently of one another, hydrogen or C1- to C4- alkyl, and

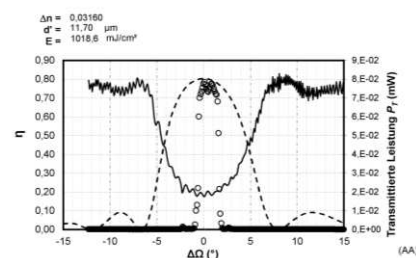
An represents an Anion selected from halide, perchlorate, tetrafluoroborate, hexafluorophosphate, hexafluoroantimonate, tetraarylborate, triarylalkylborate, nitrate, cyanide, tosylate, trifluoromethylsulfonate, Bis(trifluoromethyl)sulfonimide, azide, methylsulfonate, phosphate, hydrogen phosphate, dihydrogen phosphate, Sulfate, hydrogensulfate, an arbitrarily substituted carboxylate, an arbitrarily substituted organic Mono- or disulfonate, or an arbitrarily substituted organic Mono- or dicarboxylate, and the at least one Coinitiator has a calculated oxidation potential, determined according to the formula (1) below by quantum mechanical calculation of the Gibbs energies at 298 K of the ground state and of the oxidized state of the triarylalkylborate after geometry optimization has taken place, consisting of conformer energy minimization by means of the AMI force field followed by AB initio conformer energy calculation starting from the previously determined molecular geometry coordinates in the solvent acetonitrile with solvent field correction according to the PCM method in the range from 1.01 V to 1.31 V against the saturated calomel electrode (SCE) in acetonitrile.



Eberechnet
Eber (A)

$$E_{\text{berechnet}} = - \left(\frac{G_{\text{ox}} - G_{\text{red}}(\text{oxidant})}{23.061 \cdot 1000} \right) \quad (1)$$

Figur 2



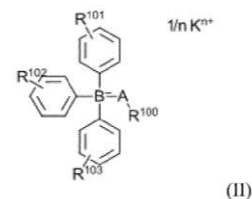
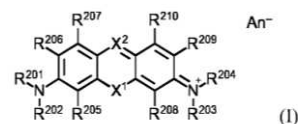
PHOTOPOLYMER COMPOSITIONS FOR THERMOSTABLE PHOTOPOLYMERS IN THE VISIBLE SPECTRAL RANGE

The invention relates to photopolymer compositions comprising a) matrix polymers, b) writing monomers, c) at least one photoinitiator system, d) optionally at least one non-photopolymerisable component, e) optionally catalysts, radical stabilisers, solvents, additives and other auxiliary and/or additional materials, wherein the at least one photoinitiator system c) consists of at least one colouring agent and at least one coinitiator, wherein at least one of the colouring agents has a structure according to formula (II) and the at least one coinitiator has a calculated oxidation potential (E), determined according to the below formula (1) via the quantum mechanical calculation of the Gibbs energies at 298 K in the basic state and the oxidised state of the coinitiator, in particular the triarylalkylborate after geometry optimisation, involving conformer energy minimisation by means of the AMI force field, followed by an ab-initio conformer energy calculation based on the previously determined molecular geometry coordinates, and the oxidation potential in the solvent, acetonitrile, with a solvent field correction according to the PCM method, is in the range of 1.16 V to 1.37 V relative to the saturated calomel electrode (SCE) in acetonitrile.

COMPOSITIONS PHOTOPOLYMÈRES POUR PHOTOPOLYMÈRES THERMOSTABLES DANS LE DOMAINE SPECTRAL VISIBLE

L'invention concerne des compositions photopolymères comprenant a) des polymères matriciels, b) des monomères d'écriture, c) au moins un système photo-initiateur, d) éventuellement au moins un composant non photopolymérisable, e) éventuellement des catalyseurs, des stabilisateurs de radicaux, des solvants, des additifs et d'autres matériaux auxiliaires et/ou supplémentaires, l'au moins un système photo-initiateur c) étant constitué d'au moins un agent colorant et d'au moins un co-initiateur, au moins l'un des agents colorants ayant une structure selon la formule (II) et l'au moins un co-initiateur ayant un potentiel d'oxydation calculé (E), déterminé selon la formule ci-dessous (1) par le calcul mécanique quantique des énergies de Gibbs à 298 K à l'état de base et l'état oxydé du co-initiateur, en particulier le triarylalkylborate après optimisation de la géométrie, impliquant une minimisation de l'énergie de conformère au moyen du champ de force AMI, suivi d'un calcul ab-initio de l'énergie de conformère sur la base des coordonnées de géométrie moléculaire précédemment déterminées, et le potentiel d'oxydation dans le solvant, l'acétonitrile, avec une correction de champ de solvant selon le procédé PCM, se situe dans la plage de 1,16 V à 1,37 V par rapport à l'électrode au calomel saturé (SCE) dans l'acétonitrile.

CLAIM 1. A photopolymer composition comprising a) matrix polymers, b) writing monomers, c) at least one photoinitiator system, d) optionally at least one non-photopolymerizable component, e) optionally catalysts, radical stabilizers, solvents, Additives and other auxiliaries and/or additives, wherein the at least one photoinitiator system c) consists of at least one dye and at least one Coinitiator, wherein at least one of the dyes has a structure according to formula (1) wherein X1 for O, S, N-R211 or CR211 aR211 b, preferably O, S or CR211 aR211 b, very particularly preferably represents O or S, R211 for hydrogen, C1- to C16- alkyl, C4- to C7- Cycloalkyl, C7- to C16- A-alkyl, C6- to C10- aryl or a heterocyclic radical, R211 a and R211 b are identical and represent methyl, ethyl or together represent a -CH2- CH2- CH2- or -CH2- CH2- CH2- CH2- Bridge, X2 for N or C-R212, R212 for hydrogen, Cyano-, C1- to C4- alkyl, C4- to C7- Cycloalkyl, an aryl optionally substituted by C1- to C4- alkoxy carbonyl or NR213R214 substituted C6- to C10- aryl or a heterocyclic radical, R201 to R204, R213 and R214 independently of one another, hydrogen, C1- to C16- alkyl, C4- to C7- Cycloalkyl, C7- to C16- A-alkyl, C6- to C10- aryl or a heterocyclic radical or NR201R202, NR203R204 and NR213R214 independently of one another are a five- or six-membered saturated ring attached via N, which may additionally comprise an N or O and/or may be substituted by nonionic radicals, R201 to R204, R213 and R214 independently of one another form with a C atom of the benzene ring adjacent to the n atom a two- or three-membered bridge which may contain an O or N and/or may be substituted by nonionic radicals, R205, R206, R207, R208, R209 and R210 independently of one another, hydrogen, halogen or C1- to C4- alkyl, An represents an Anion selected from halide, perchlorate, tetrafluoroborate, hexafluorophosphate, hexafluoroantimonate, tetraaryl borate, triarylalkyl borate, nitrate, cyanide, tosylate, trifluoromethyl sulfonate, Bis(trifluoromethyl)sulfonimide, azide, methyl sulfonate, phosphate, hydrogen phosphate, dihydrogen phosphate, Sulfate, hydrogensulfate, an arbitrarily substituted carboxylate, an arbitrarily substituted organic Mono- or disulfonate, or an arbitrarily substituted organic Mono- or dicarboxylate, and the at least one Coinitiator determines a calculated oxidation potential. according to the formula (1) below, by quantum mechanical calculation of the Gibbs energies at 298 K of the ground state and of the oxidized state of the Coinitiator, in particular of the triarylalkyl borate, consisting of conformal energy minimization by means of the AMI force field followed by AB initio conformal energy calculation starting from the previously determined molecular geometry coordinates in the solvent acetonitrile with solvent field correction according to the PCM method in the range of 1.16 V to 1.37 V against the saturated calomel electrode (SCE) in acetonitrile.



$$E_{ox}^{berechnet} = - \frac{AA - BB}{23,061 \frac{kcal}{mol \cdot V}} + 4,14 V \quad (1)$$

AA calculated
BB oxidised

THERMOSTABLE PHOTOPOLYMERS IN THE VISIBLE SPECTRAL RANGE AND PHOTOPOLYMER COMPOSITIONS CONTAINING SAME

The invention relates to a photopolymer composition comprising a) matrix polymers, b) writing monomers, c) at least one photoinitiator system, d) optionally at least one non-photopolymerisable component, e) optionally catalysts, radical stabilisers, solvents, additives and other auxiliary and/or additional materials, wherein the at least one photoinitiator system c) consists of at least one colouring agent and at least one coinitiator, wherein at least one of the colouring agents has a structure according to formula (I) and the at least one coinitiator has a calculated oxidation potential (formula II), determined according to the below formula (1) via the quantum mechanical calculation of Gibbs energies at 298 K in the basic state and the oxidised state of the coinitiator, in particular the triaryl (alkyl) borate after geometry optimisation, involving conformer energy minimisation using the AMI force field, followed by an ab-initio conformer energy calculation based on the previously determined molecular geometry coordinates, in the solvent, acetonitrile, with a solvent field correction according to the PCM method, is in the range of 1.16 V to 1.37 V relative to the saturated calomel electrode (SCE) in acetonitrile (formula III).

PHOTOPOLYMÈRES THERMOSTABLES DANS LE DOMAINE SPECTRAL VISIBLE ET COMPOSITIONS PHOTOPOLYMÈRES LES CONTENANT

L'invention concerne une composition photopolymère comprenant a) des polymères matriciels, b) des monomères d'écriture, c) au moins un système photo-initiateur, d) éventuellement au moins un composant non photopolymérisable, e) éventuellement des catalyseurs, des stabilisants radicalaires, des solvants, des additifs et d'autres matériaux auxiliaires et/ou supplémentaires, l'au moins un système photo-initiateur c) étant constitué d'au moins un agent colorant et d'au moins un co-initiateur, au moins l'un des agents colorants ayant une structure selon la formule (I) et l'au moins un co-initiateur ayant un potentiel d'oxydation calculé (formule II), déterminé selon la formule ci-dessous (1) par le calcul mécanique quantique des énergies de Gibbs à 298 K à l'état de base et l'état oxydé du co-initiateur, en particulier le triaryl (alkyl)borate après optimisation de la géométrie, impliquant une minimisation de l'énergie de conformère au moyen du champ de force AMI, suivi d'un calcul ab-initio de l'énergie de conformère sur la base des coordonnées de géométrie moléculaire précédemment déterminées, dans le solvant, l'acétonitrile, avec une correction de champ de solvant selon le procédé PCM, se situe dans la plage de 1,16 V à 1,37 V par rapport à l'électrode au calomel saturé (SCE) dans l'acétonitrile (formule III).

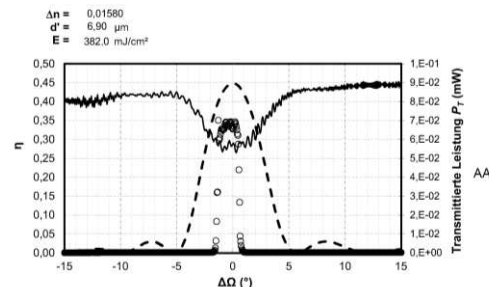
CLAIM 1. A photopolymer composition comprising a) matrix polymers, b) writing monomers, c) at least one photoinitiator system, d) optionally at least one non-photopolymerizable component, e) optionally catalysts, radical stabilizers, solvents, Additives and other auxiliaries and/or additives, wherein the at least one photoinitiator system c) consists of at least one dye and at least one Coinitiator, wherein at least one of the dyes has a structure according to formula (I). wherein R201 is optional; if present, hydrogen, C1- to C16- alkyl, C3- to C6- alkenyl, C5- to C7- Cycloalkyl or C7- to C16- Aralkyl or C6- to C10- aryl, R203 for C1- to C16- alkyl, C3- to C6- alkenyl, C5- to C7- Cycloalkyl or C7- to C16- Aralkyl or C6- to C10- aryl, R202 for hydrogen, C1- to C16- alkyl, C3- to C6- alkenyl, C5- to C7- Cycloalkyl or C7- to C16- Aralkyl, C6- to C10- aryl or Hetaryl, R204 for hydrogen, C1- to C4- alkyl, C1- to C4- alkoxy, halogen, Cyano, Nitro or C1- to C4- alkoxycarbonyl,

A together with X1 and X2 and the intermediate X1 and X2 represents a five- or six-membered aromatic or quasi-aromatic or partially hydrogenated heterocyclic ring which may contain 1 to 4 heteroatoms and/or may be benz- or naphthene-fused and/or substituted by nonionic radicals, X2 is N, O or S, preferably is N, and

X1 for O, S, CR205R206 or -CH=CH-, preferably CR205R206, wherein

R205 and R206 independently of each other C1- to C4- alkyl, C3- to C6- alkenyl, C4- to C7- Cycloalkyl, C7- to C10- Aralkyl or C6- aryl; and

An Anion selected from halide, perchlorate, tetrafluoroborate, hexafluorophosphate, hexafluoroantimonate, tetraarylborate, triarylalkylborate, nitrate, cyanide, tosylate, trifluoromethylsulfonate, Bis(trifluoromethyl)sulfonimide, azide, methylsulfonate, phosphate, hydrogen phosphate, dihydrogen phosphate, Sulfate, hydrogensulfate, an arbitrarily substituted carboxylate, an arbitrarily substituted organic Mono- or disulfonate, or an arbitrarily substituted organic Mono- or dicarboxylate, and the at least one Coinitiator has a calculated oxidation potential determined according to the formula (1) below, by quantum mechanical calculation of the Gibbs energies at 298 K of the ground state and of the oxidized state of the coinitiator, in particular of the triarylalkyl borate, consisting of conformal energy minimization by means of the AMI force field followed by AB initio conformal energy calculation starting from the previously determined molecular geometry coordinates in the solvent acetonitrile with solvent field correction according to the PCM method in the range from 1.16 V to 1.37 V against the saturated calomel electrode (SCE) in acetonitrile.



AA Transmitted power
BB calculated
CC oxidised

by nonionic radicals,

P36689

PATENT OF THE MONTH
PRINTING – BANKNOTE - THREAD – DEMETALLIZATION

WO2023148511

SUN CHEMICAL

Priority Date: 07/02/2022

WATER-BASED DE-METALLIZATION RESIST

The present invention relates to a method of protecting a metal surface from damage or removal during an alkaline de-metallization process, comprising printing a water- based resist composition onto a metal-coated filmic substrate, thereby protecting the metal surface from damage or removal during the de-metallization process, wherein the water-based resist composition comprises a cationic acid-soluble resin or cationic acid-stabilized resin and water.

RÉSERVE DE DÉMÉTALLISATION À BASE D'EAU

La présente invention concerne un procédé de protection d'une surface métallique contre les dommages ou le retrait pendant un processus de démétallisation alcaline, comprenant l'impression d'une composition de réserve à base d'eau sur un substrat métallique revêtu de métal, ce qui permet de protéger la surface métallique contre les dommages ou le retrait pendant le processus de démétallisation, la composition de réserve à base d'eau comprenant une résine soluble dans l'acide cationique ou une résine stabilisée par un acide cationique et de l'eau.

Material	%
Ethanol	60
nPropyl Acetate	20
Nitrocellulose	16
Plasticizer	4
Total	100

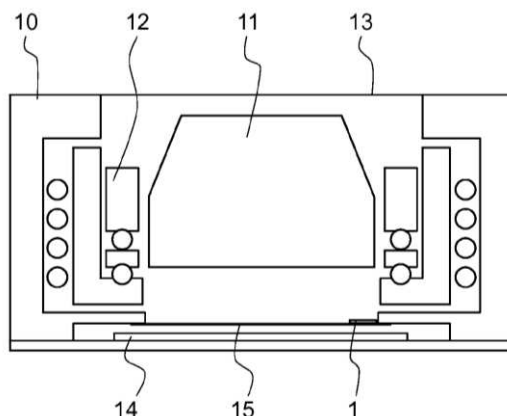
CLAIM 1. A method of protecting a metal surface from damage or removal during a demetallization process, comprising printing a water-based resist composition onto a metal-coated filmic substrate, thereby protecting the metal surface from damage or removal during the de-metallization process, wherein the waterbased resist composition comprises a cationic acid-soluble resin or cationic acid-stabilized resin, and water.

A CAMERA, A SYSTEM FOR DETECTING AN OPTICAL IDENTITY TAG AND A METHOD FOR IDENTIFICATION

A camera (10), a system and a method for identification utilize an identification marker arranged inside the camera, at a cover glass (15) for the image sensor (14). The system comprises the camera and an optical identity tag (31) placed outside the camera (10). The optical identity tag (31) comprises a security hologram configured to reflect rays of light in a first predefined light pattern (71); the cover glass (15) comprises an identification marker (1) at the optical path, wherein the identification marker (1) is configured to block rays of light to reach a portion of the image sensor (14); and the identification marker (1) is configured to alter the first predefined light pattern (71) into a second predefined light pattern (72), when the first predefined light pattern (71) is reflected from the optical identity tag (31) to the identification marker (1).

CAMÉRA, SYSTÈME DE DÉTECTION D'UNE ÉTIQUETTE D'IDENTITÉ OPTIQUE ET PROCÉDÉ D'IDENTIFICATION

L'invention concerne une caméra (10), un système et un procédé d'identification utilisant un marqueur d'identification disposé à l'intérieur de la caméra, au niveau d'un verre de couverture (15) pour le capteur d'image (14). Le système comprend la caméra et une étiquette d'identité optique (31) placée à l'extérieur de la caméra (10). L'étiquette d'identité optique (31) comprend un hologramme de sécurité configuré pour réfléchir des rayons de lumière dans un premier motif de lumière prédéfini (71); le verre de couverture (15) comprend un marqueur d'identification (1) au niveau du trajet optique, le marqueur d'identification (1) étant configuré pour bloquer des rayons de lumière pour atteindre une partie du capteur d'image (14); et le marqueur d'identification (1) étant configuré pour modifier le premier motif de lumière prédéfini (71) en un second motif de lumière prédéfini (72), lorsque le premier motif de lumière prédéfini (71) est réfléchi par l'étiquette d'identité optique (31) vers le marqueur d'identification (1).



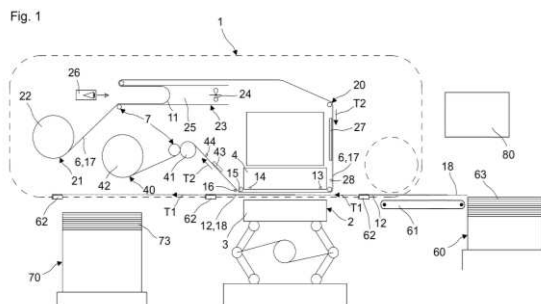
CLAIM 1. A camera (10), comprising: a lens (11); an image sensor (14) receiving light from the lens (11); and a cover glass (15) for the image sensor (14) on an optical path between the lens (11) and the image sensor (14); characterized in that: the cover glass (15) comprises an identification marker (1) at the optical path, wherein the identification marker (1) is configured to block rays of light to reach a portion of the image sensor (14).

FLAT EMBOSSING PRINTING PRESS WITH A FILM WEB GUIDING AND TRANSPORTING DEVICE

The invention relates to a flat embossing printing press (1) for embossing a flat material (12). The flat embossing printing press (1) comprises a flatbed press (2), comprising a tooling plate (4) and an embossing table (3), a film web guiding and transporting device (7) for guiding at least one embossing film web (6) along the film transport path (17) over the embossing table (3) of the flatbed press (2), a flat material guide (13) for guiding flat material (12) along a flat material transport path (18) through the flatbed press (2), and a control device (80) for operating the flat embossing printing press (1). According to the invention, adjoining the flatbed press (2) in the transport direction (Ti) of the flat material (12), the film web guiding and transporting device (7) comprises a peeling member (16) arranged above the flat material transport path (18) and behind the film transport path (17) for retaining and peeling off of the embossing film web (6) from the flat material (12) when transporting the flat material (12) away from the flatbed press (2).

MACHINE D'IMPRESSON PAR ESTAMPAGE À PLAT COMPRENANT UN DISPOSITIF DE GUIDAGE ET DE TRANSPORT DE BANDE DE FILM

L'invention concerne une machine d'impression par estampage à plat (1) pour l'estampage d'un matériau plat (12). La machine d'impression par estampage à plat (1) comprend une presse à plat (2) comprenant une plaque porte-outil (4) et une table d'estampage (3), un dispositif de guidage et de transport de bande de film (7) pour guider au moins une bande de film d'estampage (6) le long d'une voie de transport de film (17) sur la table d'estampage (3) de la presse à plat (2), un élément de guidage de matériau plat (13) pour guider un matériau plat (12) le long d'une voie de transport de matériau plat (18) à travers la presse à plat (2), ainsi qu'un dispositif de commande (80) pour faire fonctionner la machine d'impression par estampage à plat (1). Selon l'invention, le dispositif de guidage et de transport de bande de film (7) contient, dans la direction de transport (Ti) du matériau plat (12), à la suite de la presse à plat (2), un organe de pelage (16) disposé au-dessus de la voie de transport de matériau plat (18) ainsi que derrière la voie de transport de film (17), pour retenir et peler la bande de film d'estampage (6) du matériau plat (12) lors du transport du matériau plat (12) hors de la presse à plat (2).



CLAIM 1. A flat embossing press (1) for embossing a flat material (12), comprising: - a flat-bed press (2) comprising a die plate (4) and an embossing table (3), - a film web guide and transport device (7) for guiding at least one embossing film web (6) along a film transport path (17) over the embossing table (3) of the flatbed press (2), - a flat material guide (13) for guiding a flat material (12) along a flat material transport path (18) through the flat bed press (2), and - a control device (80) for operating the flat embossing press (1), characterized in that the film web guiding and transport device (7) comprises a guide device (8) arranged above the flat material transport web (18) and behind the flat material transport web (18) in the transport direction (Ti) of film transport web (17) for retaining and peeling the embossing film web (6) from the flat material (12) when the flat material (12) is transported away from the flatbed press (2).

P36693

CARD – PASSPORT

WO2023141726

IMDS GROUP

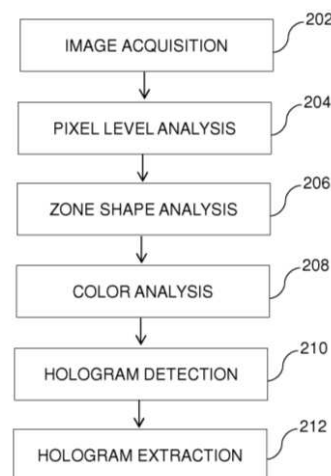
Priority Date: 29/01/2022

METHOD AND SYSTEM FOR THE AUTHENTICATION OF HOLOGRAM PROTECTED IDENTITY DOCUMENTS

A method and system for the authentication of hologram protected identity documents using, for example, a video obtained from a smartphone or tablet in natural light conditions, indoor or outdoor. From a first selection of pixels in frames of the video, based on pixel properties such as saturation and value, the shape of connected components and hues of the selected pixels are studied in order to detect the presence of a hologram. Furthermore, the hologram can be retrieved by an aggregation of image parts extracted from each of the frames.

PROCÉDÉ ET SYSTÈME D'AUTHENTIFICATION DE DOCUMENTS D'IDENTITÉ PROTÉGÉS PAR UN HOLOGRAMME

Procédé et système d'authentification de documents d'identité protégés par un hologramme à l'aide, par exemple, d'une vidéo obtenue à partir d'un téléphone intelligent ou d'une tablette dans des conditions de lumière naturelle, à l'intérieur ou à l'extérieur. À partir d'une première sélection de pixels dans des trames de la vidéo, en fonction de propriétés de pixel telles que la saturation et la valeur, la forme de composants connectés et des teintes des pixels sélectionnés sont étudiées afin de détecter la présence d'un hologramme. En outre, l'hologramme peut être récupéré au moyen d'une agrégation de parties d'image extraites de chacune des trames.



CLAIM 1. A method for the authentication of a hologram protected document, the method comprising the steps of: a) obtaining at least two images of the document; b) identifying in each of the at least two images pixels having a saturation and a value above respective saturation and value threshold; c) building a set of identified pixels connected components from the identified pixels of step b) for each of the least two images; d) removing from the set of identified pixels connected components any connected components belonging to a porous structure; e) computing a number of hues present in each remaining connected component of the set of identified pixels connected components and normalizing the number of hues according to a size of each of the remaining connected component from the set of identified pixels connected components; f) removing from the remaining connected components of the set of identified pixels connected components any connected component associated with a normalized number of hues below a specified hue number value; g) determining the presence of a hologram by computing a difference between color features of the remaining connected components of the set of identified pixels connected components of different images of the at least two images; h) setting a document score by computing an average of all the computed differences; i) authenticating the hologram protected document when the document score is above a specified document score value.

P36703

TWI811109

NATIONAL CHUNG CHENG UNIVERSITY

Priority Date: 16/09/2022

HOLOGRAM DETECTION METHOD

Based on current techniques that do not resolve the authenticity of a hologram, there is provided a hologram detection method adapted to detect a region of interest associated with a hologram of a color image to be tested, by means of which computer means the color image to be tested is subjected to a hyperspectral algorithm, To obtain a measured superspectral image having rich spectral information, and convert the measured superspectral image into a measured narrow frequency gray scale image, and then determine whether the hologram is true with the gray scale values of the region of interest of the measured narrow frequency gray scale image, and a plurality of thresholds corresponding to a plurality of different wavelengths, respectively.

CLAIM 1. A hologram detection method adapted to detect a region of interest associated with a hologram of a color image to be measured by a computer device storing the color image to be measured, the method comprising the steps of: (a) performing a hyperspectral algorithm on the color image to be measured; To obtain a pair of measured superspectral images corresponding to a color image to be measured, (b) converting the measured superspectral image to a pair of measured narrow frequency gray scale images corresponding to the measured superspectral image, and (C) determining whether the hologram is true based on a plurality of gray scale values of the region of interest of the measured narrow frequency gray scale image, and a plurality of thresholds corresponding to a plurality of different wavelengths, respectively.

P36707

PRINTING – BANKNOTE

KR20230112877

Priority Date: 21/01/2022

LEE, WOO SUNG

INTERNATIONAL CURRENCY BANKNOTES EQUIPPED WITH HOLOGRAMS FOR ANTI-FORGERY DEVICES

The present invention relates to international social telephony complaint with holograms for anti-counterfeiting devices, More specifically, both sides of a design banknote are configured to distinguish between a surface urinary point for creation of the drawing and the number of banknote passing by a horseshoe dependent force, which is provided with a hologram as a counterfeit prevention device, from a banknote in which a combination of a plaintext dependent force of the design and the number of banknote passing by the monthly. To describe wisks formed of banknote image pink and silver, both sides of the unarrested flower color pink and the pale green plot banknote to make sure someone's economic function as an anti-counterfeit of free trade distribution of the international social commerce, The International Commission Internationale with the provided anti-counterfeiting hologram is configured to be used by exchanging money in a bank monthly, with a hologram, and copying when counterfeiting banknotes to a copying machine and a printer to counterfeit an authentic banknotes to prevent counterfeiting with the anti-counterfeiting hologram. The present invention relates to an international social telephony commissioning system comprising a hologram for preventing forgery, the hologram for preventing forgery comprising a hologram for preventing forgery, the hologram for preventing forgery being formed so that, when the term appears, a copy of the copy on the front back side during printing, The international social telephony country is a mixed ink for input to an account number area of a bank with monthly inks formed of printing picture characteristics formed by anti-counterfeiting free space distribution of international social commerce and inks formed by mixing the colors of animal pictures and vegetable pictures into the printing ink in order to prevent counterfeiting using monthly petiliar calendar; It is possible to obtain an effect of providing international social-communication country comprising a counterfeiting prevention device hologram formed of a counterfeiting prevention device hologram formed of a counterfeiting prevention device for forming that when copying and printing machines counterfeiting an authentic notice for counterfeiting the counterfeiting prevention device hologram, there is no mind to counterfeit when copying and printing machines counterfeit in order to counterfeit an authentic notice for counterfeiting with the counterfeiting prevention device hologram.



P36708

PRINTING – LABEL

KR20230111690

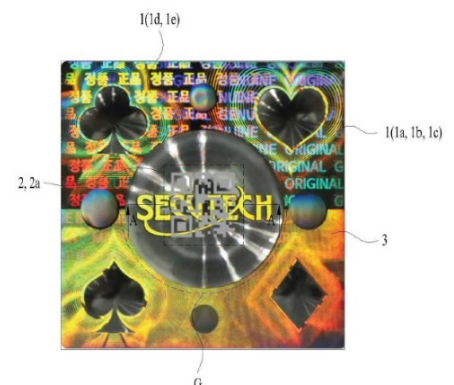
Priority Date: 18/01/2022

RMG

AUTHENTIC AUTHENTICATION LABEL AND AUTHENTICATION SYSTEM USING THE SAME

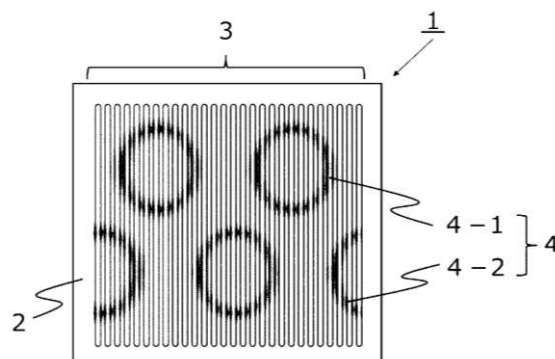
Disclosed are an authentic authentication label having high security and improved appearance, and an authentic authentication system using the same. The present invention relates to an information processing apparatus comprising: a first code layer configured to include a first code made of first authentication information for a predetermined product; a second code layer provided on the first code layer and including a second code made of second authentication information for the predetermined product; and a second code layer interposed between the first code layer and the second code layer, And a partition layer configured to selectively obscure the first code of the first code layer in response to ambient change so that only a second code of the second code layer is visually exposed, A first code of the first code layer includes a three-dimensional hologram and a second code of the second code layer includes a two-dimensional pattern.

CLAIM 1. An information processing apparatus comprising: a first code layer configured to include a first code made of first authentication information for a predetermined product; a second code layer provided on the first code layer and including a second code made of second authentication information for the predetermined product; and a second code layer interposed between the first code layer and the second code layer, And a partition layer configured to selectively hide a first code of the first code layer in response to ambient change so that only a second code of the second code layer is visibly exposed, wherein the first code of the first code layer is comprised of a three-dimensional hologram and the second code of the second code layer is comprised of a two-dimensional pattern.



PHOTOLUMINESCENT MOVING PATTERN FORMING BODY

TOPIC: a hologram characterized in that a reflection pattern has an animated visual effect and is capable of imparting a transmission pattern different from the reflection pattern of the hologram, wherein the transmission pattern does not impede the reflection pattern, and the reflection pattern and the transmission pattern having high visibility can be imparted in a compatible manner. **INVENTION:** a photoluminescent moving pattern forming body, the photoluminescent moving pattern including a combination of a photoluminescent element group and a latent element group having optical properties different from those of the photoluminescent element group, wherein the different patterns are visually recognized under reflected light and under transmitted light.



CLAIM 1. A photoluminescent moving pattern forming body comprising: a photoluminescent element group; and a latent image element group; wherein the photoluminescent element group includes a plurality of photoluminescent elements arranged in regularity; and the photoluminescent elements include: A structure including a diffraction grating in which a plurality of grating lines are disposed and a metal film covering the diffraction grating, the structure including a diffraction grating in which a plurality of grating lines are disposed, the diffraction grating and the metal film covering the diffraction grating such that a region of the photoluminescent element that reflects light continuously moves by a change in angle of incident light on the grating lines, wherein the latent image element group does not include the diffraction grating, and The latent image element is divided into a first set of latent image elements and a second set of latent image elements, one of which does not have the metal film and the other of which has the metal film, and the latent image element group further includes 1) a latent image element obtained by compressing a base image by a first set of latent image elements, and A first latent image element group having a regularity different from at least one of an arrangement direction and an arrangement pitch of photoluminescent elements, and a second latent image element obtained by compressing a base image that is the same as the base image or different from the base image, A plurality of the second latent image elements being arranged having regularity different from at least one of the arrangement direction and the arrangement pitch of the photoluminescent elements, or 2) a first latent image element obtained by dividing and compressing a base image by: A first latent image element group having the same regularity as the regularity of the arrangement direction or arrangement pitch of the photoluminescent elements, and a second latent image element obtained by dividing and compressing a base image that is the same as the base image or different from the base image, A plurality of second latent element groups arranged having the same regularity as the regularity of the arrangement direction or arrangement pitch of the photoluminescent elements, wherein under reflected light, a first moving pattern formed by the first latent image elements and a second moving pattern formed by the second latent image elements appear, and in accordance with an observation angle, Positions of the first moving image pattern and the second moving image pattern are changed and visually recognized, and a transmissive pattern of one of the first latent image element group and the second latent image element group that is not provided with the metal film is visually recognized under transmitted light.

P36722

BANKNOTE – CARD – LUMINESCENCE

JP2023107331

NATIONAL PRINTING BUREAU

Priority Date: 24/01/2022

PHOTOLUMINESCENT VIDEO PATTERN FORMING BODY AND METHOD FOR MANUFACTURING SAME

TOPIC: a hologram capable of providing a so-called animated visual effect in which an image appears to move, and capable of instantly providing variable information on demand. INVENTION: a hologram and a method for manufacturing the hologram. the hologram can be irradiated with laser in a subsequent step to give information to the hologram. the hologram includes, on a hologram formation layer including a diffraction grating, a photoluminescent element group including a metal film and a latent element group including no metal film, the photoluminescent element group including a metal film and the latent element group including no metal film, the method comprising: Dynamic information 3 appears due to interference between diffracted light of the photoluminescent element group and the latent image element group under specularly reflected light, and the position of the dynamic information is changed and visually recognized by changing an observation angle.

CLAIM 1. A photoluminescent moving pattern forming body comprising a combination of a photoluminescent element group including a metal film formed on a hologram forming layer including a diffraction grating formed therein, and a variable image group having optical characteristics different from those of the metal film, wherein The display device according to claim 1, wherein the photoluminescent element group includes a plurality of photoluminescent elements, each of the photoluminescent elements including a plurality of diffraction gratings formed by at least one of a straight line and a curved line, the plurality of photoluminescent elements being arranged with a predetermined regularity; The photoluminescent element includes a structure in which at least one of an arrangement angle of a diffraction grating and a density of a diffraction grating continuously changes, such that a region of the photoluminescent element that reflects light continuously moves in accordance with a change in angle of incident light; and The image display device according to claim 1, wherein the variable image set includes a latent image element group in which the metal film is absent or a plurality of latent image elements having a reflectance lower than that of the metal film are arranged in the regularity, the latent image element group and the photoluminescent element group are combined with each other with the regularity equal to or different from the regularity, and Under specularly reflected light, dynamic information due to interference between diffracted light of the photoluminescent element group and the latent image element group appears, and by changing an observation angle, a position of the dynamic information is changed and visually recognized.



P36750

PRINTING

CN219486971U

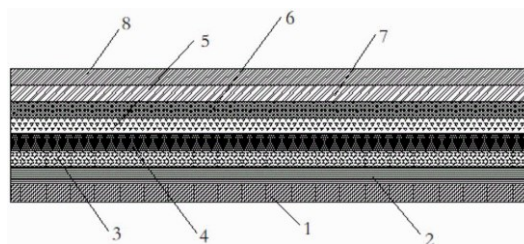
SHANGHAI SINYIM PRINTING

Priority Date: 29/07/2022

LOCAL ANTI-FAKE TRANSFER PRINTING FILM PAPER

The utility model discloses a local anti-counterfeiting transfer printing film paper which comprises a base layer, a stripping layer, an ink printing layer, a high-temperature-resistant coloring layer, an electroplated layer, a laser mould pressing layer, an anti-counterfeiting pattern layer and a transfer printing adhesive layer, wherein the base layer, the stripping layer, the ink printing layer, the high-temperature-resistant coloring layer, the electroplated layer, the laser mould pressing layer, the anti-counterfeiting pattern layer and the transfer printing adhesive layer are sequentially laminated from bottom to top. The transfer printing film paper combines various positioning printing patterns, various holographic mould pressing patterns and various anti-counterfeiting patterns, thereby not only increasing the aesthetic feeling of printing art, but also enhancing the anti-counterfeiting function and increasing the anti-counterfeiting difficulty.

CLAIM 1. A local anti-fake transfer printing membrane paper which characterized in that: the anti-counterfeiting ink comprises a base layer, a stripping layer, an ink printing layer, a high-temperature-resistant coloring layer, an electroplated layer, a laser mould pressing layer, an anti-counterfeiting pattern layer and a transfer printing adhesive layer, wherein the base layer, the stripping layer, the ink printing layer, the high-temperature-resistant coloring layer, the electroplated layer, the laser mould pressing layer, the anti-counterfeiting pattern layer and the transfer printing adhesive layer are sequentially laminated from bottom to top.



P36754

PRINTING – LABEL – BRAND PROTECTION

CN219457036U

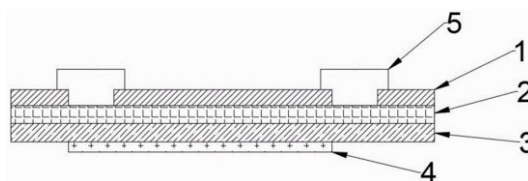
Priority Date: 01/02/2023

WUXI NEW LIGHT IMPRESSION PREVENTING FAISE TECHNIQUE

ANTI-FAKE LABEL STRUCTURE WITH TRIPLE ANTI-FAKE EFFECT

The utility model discloses an anti-counterfeiting label structure with triple anti-counterfeiting effect, which comprises a protective film, a holographic layer, a bottom paper layer and an anti-counterfeiting code layer which are sequentially laminated, wherein square through holes are respectively formed in four corners of the protective film, four T-shaped pressing points for fixing the protective film on the holographic layer are respectively arranged in the four square through holes, disposable glue is coated at the bottoms of the pressing points, the anti-counterfeiting code layer is adhered below the bottom paper layer, and the size of the anti-counterfeiting code layer is smaller than that of the bottom paper layer. By setting the protective film and the pressure point as first-level anti-counterfeiting, a user firstly checks whether the protective film and the pressure point are damaged when distinguishing the authenticity; by arranging the holographic layer as a secondary anti-counterfeiting layer, a user can distinguish authenticity by distinguishing special patterns printed by the holographic layer after tearing the protective film; by setting the anti-counterfeiting code layer as three-level anti-counterfeiting, after a user tears the anti-counterfeiting label off the whole commodity, the two-dimensional code and the bar code of the commodity printed by the anti-counterfeiting code layer stuck inside the machine identification are subjected to anti-counterfeiting identification.

CLAIM 1. The utility model provides an anti-fake label structure with triple anti-fake effect, its characterized in that, including protection film, holographic layer, bottom paper layer, the anti-fake sign indicating number layer that covers in proper order, set up square through-hole respectively on the four corners of protection film, four square through-holes are provided with four T type pressure points that are used for fixing the protection film on holographic layer respectively, the coating of pressure point bottom is disposable glue, anti-fake sign indicating number layer bonds in the below of bottom paper layer, the size of anti-fake sign indicating number layer is less than bottom paper layer.



P36770

CN116596735

Priority Date: 23/05/2023

HEBEI UNIVERSITY OF ENGINEERING

FRFT-SVD-BASED COMPUTATIONAL HOLOGRAPHIC WATERMARK EMBEDDING AND EXTRACTING METHOD

The invention discloses a FRFT-SVD-based computational holographic watermark embedding and extracting method. The method specifically comprises the following steps: a step of generating a calculation holographic watermark, which is to modulate and encrypt an original hidden binary image or gray level image to be encrypted based on a double random phase encryption technology, encode the encrypted image to generate a calculation hologram and serve as a watermark image; a step of embedding the calculated holographic watermark, which is to embed the calculated holographic watermark into the gray carrier image based on an algorithm combining FRFT and SVD; a step of extracting the calculated holographic watermark, which is to extract the calculated holographic watermark from the gray carrier image according to the inverse operation of the embedding process; and a step of decrypting and reproducing the calculated holographic watermark, which is to modulate and decrypt the calculated holographic watermark after extracting the calculated holographic watermark to reproduce the original hidden binary image or gray level image to be encrypted. The invention introduces the calculated holographic code and the optical key into the digital watermarking technology, combines the characteristics of FRFT and SVD conversion, greatly enhances the robustness and the safety of the digital watermark, and can effectively resist image processing attacks such as geometric attacks, noise and the like. The invention can be used in the fields of copyright protection and anti-counterfeiting of digital images and printing images.

CLAIM 1. The FRFT-SVD-based computational holographic watermark embedding and extracting method is characterized by comprising the following steps of: s1: a step of generating a calculation holographic watermark, which is to modulate and encrypt a hidden binary image or a gray image to be encrypted based on a double random phase encryption technology, and encode the encrypted image to generate a binary real value calculation hologram which is used as a watermark image; s2: a step of embedding the calculated holographic watermark, which is to embed the calculated holographic watermark into the gray carrier image based on an algorithm combining FRFT and SVD; s3: a step of extracting the calculated holographic watermark, wherein the calculated holographic watermark image is extracted from the gray carrier image according to the inverse operation of the embedding process; s4: and a step of decrypting and reproducing the calculated holographic watermark, which is to modulate and decrypt the calculated holographic watermark after extracting the calculated holographic watermark to reproduce the original hidden binary image or gray level image to be encrypted.

P36774

OVD – RELIEF – MICROLENS

CN116577962

Priority Date: 19/04/2023

BORN CHUANGSHENG TECHNOLOGY R D HUIZHOU

TEXTURE PROCESSING METHOD

The application discloses a texture processing method, which comprises the following steps: calculating to obtain a curved surface model of the micro lens layer through the lamination thickness and the geometric parameters of the micro lens, and determining a gray drawing of the micro lens layer according to the pattern model; determining a corresponding micro image-text layer gray drawing according to a preset suspension effect pattern and geometric parameters of the micro lens; respectively exposing and developing the glass substrate coated with the photoresist according to the gray level of the gray level drawing of the micro lens layer and the gray level value of the gray level drawing of the micro image-text layer; respectively transferring the developed glass substrates by using PET films, and then transferring the developed glass substrates to a PC texture mold after aging treatment; finally, transferring the two sides of the product to a PET film to obtain a periodical PET film, and then performing electroplating and ink covering operation to obtain the holographic suspended micro-nano texture product. Based on the application, the texture product with a periodic structure is obtained by the processing mode, and the holographic suspension effect and the anti-counterfeiting effect of the product are enhanced.

CLAIM 1. A method for processing textures, the method comprising the steps of: obtaining a micro-lens layer gray level drawing and a micro-image-text layer gray level drawing according to a preset magnification, a preset lamination thickness, a preset micro-lens geometric parameter and a preset suspension effect pattern; respectively exposing two glass substrates coated with photoresist according to the gray level drawing of the micro lens layer and the gray level value of the gray level drawing of the micro image-text layer, and developing the two exposed glass substrates; transferring the two glass substrates subjected to exposure development to two PET films respectively to obtain a first micro-lens layer PET texture mold and a first micro-image-text layer PET texture mold; transferring the first micro-lens layer PET texture mold and the first micro-image-text layer PET texture mold to a PC mold respectively, and performing double-sided transfer printing on an untreated PET film by using the PC texture mold obtained after transfer printing to obtain a PET film with a periodic micro-lens and array image type micro-image-text superimposed; and (3) electroplating and ink covering the PET film overlapped by the periodic micro-lenses and the array image micro-graphics to obtain the holographic suspended micro-nano texture product.

P36782

PRINTING – BRAND PROTECTION – LUMINESCENCE

CN116552090

Priority Date: 06/05/2023

JIANGSU ZHONGJIN MATAI MEDICINAL PACKAGING

PREPARATION METHOD OF HIGH-BARRIER ANTI-COUNTERFEITING COMPOSITE FILM

The invention relates to the field of high-barrier anti-counterfeiting composite films, and discloses a preparation method of a high-barrier anti-counterfeiting composite film, which comprises the following steps: s1: accurately overprinting special transparent heat-seal adhesive or fluorescent anti-counterfeiting ink on a specific part of a printing material, wherein the overprinting mode adopts inner printing or table printing; s2: coating the overprinted printing material with a high-barrier adhesive, and then performing air drying and rolling; s3: performing thermal transfer printing compounding on the printing coiled material subjected to overprinting and the anti-counterfeiting laser film on a dry-method compounding machine; s4: the high-barrier anti-counterfeiting composite film can be obtained by normally compositing the printing film with the anti-counterfeiting laser mark, the thickness of the polyurethane laser holographic film and the substrate prepared by the preparation method is 20 μm , the transparency of the polyurethane laser holographic film is more than or equal to 90% when the human light is perpendicular to a plane, the reflectivity is 40%, and the identification is convenient.

CLAIM 1. The preparation method of the high-barrier anti-counterfeiting composite film is characterized by comprising the following steps of: s1: accurately overprinting special transparent heat-seal adhesive or fluorescent anti-counterfeiting ink on a specific part of a printing material, wherein the overprinting mode adopts inner printing or table printing; s2: coating the overprinted printing material with a high-barrier adhesive, and then performing air drying and rolling; s3: performing thermal transfer printing compounding on the printing coiled material subjected to overprinting and the anti-counterfeiting laser film on a dry-method compounding machine; s4: and (3) compounding the printing film with the anti-counterfeiting laser mark normally to obtain the high-barrier anti-counterfeiting composite film.

P36777

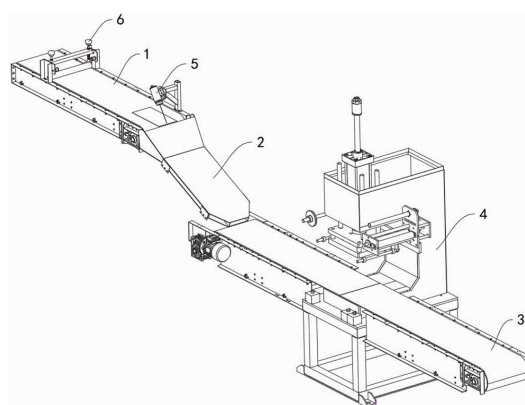
CN116572632

Priority Date: 11/05/2023

JIANGSU XINGGUANG PACKAGING SCIENCE & TECHNOLOGY

HOLOGRAPHIC THERMOPRINTING FILM MOULD PRESSING SYSTEM FOR BOX AND THERMOPRINTING METHOD

The invention relates to the technical field of thermoprinting, in particular to a holographic thermoprinting film molding system for a box and a thermoprinting method, wherein the system comprises a first conveying belt, a shaping channel, a second conveying belt and a molding press arranged at the middle section of the second conveying belt; a distance meter is arranged at one end of the first transmission belt, which faces the shaping channel; the detection end of the range finder is inclined downwards; the second conveyor belt is lower than the first conveyor belt; the bottom of the shaping channel is above the second conveying belt; two shaping plates are arranged in the shaping channel at intervals and used for adjusting the position of the box body; the molding press comprises a lifting disc, a pressing die, a winding and unwinding mechanism and a bearing table; the lifting disc vertically slides; the pressing die is arranged at the bottom of the lifting disc; the winding and unwinding mechanism is arranged on the side surface of the lifting disc and used for winding and unwinding the electrochemical aluminum foil film and enabling the electrochemical aluminum foil film to pass through the bottom surface of the film pressing plate; the bearing table is arranged below the second conveying belt and vertically slides. The invention can effectively improve the production efficiency of the thermoprint and save the cost.



CLAIM 1. The holographic thermoprinting film mould pressing system for the box is characterized by comprising a first conveying belt (1), a shaping channel (2) and a second conveying belt (3) which are sequentially arranged, and a mould pressing machine (4) arranged at the middle section of the second conveying belt (3); one end of the first transmission belt (1) facing the shaping channel (2) is provided with a distance meter (5); the detection end of the range finder (5) is inclined downwards and is used for detecting the tangential direction of the end part of the first conveying belt (1); the height of the second conveying belt (3) is lower than that of the first conveying belt (1), so that an included angle is formed between the shaping channel (2) and the horizontal direction; the bottom of the shaping channel (2) is above the second conveyor belt (3); two shaping plates (21) are arranged in the shaping channel (2) at intervals and are used for adjusting the position of the box body; the molding press (4) comprises a lifting disc (41), a pressing die (42), a winding and unwinding mechanism (43) and a bearing table (44); the lifting disc (41) vertically slides; the pressing die (42) is arranged at the bottom of the lifting disc (41); the winding and unwinding mechanism (43) is arranged on the side surface of the lifting disc (41) and is used for winding and unwinding the electrochemical aluminum foil film and enabling the electrochemical aluminum foil film to pass through the bottom surface of the film pressing; and the bearing table (44) is arranged below the second conveying belt (3) and vertically slides.

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

P36734

BANKNOTE

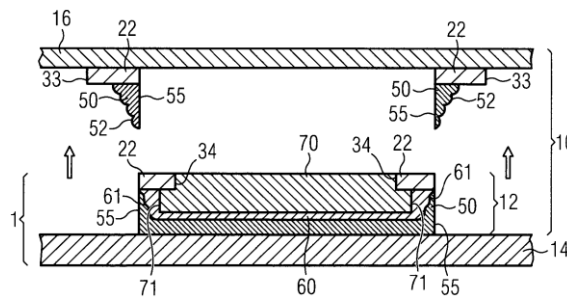
EP4230426

Priority Date: 03/02/2022

GIESECKE & DEVRIENT CURRENCY TECHNOLOGY

SECURITY ELEMENT TRANSFER MATERIAL AND METHOD FOR PRODUCING THE SAME

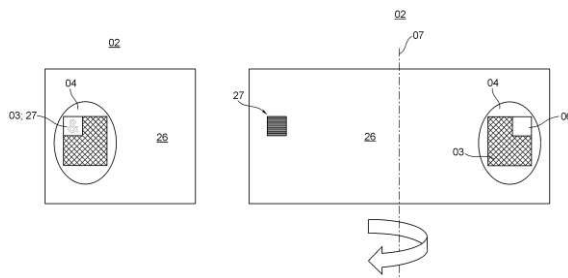
The disclosure relates to a method for producing a security element transfer material (10) for valuable objects, in particular valuable documents, comprising the following steps: providing a carrier film (16); Applying a release layer (22) to the carrier film (16); applying one or more layers lying one on top of the other over part of the surface in order to produce a functional layer structure (70) having an optically variable effect, in such a way that it lies with an outer contour (71) completely on the release layer (22); and applying an adhesive layer (50) to the functional layer structure (70) in such a way that it either covers the functional layer structure (70) exactly or projects a little beyond the outer contour (71) of the functional layer structure (70) until the release layer (22) is reached. The invention also relates to a corresponding security element transfer material (10) as such and to a method for producing an object of value (10) using the security element transfer material (10).



CLAIM 1. A method for producing a security element transfer material (10), comprising the steps of: - providing a carrier film (16); - applying a release layer (22) to the carrier film (16); - applying one or more layers lying one on top of the other over part of the surface in order to produce a functional layer structure (70) having an optically variable effect, in such a way that it lies with an outer contour (71) completely on the release layer (22); and - applying an adhesive layer (50) to the functional layer structure (70) in such a way that it either covers the functional layer structure (70) exactly or projects a little beyond the outer contour (71) of the functional layer structure (70) until the release layer (22) is reached.

METHOD FOR AUTHENTICATING A SECURITY DOCUMENT

The invention relates to a method for authenticating a security document, wherein the security document has a transparent window in its substrate, wherein at least in the region of the transparent window on one side of the substrate a microoptical structure consisting of microlenses is arranged partially or completely covering this window and wherein on the other side of this substrate outside and at a distance from the region of the transparent window a printed image is applied, wherein this printed image is applied to the substrate in a punctiform or linear grid consisting of image elements, wherein an image point size or a line thickness of the image elements of the printed image applied to the substrate is formed smaller than a lens width of the microlenses arranged in the microoptical structure, wherein the substrate of this security document is folded at a fold line and the printed image applied outside and at a distance from the region of the transparent window is brought into coincidence with the micro-optical structure applied to the other side of the substrate of this security document, characterized in that this printed image or at least one piece of information contained in it becomes visible and/or recognizable when viewed from the direction of the microoptical structure by this viewing directed onto this printed image.



CLAIM 1. A method for authenticating a security document (02), wherein the security document (02) has a transparent window (04) in its substrate (26), wherein at least in the region of the transparent window (04) on one side of the substrate (26) a micro-optical structure (03) consisting of micro-lenses (11) is arranged so as to partially or completely cover this window (04) and wherein a printed image (27) is applied outside and at a distance from the region of the transparent window (04), wherein this printed image (27) is applied to the substrate (26) in a punctiform or linear grid consisting of image elements (28 a to 28 j), wherein an image point size (38) or a line thickness (38) of the image elements (28 a to 28 j) of the printed image (27) applied to the substrate (26) is formed smaller than a lens width (18) of the microlenses (11) arranged in the microoptical structure (03), wherein the substrate (26) of this security document (02) is folded at a fold line (07) and the printed image (27) applied outside and at a distance from the region of the transparent window (04) is brought into coincidence with the micro-optical structure (03) applied on the other side of the substrate (26) of this security document (02) in such a way that, characterized in that this printed image (27) or at least one piece of information contained in it becomes visible and/or recognizable when viewed from the direction of the micro-optical structure (03) through the latter directed onto this printed image (27), wherein for producing the printed image (27) a printing fluid is applied to the substrate (26) of the security document (02) which becomes visible to the human eye only as a result of an excitation lying outside the electromagnetic spectrum visible to the human eye, characterized in that In that the printed image (27) applied outside and at a distance from the region of the transparent window (04) is applied to the other side of this substrate (26) opposite the micro-optical structure (03), wherein the window (04) formed in the substrate (26) of the security document (02) partially or completely covered by the micro-optical structure (03) has a further printed image (27) on the side of the substrate (26) of this security document (02) facing away from the micro-optical structure (03), wherein this further printed image (27) arranged in the region of the window (04) has at least one recess (06) in the region covered by the micro-optical structure (03), so that the relevant recess (06) formed in the further printed image (27) partially exposes the micro-optical structure (03) applied to the substrate (26) of this security document (02) and exposes a view through the window (04) onto the micro-optical structure (03), wherein the printed image (27) applied outside and at a distance from the region of the transparent window (04) is brought into coincidence at least with one of the gaps (06) partially exposing the micro-optical structure (03) by folding the substrate (26) of this security document (02) at the fold line (07).

P36742

PRINTING – LABEL

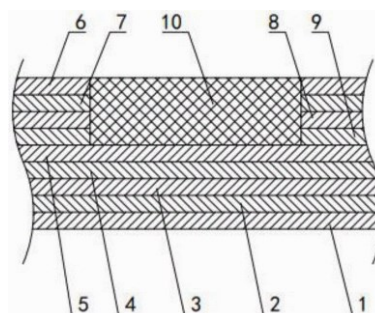
CN219553151U

Priority Date: 31/03/2023

SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP

VARIABLE TRANSPARENT LASER THERMOPRINT INFORMATION ANTI-COUNTERFEIT LABEL

The utility model discloses a variable transparent laser thermoprint information anti-counterfeit label, and belongs to the technical field of anti-counterfeit labels. The method is characterized in that: including pressure sensitive adhesive layer (1), look black layer (2), printing layer (3), mould rete (5), zinc sulfide layer (8), variable UV glue layer (9) and radium-shine aluminizing transfer dope layer (6), pressure sensitive adhesive layer (1), look black layer (2), printing layer (3) and mould rete (5) by supreme setting gradually down, variable UV glue layer (9), zinc sulfide layer (8) and radium-shine aluminizing transfer dope layer (6) are by supreme upside that sets gradually in moulding rete (5) down.



CLAIM 1. A variable transparent laser thermoprint information anti-counterfeit label is characterized in that: including pressure sensitive adhesive layer (1), look black layer (2), printing layer (3), mould rete (5), zinc sulfide layer (8), variable UV glue layer (9) and radium-shine aluminizing transfer dope layer (6), pressure sensitive adhesive layer (1), look black layer (2), printing layer (3) and mould rete (5) by supreme setting gradually down, variable UV glue layer (9), zinc sulfide layer (8) and radium-shine aluminizing transfer dope layer (6) are by supreme upside that sets gradually in moulding rete (5) down.

P36768

PRINTING – BRAND PROTECTION

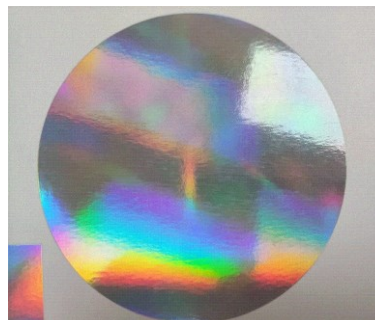
CN116619889

Priority Date: 12/07/2023

YUNNAN QIAOTONG PACKAGE PRINTING

PRINTING METHOD FOR MANUFACTURING LENS ON PAPER PRODUCT AND MATCHED EQUIPMENT THEREOF

The invention relates to a printing method for manufacturing a lens on a paper product and matched equipment thereof, wherein the printing method comprises the following steps: manufacturing a screen printing plate; preparing ink; silk screen printing and transfer printing; excess galvanic aluminum was separated and UV cured. The supporting equipment comprises a silk screen machine, wherein the silk screen machine comprises a silk screen plate and a doctor blade, the silk screen machine further comprises a machine table bearing frame, a silk screen machine arranged on the machine table bearing frame and a conveying belt, the front end of the silk screen machine is provided with a transfer machine, the transfer machine comprises a film loading roller, a film stretching roller, a film pressing flattening roller, a film collecting stretching roller and a film collecting roller which are sequentially connected with the film loading roller, and the transfer machine further comprises a pressing transfer roller arranged between the film pressing flattening roller and the film collecting stretching roller. According to the method for manufacturing the lens by the screen printer and the transfer printing process technology, provided by the invention, the transfer printer is additionally arranged on the position of the screen printer head, so that the transfer printer and the screen printer are directly connected to complete lens manufacturing, the process flow is greatly optimized, and the running cost of equipment is reduced.



CLAIM 1. A printing method for manufacturing a lens on a paper product, comprising the steps of: step 1, silk screen making: firstly, making a pattern before printing, making a small circle or a large circle of a solid bottom, passing the small circle or the large circle of the solid bottom through a screen discharging net sheet, and then printing down the pattern of the screen sheet to make a screen plate; step 2, preparing ink: the printing ink is prepared by grinding, stirring and uniformly mixing 5g of EVA resin, 2.1g of plasticizer and 1.85g of PVC; step 3, silk screen printing and transfer printing: firstly, mounting the manufactured screen plate on a screen printer, and pouring the prepared ink into the screen plate; a group of transfer printing machines are additionally arranged at the position of the screen printing machine head, and alumite is arranged on the transfer printing machines; starting up for printing, printing ink on the position of the paper product, which is required to manufacture the lens, conveying the paper product printed with the ink to a transfer machine through a conveying belt, pressing and transferring alumite on the position printed with the ink by transfer machine equipment when the paper product passes through, so as to form a printed product with a lens effect; step 4, separating redundant electrochemical aluminum and UV curing: and (3) separating and removing redundant electric aluminum from the paper product subjected to screen printing and transfer printing, and conveying the paper product to a UV drying tunnel to complete solidification under the action of equipment photo-solidification temperature, so that the paper product with the lens is obtained.

P36771

LABEL – LIQUID CRYSTAL

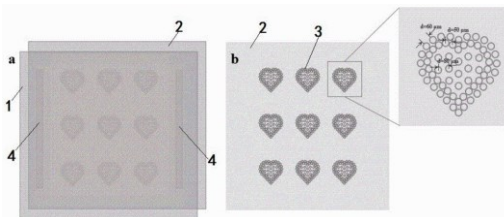
CN116594236

Priority Date: 05/06/2023

SOUTH CHINA NORMAL UNIVERSITY

LIQUID CRYSTAL DROPLET PATTERNING DEVICE BASED ON DIELECTROPHORESIS EFFECT, PREPARATION METHOD AND APPLICATION THEREOF

The application discloses a liquid crystal droplet patterning device based on dielectrophoresis effect, a preparation method and application thereof, wherein the device comprises an upper substrate, a lower substrate and a dispersion liquid of cholesteric liquid crystal droplets positioned between the upper substrate and the lower substrate which are oppositely arranged; the surface of the lower substrate is provided with micro patterns, and the micro patterns are circular arrays with certain intervals and certain shapes; the opposite surfaces of the upper substrate and the lower substrate are respectively provided with a dielectric layer; a spacer layer for preventing the liquid crystal droplets from being flattened is arranged between the upper substrate and the lower substrate; the upper substrate/lower substrate each includes a base and a conductive layer attached to the base. The application combines the optical interaction beam color change characteristic among liquid drops generated by cholesteric liquid crystal liquid drops at different distances and the dielectrophoresis effect of an electric field to drive the liquid crystal liquid drops to realize the patterning assembly of the liquid crystal liquid drops, and encrypts stored information for the optical anti-counterfeit label. In addition, the color of the optical interaction between the liquid crystal droplets is not discolored, and has good stability.



CLAIM 1. A liquid crystal droplet patterning device based on a dielectrophoresis effect, which is characterized by comprising an upper substrate, a lower substrate and a dispersion liquid of cholesteric liquid crystal droplets, wherein the upper substrate and the lower substrate are oppositely arranged; the surface of the lower substrate, which is close to the upper substrate, is provided with micro patterns, and the micro patterns are circular arrays with certain intervals and certain shapes; the opposite surfaces of the upper substrate and the lower substrate are respectively provided with a dielectric layer; a spacer layer for preventing the cholesteric liquid crystal liquid drops from being flattened is arranged between the upper substrate and the lower substrate; wherein, the upper substrate/lower substrate each comprises a base and a conductive layer attached to the base.

P36774

HOLOGRAM – RELIEF – MICROLENS

CN116577962

Priority Date: 19/04/2023

BORN CHUANGSHENG TECHNOLOGY R D HUIZHOU

TEXTURE PROCESSING METHOD

The application discloses a texture processing method, which comprises the following steps: calculating to obtain a curved surface model of the micro lens layer through the lamination thickness and the geometric parameters of the micro lens, and determining a gray drawing of the micro lens layer according to the pattern model; determining a corresponding micro image-text layer gray drawing according to a preset suspension effect pattern and geometric parameters of the micro lens; respectively exposing and developing the glass substrate coated with the photoresist according to the gray level of the gray level drawing of the micro lens layer and the gray level value of the gray level drawing of the micro image-text layer; respectively transferring the developed glass substrates by using PET films, and then transferring the developed glass substrates to a PC texture mold after aging treatment; finally, transferring the two sides of the product to a PET film to obtain a periodical PET film, and then performing electroplating and ink covering operation to obtain the holographic suspended micro-nano texture product. Based on the application, the texture product with a periodic structure is obtained by the processing mode, and the holographic suspension effect and the anti-counterfeiting effect of the product are enhanced.

CLAIM 1. A method for processing textures, the method comprising the steps of: obtaining a micro-lens layer gray level drawing and a micro-image-text layer gray level drawing according to a preset magnification, a preset lamination thickness, a preset micro-lens geometric parameter and a preset suspension effect pattern; respectively exposing two glass substrates coated with photoresist according to the gray level drawing of the micro lens layer and the gray level value of the gray level drawing of the micro image-text layer, and developing the two exposed glass substrates; transferring the two glass substrates subjected to exposure development to two PET films respectively to obtain a first micro-lens layer PET texture mold and a first micro-image-text layer PET texture mold; transferring the first micro-lens layer PET texture mold and the first micro-image-text layer PET texture mold to a PC mold respectively, and performing double-sided transfer printing on an untreated PET film by using the PC texture mold obtained after transfer printing to obtain a PET film with a periodic micro-lens and array image type micro-image-text superimposed; and (3) electroplating and ink covering the PET film overlapped by the periodic micro-lenses and the array image micro-graphics to obtain the holographic suspended micro-nano texture product.

P36772

INK – LABEL

CN116589884

Priority Date: 17/04/2023

CHINA BANKNOTE INK | CHINA BANKNOTE PRINTING & MINT

MECHANOCROMATIC INK AND PREPARATION METHOD AND APPLICATION THEREOF

The application relates to the technical field of ink, in particular to a mechanochromatic ink and a preparation method and application thereof. The mechanochromatic ink comprises nano microspheres, a high molecular precursor and a photoinitiator. The nano microsphere forms a photonic crystal structure through self-assembly, so that the material has structural color, and the elastic polymer is endowed with the characteristic that the material deforms under the action of external force, so that the structural color changes. And the structural color change characteristic of the technology does not need to depend on dark background, so that the application range of the technology is widened.

CLAIM 1. The mechanochromic ink comprises a nano microsphere, a polymer precursor and a photoinitiator, wherein the volume ratio of the nano microsphere to the polymer precursor to the photoinitiator is (20-60): (40-80): (2-10).

P36775

LABEL – RELIEF – MICROLENS

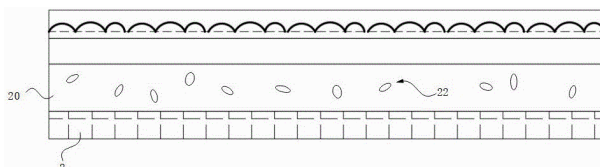
CN116577854

Priority Date: 12/06/2023

GUANGZHOU ENPOT BARCODE INDUSTRIAL

ANTI-COUNTERFEIT LABEL AND GENERATION METHOD THEREOF

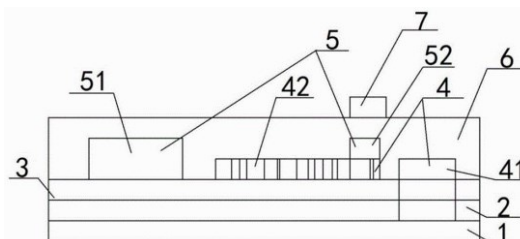
The invention provides an anti-counterfeiting label which is formed by sequentially bonding a micro lens array layer, a substrate layer and an adhesion layer, and is adhered to the surface of an article through the adhesion surface of the adhesion layer; the microlens array layer includes a plurality of microlens units for focusing; and a lens group is composed of two or more micro lens units with different focal lengths; a plurality of lens groups are repeatedly combined to form a micro lens array; the user pushes the identification layer held by the user into the position of the adhesion layer from the positioning groove, the user irradiates the anti-counterfeiting label above the micro lens array layer by using a stable light source, and after the light is refracted through the micro lens array layer, the light is reflected at the identification layer to form a light reflection signal; the light reflection signals are emitted out of the micro lens array layer after being turned back; the identification layer is formed into an identification pattern by a large number of particles; and recording and checking the light reflection signals to confirm whether the anti-counterfeiting label accords with the anti-counterfeiting identification signals of the user.



CLAIM 1. The anti-counterfeiting label is characterized in that the anti-counterfeiting label (1) is formed by sequentially bonding a micro lens array layer (10), a base material layer (11) and an adhesion layer (13), and is adhered to the surface of an article (2) through the adhesion surface of the adhesion layer (13); the microlens array layer (10) includes a plurality of microlens units (14) for focusing; and a lens group (12) is composed of two or more microlens units (14) having different focal lengths; a plurality of lens groups (12) are periodically and repeatedly combined to form a micro-lens array; when a user performs anti-counterfeiting identification operation, the identification layer (20) held by the user is pushed into the position of the adhesion layer (13) from the positioning groove (15) on the side face of the anti-counterfeiting label (1) and the adhesion layer (13) is pushed out from the other side of the anti-counterfeiting label (1) opposite to the positioning groove (15); the user irradiates the anti-counterfeiting label (1) above the micro-lens array layer (10) by a stable light source, and after the light rays are refracted through the micro-lens array layer (10), the light rays penetrate through the substrate layer (11) and are reflected at the marking layer (20) to form light reflection signals; the light reflection signal is emitted from the micro lens array layer (10) through the substrate layer (11); the marking layer (20) is formed into a marking pattern by a plurality of fine particles (22) randomly or non-randomly; and recording the light reflection signals generated by the particles (22) in the continuous moving process of the identification layer (20) after being pushed into the positioning groove (15), so as to confirm whether the anti-counterfeiting label (1) accords with the anti-counterfeiting identification signals of users.

3D RANDOM MAGNETIC GRAIN DIGITAL ANTI-COUNTERFEITING MARK AND PREPARATION METHOD THEREOF

The invention belongs to the technical field of anti-counterfeiting marks, and discloses a 3D random magnetic stripe digital anti-counterfeiting mark and a preparation method thereof. The 3D random magnetic grain digital anti-counterfeiting mark comprises a 3D magnetic ink anti-counterfeiting layer, wherein the 3D magnetic ink anti-counterfeiting layer contains 3D magnetic optically variable nanoparticles, and the 3D magnetic optically variable nanoparticles comprise a first nano zinc oxide film layer, a first nano titanium dioxide film layer, a magnetic nano film layer, a second nano titanium dioxide film layer and a second nano zinc oxide film layer from bottom to top. The 3D random magnetic grain digital anti-counterfeiting mark provided by the invention presents obvious bright stripes under different irradiation light angles, the dynamic light change effect judgment of the 3D magnetic ink anti-counterfeiting layer is observed from different angles through rotating the mark for identification, regular grain grains are also presented at the bright stripes, and the identification degree is high and easy to identify.

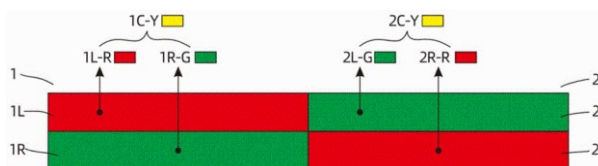


CLAIM 1. The 3D random magnetic grain digital anti-counterfeiting mark is characterized by comprising a 3D magnetic ink anti-counterfeiting layer, wherein 3D magnetic optically variable nano particles are contained in the 3D magnetic ink anti-counterfeiting layer, and the 3D magnetic optically variable nano particles comprise a first nano zinc oxide film layer, a first nano titanium dioxide film layer, a magnetic nano film layer, a second nano titanium dioxide film layer and a second nano zinc oxide film layer from bottom to top.

IDENTIFICATION ELEMENT AND IDENTIFICATION OBJECT

The present invention relates to the field of identification media, and more particularly to an identification element and an identification object. An identification element comprising a first area 1 and a second area 2 randomly distributed. The phase difference layer is arranged, the identification dimension is increased, and the identification element which has multiple colors under a single identification window and can be switched along with the rotation of the identification window is provided; the phase difference layer is arranged, so that the identification difficulty is reduced, and an identification element which has multiple colors only through the irradiation of a mobile phone screen and can be switched in color when the mobile phone screen rotates is provided; the patterned phase difference layer is added, so that the safety of the identification element is further improved, and the identification element which can be identified only by irradiation of a mobile phone screen and is formed by multiple color combinations and is patterned is provided, and when the mobile phone screen rotates, the colors and the patterns can be switched.

CLAIM 1. An identification element is characterized by comprising a first area (1) and a second area (2) which are randomly distributed, wherein the first area comprises n layers of left-handed cholesteric liquid crystal reflecting layers (1L) and n layers of right-handed cholesteric liquid crystal reflecting layers (1R) which are mutually overlapped, and a color difference value delta E between the lamination color 1L of the left-handed cholesteric liquid crystal reflecting layers (1L) and the lamination color 1R of the right-handed cholesteric liquid crystal reflecting layers (1R) is more than or equal to 6.5; the second region comprises n layers of left-handed cholesteric liquid crystal reflecting layers (2L) and n layers of right-handed cholesteric liquid crystal reflecting layers (2R) which are mutually stacked, a color difference value delta E between the stacked color 2L of the second region left-handed cholesteric liquid crystal reflecting layers (2L) and the stacked color 1R of the first region right-handed cholesteric liquid crystal reflecting layers (1R) is less than or equal to 6.5, and a color difference value delta E between the stacked color 2R of the second region right-handed cholesteric liquid crystal reflecting layers (2R) and the stacked color 1L of the first region left-handed cholesteric liquid crystal reflecting layers (1L) is less than or equal to 6.5; n is more than or equal to 1.



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

N9599

KR20230111441

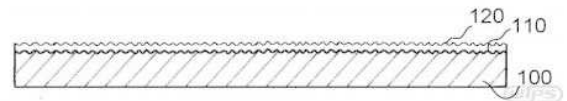
Priority Date: 18/01/2022

BAEK, JI HUN

NON-DISCOLORED HOLOGRAPHIC WATERPROOF STICKER

A method of manufacturing a hologram waterproof sticker that does not discolor change, the method comprising the steps of: forming a photosensitive film on a hologram surface of a hologram metal plate, then exposing and developing the photosensitive film frame through a film having a predetermined decorative pattern to form a photosensitive film frame corresponding to the decorative pattern; Curing the photosensitive film frames by heat-treating the photosensitive film frames; forming a metal electrodeposition layer on a holographic metal plate in which a hologram surface is exposed to concave portions between the photosensitive film frames by electroplating; Adhering a separating tape to the back surface of the metal electrodeposition layer to which the hologram is transferred, facing the hologram metal plate, and peeling the separating tape together with the metal electrodeposition layer from the hologram metal plate; adhering a protective tape to the metal electrodeposition layer to which the hologram is transferred, Removing the separation tape from the metal electrodeposition layer; and applying an adhesive to the back surface of the metal electrodeposition layer from which the separation tape is removed and adhering a release paper. An apparatus according to one embodiment may be controlled by a computer program stored on a medium in combination with hardware to carry out any of the methods described above.

CLAIM 1. A method of manufacturing a hologram waterproof sticker that does not discolor change, the method comprising the steps of: forming a photosensitive film on a hologram surface of a hologram metal plate, then exposing and developing the photosensitive film frame through a film having a predetermined decorative pattern to form a photosensitive film frame corresponding to the decorative pattern; Curing the photosensitive film frames by heat-treating the photosensitive film frames; forming a metal electrodeposition layer on a holographic metal plate in which a hologram surface is exposed to concave portions between the photosensitive film frames by electroplating; Adhering a separating tape to the back surface of the metal electrodeposition layer to which the hologram is transferred, facing the hologram metal plate, and peeling the separating tape together with the metal electrodeposition layer from the hologram metal plate; adhering a protective tape to the metal electrodeposition layer to which the hologram is transferred, Removing the separating tape from the metal electrodeposition layer; and applying an adhesive to the back surface of the metal electrodeposition layer from which the separation tape is removed and attaching a release paper.



N9602

JP2023111764

Priority Date: 31/01/2022

DAI NIPPON PRINTING

DECORATIVE LAMINATE

TOPIC: To provide a decorative laminate having excellent water resistance. **INVENTION:** a decorative laminate including: a transparent resin substrate having a first surface and a second surface opposite the first surface; a design portion located on the first surface of the transparent resin substrate and including a recessing and protruding structure; a protective portion covering at least a portion of the design portion; and a hard coat layer located on the second surface of the transparent resin substrate.

CLAIM 1. A decorative laminate comprising: a transparent resin substrate comprising a first surface and a second surface opposite the first surface; a design portion positioned on the first surface of the transparent resin substrate and comprising a recessing and protruding structure; a protective portion covering at least a portion of the design portion; and a hard coat layer positioned on the second surface of the transparent resin substrate.

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

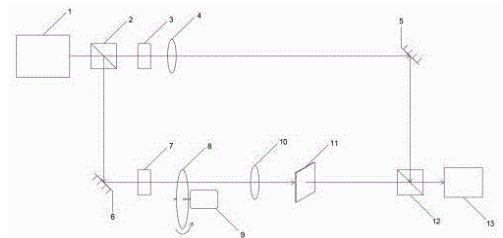
N9620**CN116630542***Priority Date: 22/05/2023***LEI MING****MULTI-DEPTH HOLOGRAM GENERATION METHOD, SYSTEM, ELECTRONIC EQUIPMENT AND STORAGE MEDIUM**

The invention discloses a method, a system, electronic equipment and a storage medium for generating a multi-depth hologram, which relate to the field of holograms, and the method comprises the steps of acquiring a training set and a testing set of multi-depth images; generating a phase-only hologram by using a full convolutional neural network according to the training set; determining diffraction fields at different depths of the hologram according to the phase-only hologram; determining a multiple depth loss function from the diffraction fields at different depths of the hologram; training the full convolution neural network by utilizing the multi-depth loss function according to the training set to obtain a pure phase hologram generation model; generating a multi-depth hologram using the phase-only hologram generation model from the test set. The invention can flexibly adjust the network parameters according to the generation quality and the generation speed, thereby improving the flexibility of the generation process.

N9631**CN116560203***Priority Date: 07/06/2023***BEIJING INSTITUTE OF TECHNOLOGY SHENZHEN RESEARCH INSTITUTE | HEBEI UNIVERSITY OF ENGINEERING****DIGITAL HOLOGRAPHIC SPECKLE SUPPRESSION IMAGING SYSTEM BASED ON RANDOM MICROLENS ARRAY**

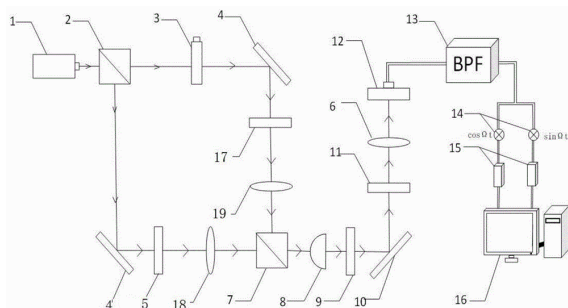
The invention relates to a digital holographic speckle suppression imaging system based on a random microlens array. The laser generates a laser beam, and the laser beam is divided into a reference beam and an object beam through a beam splitting prism; the objective lens and the convex lens adjust the reference beam to expand the reference beam and convert the reference beam into a parallel beam, and the reflector changes the propagation direction of the reference beam into a vertical direction; the object light beam changes its propagation direction into the horizontal direction through the reflector, the object light beam is expanded by the objective lens, the height of the random microlens array and the motor is adjusted, the object light beam is made to strike at the edge part of the surface of the random microlens array, the convex lens makes the light beam parallel, the reference light beam and the object light beam are combined by the beam combining prism through the sample object, and the interference pattern is recorded by the interference light irradiation on the CCD camera. The device can effectively inhibit speckle noise of a digital holographic system through rotation of the random microlens array, and improve signal to noise ratio.

CLAIM 1. A digital holographic speckle suppression imaging system based on a random microlens array is characterized in that: the device comprises a laser (1), a beam splitting prism (2), an objective lens (3), a convex lens (4), a reflecting mirror (5), a reflecting mirror (6), an objective lens (7), a random micro lens array (8), a motor (9), a convex lens (10), a sample object (11), a beam combining prism (12) and a CCD camera (13); the laser (1) generates a laser beam, and the laser beam is divided into a reference beam and an object beam through the beam splitting prism (2); the objective lens (3) and the convex lens (4) adjust the reference beam to expand the reference beam and convert the reference beam into a parallel beam, and the reflecting mirror (5) changes the propagation direction of the reference beam into a vertical direction; the object light beam changes the propagation direction of the object light beam into the horizontal direction through the reflecting mirror (6), the object light beam is expanded by the objective lens (7), the heights of the random micro lens array (8) and the motor (9) are adjusted, the object light beam is made to strike at the edge part of the surface of the random micro lens array (8), the convex lens (10) makes the beam parallel, the reference beam and the object light beam are combined through the sample object (11), and the interference pattern is recorded on the CCD camera (13) by the interference light irradiation.



SCANNING HOLOGRAPHIC DEVICE FOR OBTAINING HORIZONTAL PARALLAX HOLOGRAM ONLY

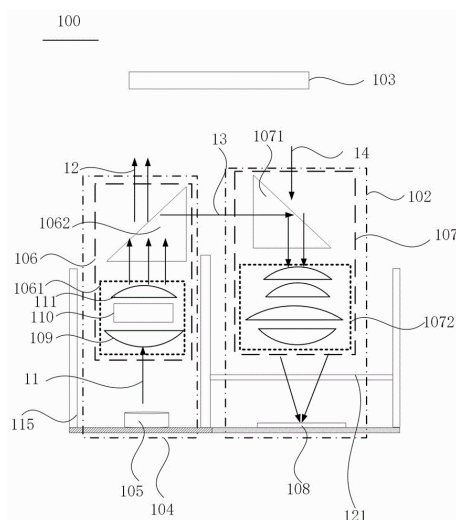
The invention discloses a scanning holographic device for obtaining a horizontal parallax hologram only, comprising: focusing lens, light source, pupil, plane reflector, acousto-optic modulator (AOM), two-dimensional scanning galvanometer, cylindrical mirror, horizontal slit; according to the invention, the vertical axis data are compensated by utilizing a cylindrical mirror, then a two-dimensional Fresnel zone plate is processed by using the limiting effect of a horizontal slit, the two-dimensional Fresnel wave representation is converted into a one-dimensional Fresnel zone plate for reducing the curvature of the vertical axis, then the one-dimensional Fresnel zone plate is used for scanning an object, a photoelectric sensor is used for recording light waves, and the recorded data are synthesized by utilizing a computer to obtain a horizontal parallax hologram of the object; the invention has the advantages that: the cost is low, the construction and operation of the optical path are simple, the calculation speed of the hologram is effectively increased, and the anti-interference performance of the optical path of the experimental platform can be increased by using the scanning holographic optical path as a substrate; the one-dimensional Fresnel zone plate is used for scanning, so that the horizontal parallax scanning hologram with good reproduction effect can be obtained while the data volume is reduced.



CLAIM 1. A scanning hologram device for obtaining a horizontal parallax only hologram, characterized by: comprises a laser (1), a beam splitter (2), an acousto-optic modulator (3), a plane mirror (4), a pupil I (5), a pupil II (17), a Fourier lens I (6), a Fourier lens II (18), a Fourier lens III (19), a beam combining mirror (7), a cylindrical mirror (8), a horizontal slit (9), a two-dimensional scanning galvanometer (10), a scanned object $\Gamma(x, y)$ (11), a photoelectric sensor PD (12), a band-pass filter BPF (13), an electronic multiplier $\cos \omega t$ (14), an electronic multiplier $\sin \omega t$ (20), a low-pass filter (15) and a computer (16), the laser (1) emits a beam of laser with the frequency ω , and the laser passes through the spectroscope (2) and then becomes two beams of light with the same frequency; a beam of light changes the frequency into $(\omega + \omega)$ through the acousto-optic modulator (3), and sequentially passes through the plane mirror (4), the pupil II (17) and the Fourier lens III (19) to reach the beam combining mirror (7); the frequency of the other beam of light is still ω , and the other beam of light sequentially passes through the pupil I (5) and the Fourier lens II (18) to reach the beam combining lens (7); two beams of light with different frequencies pass through a pupil I (5) and a pupil II (17) to finish modulation, interference is generated at the position of a beam combining lens (7), and an interference pattern is a Fresnel wave band ring; the interference light is processed through a cylindrical mirror (8) and a rectangular horizontal slit (9) to obtain a curvature-free narrow-band Fresnel zone plate, and then a two-dimensional scanning galvanometer (10) is used for scanning the interference light on a target object $\Gamma(x, y)$ (11); light containing the object amplitude information propagates through the Fourier lens I (6) to the photosensor PD (12), generating an electrical signal $i(x, y)$ related to the object amplitude information; the electric signal $i(x, y)$ sequentially passes through a band-pass filter BPF (13), an electronic multiplier $\cos \omega t$ (14), an electronic multiplier $\sin \omega t$ (20) and a low-pass filter (15) to enter a computer (16), and the computer (16) records, reproduces and post-processes the image of the electric signal $i(x, y)$ to finally obtain the horizontal parallax hologram without double image noise.

HOLOGRAPHIC IMAGE GENERATION SYSTEM, METHOD AND ELECTRONIC EQUIPMENT

The invention discloses a holographic image generation system, a holographic image generation method and electronic equipment. The hologram generating system includes: a laser transmitting module and a laser receiving module; the laser emission module comprises a first laser emission module, and the first laser emission module at least comprises a first light emitting unit and a first light ray adjusting unit which are sequentially arranged along a light path; the laser receiving module at least comprises a second light ray adjusting unit and a signal processing unit which are sequentially arranged along the light path; through the cooperation of first laser emission module and laser receiving module, realize the acquisition of the holographic speckle pattern of the target of awaiting measuring, and then according to holographic speckle pattern generation three-dimensional holographic picture, satisfy the demand of user to the stereoscopic picture, promote and use experience.



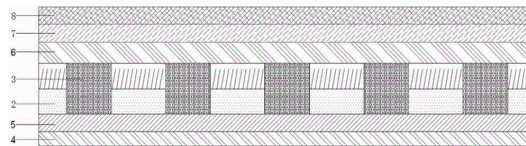
CLAIM 1. A holographic image generation system, comprising: a laser transmitting module and a laser receiving module; the laser emission module comprises a first laser emission module, and the first laser emission module at least comprises a first light emitting unit and a first light ray adjusting unit which are sequentially arranged along a light path; the laser receiving module at least comprises a second light ray adjusting unit and a signal processing unit which are sequentially arranged along the light path; the first light emitting unit is used for emitting a first laser beam; the first light ray adjusting unit is used for generating a first sub-laser beam and a second sub-laser beam according to the first laser beam; the first sub-laser beam is emitted to a target to be detected and reflected by the target to be detected to generate a second laser beam; the second light adjusting unit is used for receiving the second laser beam and the second sub-laser beam, adjusting the second laser beam and outputting the second sub-laser beam; the signal processing unit is used for receiving the second laser beam and the second sub-laser beam which are regulated by the second light regulating unit to form a holographic speckle pattern of the target to be measured; the holographic speckle pattern is used for generating a three-dimensional holographic picture; wherein the second laser beam and the second sub-laser beam are coherent beams.

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

N9616**CN219469961U***Priority Date: 28/10/2022***HUIZHOU SHANGSHI HUA TECHNOLOGY****LOCAL MATTE HOLOGRAPHIC LASER FILM**

The utility model discloses a local matte holographic laser film, which comprises a base surface layer and a PET local matte holographic layer. The PET local matte holographic layer comprises a PET substrate layer, a matte coating and a laser holographic coating, the base surface layer comprises an OPP substrate layer and an OPP transfer coating, and the OPP transfer coating is positioned on the OPP substrate layer. And stripping the PET substrate layer of the PET local matte holographic layer, and then molding the PET substrate layer on the substrate layer to obtain the local matte holographic laser film. The utility model makes the matte and laser effects on the same layer, so that the matte and laser effects can be transferred to a product only by transferring once, and the effects of local matte and laser surfaces can be obtained by once shaping.



CLAIM 1. The utility model provides a local matte holographic laser film which characterized in that includes: a base layer and a PET local matte holographic layer; the PET local matte holographic layer comprises: the PET substrate layer, the matte coating and the laser holographic coating, wherein the matte coating is printed on the PET substrate layer, and the laser holographic coating is printed on the matte coating; the base layer includes: an OPP substrate layer and an OPP transfer coating, the OPP transfer coating being located on the OPP substrate layer; and stripping the PET substrate layer of the PET local matte holographic layer, and then molding the PET substrate layer on the base surface layer to obtain the local matte holographic laser film.

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

N9591

WO2023148375

Priority Date: 04/02/2022

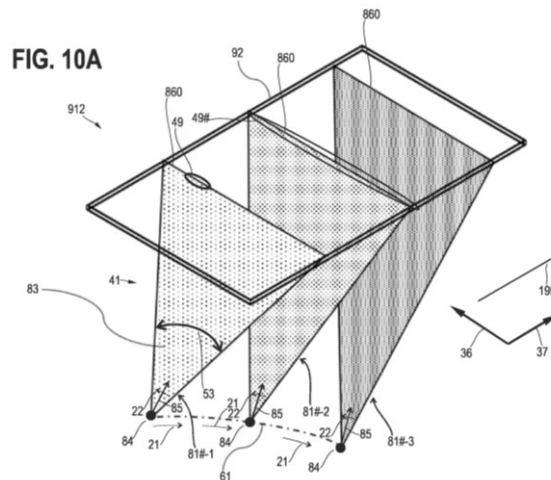
CARL ZEISS JENA

DEVICE FOR REPLICATING A MASTER HOLOGRAPHIC OPTICAL ELEMENT WITH VARIABLE ILLUMINATION

The invention relates to techniques for producing an HOE by replication of a master HOE. In particular, techniques that allow variable surface shape during replication are described. A curved trajectory is used for exposure.

DISPOSITIF DE RÉPLICATION D'UN ÉLÉMENT OPTIQUE HOLOGRAPHIQUE MAÎTRE À ÉCLAIRAGE VARIABLE

L'invention concerne des techniques de production d'un EOH par réplcation d'un EOH maître. En particulier, l'invention concerne des techniques qui permettent une forme de surface variable pendant la réplcation. Une trajectoire incurvée est utilisée pour l'exposition.



CLAIM 1. A method for producing a holographic optical element, HOE, (96) by replication (3010) of a master HOE (92) within an exposure process, wherein during the exposure process a carrier layer (91) of the master HOE (92) is arranged along a carrier layer (95) of the HOE (96), the method comprising:

- Driving (3105) a radiation source (52) to emit light onto the master HOE (92) during the exposure process such that the HOE (96) is exposed, and
- Actuating (3115) a positioning module (56) in order to move (21) a reference point (84) arranged along a beam path (41) of the light with respect to the master HOE (92) on a curved path curve (61) during the exposure process.

N9592

WO2023148213

CARL ZEISS JENA

Priority Date: 02/02/2022

COPY CARRIER ARRANGEMENT AND METHOD FOR PRODUCING A HOLOGRAM

A copy carrier arrangement is provided which has a copy carrier which comprises a photosensitive material, and a black cover (20) which is arranged on at least one side of the copy carrier (13) and comprises light-absorbing carbon black particles and carrier material. A refractive index difference between the copy carrier (13) and the carrier material at an interface between the black cover (20) and the copy carrier (13) is less than 0.2.

AGENCEMENT DE SUPPORT DE COPIE ET PROCÉDÉ DE PRODUCTION D'HOLOGRAMME

La présente invention concerne un agencement de support de copie qui comporte un support de copie comprenant un matériau photosensible et un couvercle noir (20) qui est disposé sur au moins un côté du support de copie (13) et qui comprend des particules de noir de carbone absorbant la lumière ainsi qu'un matériau de support. Une différence d'indice de réfraction entre le support de copie (13) et le matériau de support au niveau d'une interface entre le couvercle noir (20) et le support de copie (13) est inférieure à 0,2.

CLAIM 1. Copy carrier arrangement, having: a copy carrier (13) which comprises a photosensitive material (31), and a black cover (14A-C; 20) which is arranged on at least one side of the copy carrier (13) and has light-absorbing carbon black particles (42) and carrier material (34; 41), wherein a refractive index difference between the copy carrier (13) and the carrier material (34; 41) at an interface (32) between the black cover (14A-C; 20) and the copy carrier (13) is less than 0.2.



Fig. 2

20 Black cover
13 Copy carrier

N9596

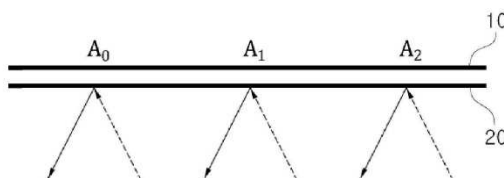
KR20230115729

LG CHEM

Priority Date: 27/01/2022

CURVED HOLOGRAPHIC OPTICAL ELEMENT PLANAR REPLICATION TECHNIQUES

There is provided a method of manufacturing a master holographic optical device including preparing a master holographic optical device in which an interference pattern operating on a curved surface is recorded, disposing the master holographic optical device on one surface of a coating medium including a photopolymer resin in a plane, and irradiating the other surface facing the one surface of the coating medium with reference light which is parallel light incident at a first angle. Wherein the interference pattern of the master holographic optical element is replicated on a medium for coating material by interference of reproduced light diffracted from the master holographic optical element and the irradiated reference light, and a holographic optical element in which an interference pattern operating on the curved surface is replicated according to the method.



CLAIM 1. A method for manufacturing a holographic optical device, comprising: preparing a master holographic optical element having an interference pattern operating on a curved surface recorded thereon; arranging the master holographic optical element on one surface of a coating medium including a photopolymer resin in a plane; and irradiating a parallel light reference light incident at a first angle to the other surface of the coating medium, Wherein the interference pattern of the master holographic optical element is replicated in the covering medium by interference of the irradiated reference light and reproduced light diffracted by the master holographic optical element with the irradiated reference light.

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

N9589

WO2023153129

Priority Date: 14/02/2022

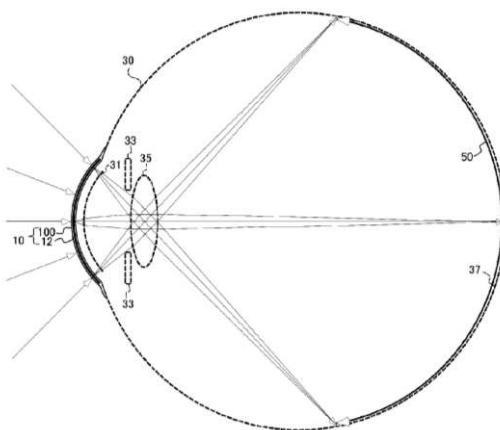
TOKYO UNIVERSITY OF AGRICULTURE & TECHNOLOGY

DISPLAY DEVICE TO BE MOUNTED ON EYEBALL, CONTACT LENS, AND METHOD FOR DRIVING DISPLAY DEVICE

Provided is a display device which is to be mounted on an eyeball and which is provided with: a backlight that emits light which is spatially coherent and which converges in a predetermined area; and a spatial light modulator that forms a hologram pattern and generates a reproduced image corresponding to the hologram pattern by spatially modulating the phase of light entered from the backlight. The backlight and the spatial light modulator may have shapes convexly curved so as to be along the cornea of a user when the display device is mounted onto an eyeball of the user.

DISPOSITIF D’AFFICHAGE DESTINÉ À ÊTRE MONTÉ SUR UN GLOBE OCULAIRE, LENTILLE DE CONTACT ET PROCÉDÉ DE COMMANDE DE DISPOSITIF D’AFFICHAGE

L'invention concerne un dispositif d'affichage qui doit être monté sur un globe oculaire et qui comprend : un rétroéclairage qui émet de la lumière qui est spatialement cohérente et qui converge dans une zone prédéterminée ; et un modulateur spatial de lumière qui forme un motif d'hologramme et génère une image reproduite correspondant au motif d'hologramme par modulation spatiale de la phase de lumière entrée à partir du rétroéclairage. Le rétroéclairage et le modulateur spatial de lumière peuvent avoir des formes incurvées de manière convexe de façon à être le long de la cornée d'un utilisateur lorsque le dispositif d'affichage est monté sur un globe oculaire de l'utilisateur.



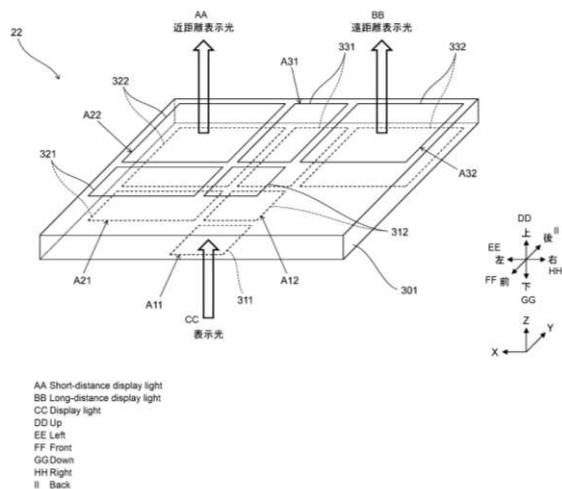
CLAIM 1. An eye-mounted display apparatus comprising: a backlight configured to emit spatially coherent light converging within a predetermined region; and a spatial light modulator configured to form a hologram pattern and spatially modulate a phase of the light incident from the backlight to generate a reproduced image corresponding to the hologram pattern.

IMAGE DISPLAY DEVICE

An image display device according to the present invention comprises: a hologram light-guide plate (22); and a display light generation unit that causes two types of display light of which the polarization directions are different from each other to be incident on an incident region (A11) of the hologram light-guide plate (22). The hologram light-guide plate (22) comprises: a first emission region (A22) that has a hologram (322) formed using a display light in a first polarization direction; a second emission region (A32) that has a hologram (332) formed using a display light in a second polarization direction; and a distribution region (A12) that has a polarization-dependent hologram (312), and that, among the two types of display light incident from the incident region (A11), guides the display light in the first polarization direction to the first emission region (A22) and guides the display light in the second polarization direction to the second emission region (A32).

DISPOSITIF D'AFFICHAGE D'IMAGE

Un dispositif d'affichage d'image selon la présente invention comprend : une plaque de guidage de lumière d'hologramme (22) ; et une unité de génération de lumière d'affichage qui amène deux types de lumière d'affichage dont les directions de polarisation sont différentes l'une de l'autre à être incidentes sur une région incidente (A11) de la plaque de guidage de lumière d'hologramme (22). La plaque de guidage de lumière d'hologramme (22) comprend : une première région d'émission (A22) qui a un hologramme (322) formé à l'aide d'une lumière d'affichage dans une première direction de polarisation ; une seconde région d'émission (A32) qui a un hologramme (332) formé à l'aide d'une lumière d'affichage dans une seconde direction de polarisation ; et une région de distribution (A12) qui a un hologramme dépendant de la polarisation (312), et qui, parmi les deux types de lumière d'affichage incidente à partir de la région incidente (A11), guide la lumière d'affichage dans la première direction de polarisation vers la première région d'émission (A22) et guide la lumière d'affichage dans la seconde direction de polarisation vers la seconde région d'émission (A32).



CLAIM 1. A display device comprising: a hologram light guide plate; and a display light generating unit configured to cause a plurality of types of display light having mutually different states in predetermined optical characteristics to be incident on an incident region of the hologram light guide plate, wherein The display device according to claim 1, wherein the hologram light guide plate includes a first emission region including a hologram that forms an image of a first type of the display light, a second emission region including a hologram that forms an image of a second type of the display light, and A distribution region including a hologram depending on the optical characteristics, the distribution region being configured to guide, among the plurality of types of display light incident from the incident region, the first type of display light to the first emission region and the second type of display light to the second emission region.

N9593

WO2023147023

Priority Date: 27/01/2022

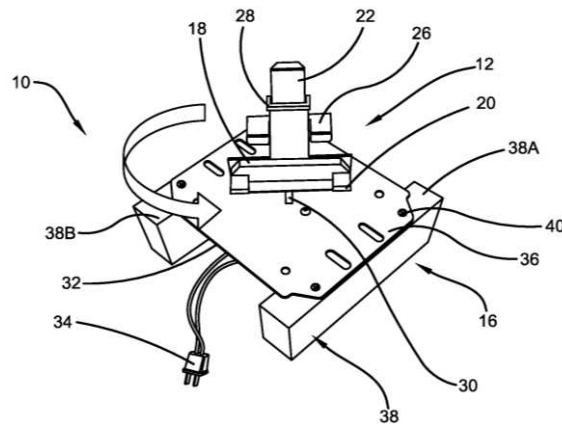
KENT STATE UNIVERSITY

MOBILE HOLOGRAPHIC DISPLAY SYSTEM

A system for displaying a hologram includes a display assembly with a display device, and a motor coupled with the display assembly via a rotating anchor, the motor driving rotation of the display assembly and the display device from a first position to a plurality of positions around a complete rotation of the display assembly and the display device, the display device having a first display when in the first position and different displays when in the plurality of positions, such that the complete rotation of the display device causes the first display and the different displays to form the hologram.

SYSTÈME D'AFFICHAGE HOLOGRAPHIQUE MOBILE

L'invention concerne un système pour afficher un hologramme comprenant un ensemble d'affichage avec un dispositif d'affichage, et un moteur couplé à l'ensemble d'affichage par l'intermédiaire d'un ancrage rotatif, le moteur entraînant la rotation de l'ensemble d'affichage et du dispositif d'affichage d'une première position à une pluralité de positions autour d'une rotation complète de l'ensemble d'affichage et du dispositif d'affichage, le dispositif d'affichage ayant un premier affichage lorsqu'il est dans la première position et différents affichages lorsqu'il est dans la pluralité de positions, de telle sorte que la rotation complète du dispositif d'affichage amène le premier affichage et les différents affichages à former l'hologramme.



CLAIM 1. A system for displaying a hologram, the system comprising a display assembly including a display device; and a motor coupled with the display assembly via a rotating anchor, the motor driving rotation of the display assembly and the display device from a first position to a plurality of positions around a complete rotation of the display assembly and the display device; the display device having a first display when in the first position and different displays when in the plurality of positions, such that the complete rotation of the display device causes the first display and the different displays to form the hologram.

N9594

WO2023144085

Priority Date: 26/01/2022

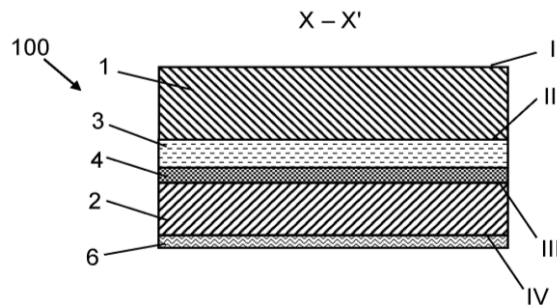
SAINT GOBAIN

COMPOSITE PANE WITH A HOLOGRAM ELEMENT AND ANTI-REFLECTIVE COATING

The invention relates to a composite pane (100), at least comprising an outer pane (1) with an outer-side surface (I) and an interior-side surface (II), an inner pane (2) with an outer-side surface (III) and an interior-side surface (IV), a first intermediate layer (3) and a hologram element (4) with at least one hologram, wherein the first intermediate layer (3) is arranged between the outer pane (1) and the inner pane (2), the hologram element (4) is arranged between the outer pane (1) and the first intermediate layer (3) or between the inner pane (2) and the first intermediate layer, and wherein an anti-reflective coating (6) is arranged on the interior-side surface (IV) of the inner pane (2).

VITRE COMPOSITE DOTÉE D'UN ÉLÉMENT HOLOGRAMME ET D'UN REVÊTEMENT ANTIREFLET

L'invention concerne une vitre composite (100), comprenant au moins une vitre extérieure (1) avec une surface côté extérieur (I) et une surface côté intérieur (II), une vitre intérieure (2) avec une surface côté extérieur (III) et une surface côté intérieur (IV), une première couche intermédiaire (3) et un élément hologramme (4) avec au moins un hologramme, la première couche intermédiaire (3) étant disposée entre la vitre extérieure (1) et la vitre intérieure (2), l'élément hologramme (4) étant disposé entre la vitre extérieure (1) et la première couche intermédiaire (3) ou entre la vitre intérieure (2) et la première couche intermédiaire, et un revêtement antireflet (6) étant disposé sur la surface côté intérieur (IV) de la vitre intérieure (2).



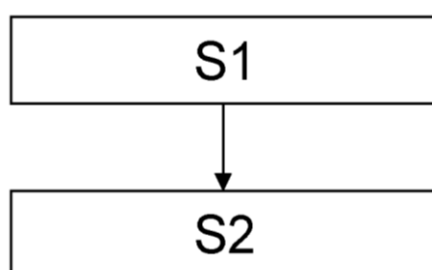
CLAIM 1. Composite pane (100), at least comprising an outer pane (1) having an outer surface (I) and an inner surface (II), an inner pane (2) having an outer surface (III) and an inner surface (IV), a first intermediate layer (3), and a hologram element (4) having at least one hologram, wherein the first intermediate layer (3) is arranged between the outer pane (1) and the inner pane (2), the hologram element (4) is arranged between the outer pane (1) and the first intermediate layer (3) or between the inner pane (2) and the first intermediate layer (3), and wherein an antireflection coating (6) is arranged on the inner room-side surface (IV) of the inner pane (2).

METHOD FOR PRODUCING A COMPOSITE PANE COMPRISING AT LEAST ONE HOLOGRAM

The invention relates to a method for producing a composite pane (100) comprising at least one hologram, said method at least comprising: as a first step (S1), providing a laminated stacking sequence at least comprising an outer pane (1) having an outer surface (I) and an interior-side surface (II), an inner pane (2) having an outer surface (III) and an interior-side surface (IV), a first intermediate layer (3) which is located between the outer pane (1) and the inner pane (2), and a hologram element precursor (4) which is located between the outer pane (1) and the first intermediate layer (3) or between the inner pane (2) and the first intermediate layer (3), the hologram element precursor (4) comprising a holographic material (5), the provision being performed in the absence of ambient light, and an anti-reflection coating (6) being located on the outer surface (I) of the outer pane (1) and/or on the interior-side surface (IV) of the inner pane (2); and, as a second step (S2), recording at least one hologram by exposing the holographic material (5) of the hologram element precursor (4) in the laminated stacking sequence (101) to an object beam and a reference beam in order to obtain a hologram element (7) which comprises the at least one hologram, the recording being performed in the absence of ambient light.

PROCÉDÉ DE FABRICATION DE VITRE COMPOSITE COMPRENANT AU MOINS UN HOLOGRAMME

L'invention concerne un procédé de fabrication de vitre composite (100) comprenant au moins un hologramme, ledit procédé comprenant au moins les étapes suivantes : en tant que première étape (S1), fournir une séquence d'empilement stratifiée comprenant au moins une vitre externe (1) ayant une surface externe (I) et une surface côté intérieur (II), une vitre interne (2) ayant une surface externe (III) et une surface côté intérieur (IV), une première couche intermédiaire (3) qui est située entre la vitre externe (1) et la vitre interne (2), et un précurseur d'élément d'hologramme (4) qui est situé entre la vitre externe (1) et la première couche intermédiaire (3) ou entre la vitre interne (2) et la première couche intermédiaire (3), le précurseur d'élément d'hologramme (4) comprenant un matériau holographique (5), l'étape étant réalisée en l'absence de lumière ambiante, et un revêtement antireflet (6) étant situé sur la surface externe (I) de la vitre externe (1) et/ou sur la surface côté intérieur (IV) de la vitre interne (2) ; et, en tant que deuxième étape (S2), enregistrer au moins un hologramme en exposant le matériau holographique (5) du précurseur d'élément d'hologramme (4) dans la séquence d'empilement stratifiée (101) à un faisceau d'objet et à un faisceau de référence afin d'obtenir un élément d'hologramme (7) qui comprend le ou les hologrammes, l'enregistrement étant effectué en l'absence de lumière ambiante.



CLAIM 1. Method for producing a composite pane (100) having at least one hologram, at least comprising the following steps: a) providing a laminated stack sequence (101), at least comprising an outer pane (1) having an outer surface (I) and an inner surface (II), an inner pane (2) having an outer surface (III) and an inner room-side surface (IV), a first intermediate layer (3) arranged between the outer pane (1) and the inner pane (2), and a hologram element precursor (4) arranged between the outer pane (1) and the first intermediate layer (3) or between the inner pane (2) and the first intermediate layer (3), wherein the hologram element precursor (4) comprises a holographic material (5), the provision is carried out in the absence of ambient light, and wherein an antireflection coating (6) is arranged on the outer surface (I) of the outer pane (1) and/or on the inner room-side surface (IV) of the inner pane (2), b) recording at least one hologram by exposing the holographic material (5) of the hologram element precursor (4) in the laminated stack sequence (101) to an object beam and a reference beam to obtain a hologram element (7) comprising the at least one hologram, wherein the recording is performed in the absence of ambient light.

N9597

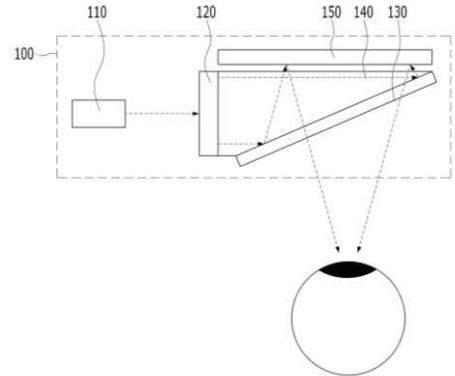
KR20230114741
Priority Date: 19/07/2023

LG DISPLAY | SEOUL NATIONAL UNIVERSITY R&DB FOUNDATION

HOLOGRAPHIC DISPLAY DEVICE

The present invention relates to a holographic display device including a spatial light modulator for implementing a stereoscopic image. the holographic display device simplifies an overall structure by generating a surface light source using a holographic optical element outputting light according to an interference pattern according to a specific reproduction condition and converging an output of the spatial light modulator to an eye of a user.

CLAIM 1. A holographic optical device comprising: a light source unit configured to output rectilinear light; a first holographic optical element positioned on a path of the rectilinear light and including a first interference pattern configured to output the rectilinear light in a form of a surface light source; a second holographic optical element positioned obliquely on an output path of the first holographic optical element, A second hologram optical element including a second interference pattern to output input light to converge at points spaced apart from each other by a predetermined distance; and a spatial light modulator disposed on an output path of the second hologram optical element, Wherein the first hologram optical element and the second hologram optical element have a flat plate shape, wherein the second hologram optical element is positioned between a user and the spatial light modulator such that a virtual image implemented by the spatial light modulator passes through the second hologram optical element and is provided to the user, And the reproduction condition of the second interference pattern is the surface light source output by the first interference pattern, so that the virtual image implemented by the spatial light modulator is not distorted by the second holographic optical element.



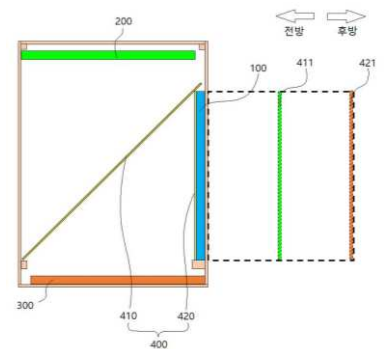
N9600

KR102562505
Priority Date: 13/09/2022

K HOLO

A HOLOGRAM-BASED TRIPLE IMAGE PLAYBACK SYSTEM THAT ADDS THREE-DIMENSIONAL EFFECT AND VITALITY

A triple image reproduction system based on a hologram added with stereoscopic and lifestyle includes: a main display configured to output an effect image; first and second monitors provided to face each other toward a front of the main display from upper and lower portions of the main display, respectively, and configured to output first and second images; And a hologram mirror including a first mirror obliquely disposed in front of the main display that is a space between the first and second monitors facing each other, and a second mirror stacked on a front surface of the main display to project the first and second images as first and second hologram images onto first and second regions located behind the main display, respectively. According to the triple image reproduction system based on a hologram added with stereoscopic and vital sensations, an effect image and a first and second hologram images are overlapped and output at different arrangement positions, thereby adding perspective and spatial sensations to the image, and simultaneously further providing vital sensations through the first and second hologram images.



CLAIM 1. A triple image reproduction system based on a hologram added with stereoscopic and lifestyle, the system comprising: a main display that outputs an effect image; first and second monitors that are respectively provided so as to face each other toward a front of the main display at upper and lower sides of the main display and output first and second images, respectively; A first mirror obliquely disposed in front of the main display which is a space between the first and second monitors facing each other; and a second mirror stacked on a front surface of the main display, Projecting the first and second images as first and second hologram images on first and second regions located behind the main display through the first and second mirrors, respectively, a resin film made of polyethylene terephthalate (pet), an optical film adhered to an upper surface of the resin film and made of pet in which a metal is thin film-deposited, and a hard coating layer adhered to an upper surface of the optical film and including 10 to 50 parts by weight of a polysilazane and 1 to 10 parts by weight of a reflection enhancer, The reflection enhancer is prepared by mixing 10 to 25 parts by weight of titanium dioxide, 5 to 15 parts by weight of tetraethoxyorthosilane (teos) and 50 to 70 parts by weight of allyltrimethoxysilane; Mixing 85 to 95 parts by weight of the first solution with 3 to 10 parts by weight of Dicalcium Phosphate Dihydrate and 2 to 5 parts by weight of Karaya gum to prepare a second solution; Mixing 90 to 98 parts by weight of the second solution, 1 to 5 parts by weight of 1,2-hexanediol, and 1 to 10 parts by weight of a physical property maintaining agent containing an acid sphere extract to complete the reflection enhancer.

N9601

JP2023114496

Priority Date: 07/02/2022

NIPPON HOSO KYOKAI

HOLOGRAM DATA GENERATING APPARATUS, ELECTROHOLOGRAPHIC DISPLAY APPARATUS, AND PROGRAMS THEREOF

TOPIC: To provide a hologram data generation apparatus capable of generating hologram data having a reduced amount of information. INVENTION: a hologram data generation apparatus 1 includes a phase addition unit 10 configured to add a phase to subject data to generate a complex amplitude distribution, a propagation calculation unit 11 configured to calculate the complex amplitude distribution of a hologram surface by propagation calculation, A hologram data calculating unit 12 configured to calculate hologram data from a complex amplitude distribution of a hologram surface and a complex amplitude distribution of reference light; and hologram data thinning unit 13 configured to thin out data of preset defective pixel positions from the hologram data calculated by the hologram data calculating unit 12.

CLAIM 1. A hologram data generation apparatus configured to generate hologram data in which a part of pixels is missing from subject data that is three-dimensional data, the apparatus comprising: a phase addition unit configured to add a phase to the subject data to generate a complex amplitude distribution; a propagation calculation unit configured to calculate, by propagation calculation, a complex amplitude distribution of a hologram surface from the complex amplitude distribution of the subject data; A hologram data calculating unit configured to calculate hologram data from a complex amplitude distribution of the hologram surface and a complex amplitude distribution of reference light; and a hologram data thinning unit configured to thin out data at preset defective pixel positions from the hologram data calculated by the hologram data calculating unit.

N9603

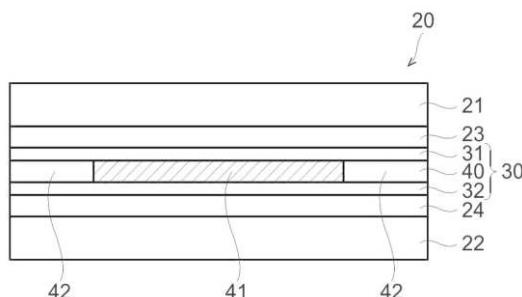
JP2023110743

Priority Date: 28/01/2022

DAI NIPPON PRINTING

HOLOGRAM SHEET, COMBINER, HEADS-UP DISPLAY, MOVING BODY, AND METHOD FOR MANUFACTURING HOLOGRAM SHEET

TOPIC: To bring a hologram layer close to colorless. INVENTION: a hologram sheet 30 includes a hologram layer 40. The hologram layer 40 includes a first portion 41 in which interference fringes are recorded. In the first portion 41, the diffraction efficiency of light having a wavelength of not less than 420 nm and not greater than 490 nm is lower than the diffraction efficiency of light having a wavelength of not less than 600 nm and not greater than 780 nm, and is lower than the diffraction efficiency of light having a wavelength of not less than 500 nm and not greater than 570 nm.



CLAIM 1. A hologram sheet comprising: a hologram layer, wherein the hologram layer includes a first portion in which interference fringes are recorded, and in the first portion, diffraction efficiency of light having a wavelength of 420 nm or greater and 490 nm or less is lower than diffraction efficiency of light having a wavelength of 600 nm or greater and 780 nm or less, and lower than diffraction efficiency of light having a wavelength of 500 nm or greater and 570 nm or less.

N9604

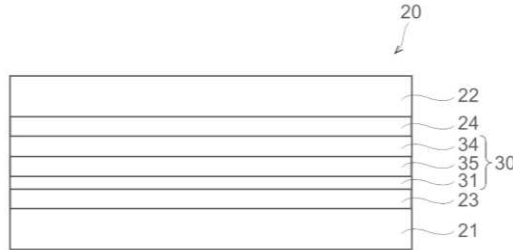
JP2023104672

Priority Date: 18/01/2022

DAI NIPPON PRINTING

COMBINER, HEADS-UP DISPLAY, MOVING BODY, AND METHOD FOR MANUFACTURING COMBINER

TOPIC: To impart a heat shielding function to a combiner while suppressing a thickness of the combiner. INVENTION: a combiner 20 is used in a heads-up display 10. The combiner 20 includes a first substrate 21, a second substrate 22, and a hologram sheet 30. The hologram sheet 30 is disposed between the first substrate 21 and the second substrate 22. The hologram sheet 30 includes a hologram layer 35 and a heat shielding layer 34. The heat shielding layer 34 is overlapped with the hologram layer 35. The heat shielding layer 34 reflects or absorbs infrared light.



CLAIM 1. A combiner for a heads-up display, comprising: a first substrate; a second substrate; and a hologram sheet disposed between the first substrate and the second substrate, wherein the hologram sheet includes a hologram layer and a heat shielding layer overlapping the hologram layer, and the heat shielding layer reflects or absorbs infrared light.

N9605

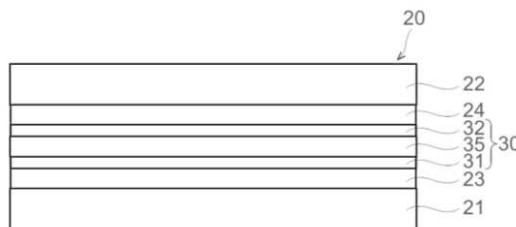
JP2023104663

Priority Date: 18/01/2022

DAI NIPPON PRINTING

HEADS-UP DISPLAY, MOVING BODY, COMBINER

TOPIC: To suppress the occurrence of rainbow unevenness. INVENTION: a heads-up display 10 includes a projector 11 and a combiner 20. The projector 11 projects linearly polarized light onto the combiner 20. The combiner 20 includes a hologram sheet 30. The hologram sheet 30 includes a first resin layer 31 and a hologram layer 35. The first resin layer 31 is provided closer to a position where light is projected from the projector 11 than the hologram layer 35. The smaller of the angles formed by the slow axis direction of the first resin layer 31 and the polarization direction of the linearly polarized light of the light projected on the combiner 20 by the projector 11 is 30 ° or less or 60 ° or more.



CLAIM 1. A display device comprising: a combiner; and a projector configured to project linearly polarized light onto the combiner, wherein the combiner includes a hologram sheet, and the hologram sheet includes a hologram layer, a first resin layer provided closer to a position where light is projected from the projector than the hologram layer, Wherein the smaller of the angles formed by the slow axis direction of the first resin layer and the polarization direction of the linearly polarized light of the light projected on the combiner by the projector is 30 ° or less or 60 ° or more.

N9606

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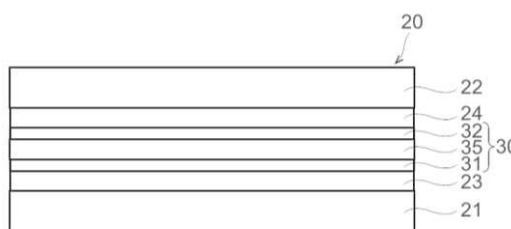
Priority Date: 18/01/2022

DAI NIPPON PRINTING

HEADS-UP DISPLAY, MOVING BODY

TOPIC: To suppress the occurrence of rainbow unevenness in a combiner. INVENTION: a heads-up display 10 includes a projector 11 and a combiner 20. The projector 11 projects light such that the light incident on the combiner 20 is P polarized light. The combiner 20 includes a hologram sheet 30. The hologram sheet 30 includes a first resin layer 31 and a hologram layer 35. The first resin layer 31 is provided closer to a position where light is projected from the projector 11 than the hologram layer 35. The smaller of the angles formed by the slow axis direction of the first resin layer 31 and the polarization direction of the light projected on the combiner 20 by the projector 11 is not less than 30 ° and not more than 60 °. The phase difference R1 [nm] of the first resin layer 31 with respect to the average wavelength λ [nm] of the light projected by the projector 11 satisfies the following relationship (A), where n is a natural number. $(n-0.3) \times \lambda/2 \leq R1 \leq (n+0.3) \times \lambda/2$. (A)

CLAIM 1. A display device comprising: a combiner; and a projector configured to project light such that the light incident on the combiner is P polarized light, wherein the combiner includes a hologram sheet, and the hologram sheet includes a hologram layer and a first resin layer provided closer to a position where the light is projected from the projector than the hologram layer, A smaller angle of angles formed by the slow axis direction of the first resin layer and the polarization direction of the light projected onto the combiner by the projector is 30 ° or greater and 60 ° or less, and a phase difference R1 [nm] of the first resin layer with respect to an average wavelength λ [nm] of the light projected by the projector satisfies the following relationship (A), where n is a natural number. $(n-0.3) \times \lambda/2 \leq R1 \leq (n+0.3) \times \lambda/2$ (A)



N9607

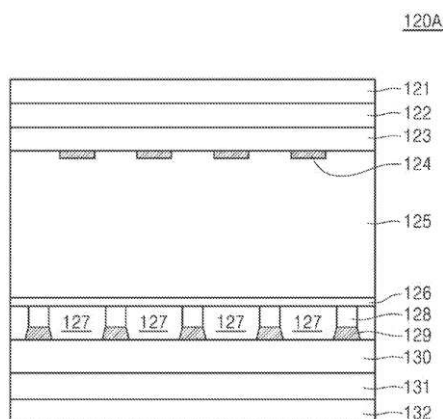
EP4224256

Priority Date: 04/02/2022

KOREA UNIVERSITY RESEARCH & BUSINESS FOUNDATION SEJONG CAMPUS | SAMSUNG ELECTRONICS | UNIVERSITY KOREA RESEARCH BUSINESS FOUNDATION SEJONG CAMPUS

COMPLEX LIGHT MODULATOR, HOLOGRAPHIC DISPLAY DEVICE, AND SEE-THROUGH DISPLAY DEVICE

A complex light modulator including a first polarization plate, a second polarization plate provided, an amplitude modulator provided between the first polarization plate and the second polarization plate, a phase modulator provided between the amplitude modulator and the second polarization plate, and color filters provided between the amplitude modulator and the phase modulator.



CLAIM 1. A complex light modulator comprising: a first polarization plate; a second polarization plate; an amplitude modulator provided between the first polarization plate and the second polarization plate; a phase modulator provided between the amplitude modulator and the second polarization plate; and color filters provided between the amplitude modulator and the phase modulator.

N9608

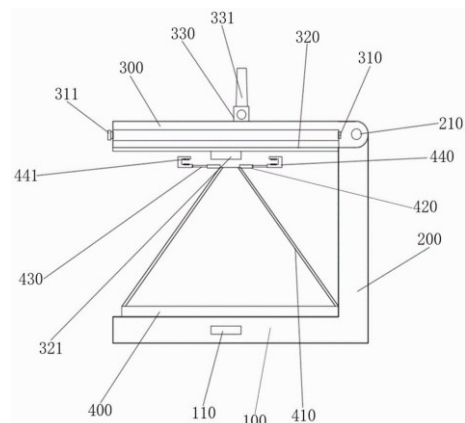
CN219574611U

Priority Date: 30/03/2023

SICHUAN TOURISM UNIVERSITY

PORTABLE HOLOGRAPHIC PROJECTION EQUIPMENT

The utility model relates to the technical field of projection equipment, in particular to portable holographic projection equipment, which comprises an L-shaped base formed by a transverse plate and a vertical plate, wherein a top plate is hinged to one side, close to the transverse plate, of the top end of the vertical plate, a bottom plate is arranged in the middle of the transverse plate, a projection assembly is arranged on the bottom plate, and a fixing bracket for fixing an external terminal is arranged at the top of the projection assembly; the fixed bolster is including installing at projection assembly top dead lever all around, fixed connection between the one end of dead lever and the projection assembly, and the other end of dead lever is equipped with the draw-in groove through the elasticity telescopic link. The projection equipment is used for solving the technical problems that the existing projection equipment is inconvenient to carry out and the external terminal is inconvenient to fix, detach and replace.



CLAIM 1. The portable holographic projection equipment comprises an L-shaped base formed by a transverse plate and a vertical plate, and is characterized in that a top plate is hinged to one side, close to the transverse plate, of the top end of the vertical plate, a bottom plate is arranged in the middle of the transverse plate, a projection assembly is mounted on the bottom plate, and a fixing bracket for fixing an external terminal is arranged at the top of the projection assembly; the fixed bolster is including installing at projection assembly top dead lever all around, fixed connection between the one end of dead lever and the projection assembly, and the other end of dead lever is equipped with the draw-in groove through the elasticity telescopic link.

N9609

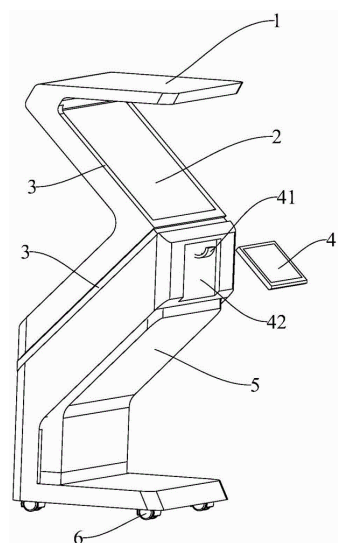
CN219574610U

Priority Date: 29/07/2022

SHENZHEN JIAERXING TECHNOLOGY | SHENZHEN TECHNOLOGY UNIVERSITY

HOLOGRAPHIC PROJECTION DISPLAY CABINET WITH CONTROL PANEL CAPABLE OF BEING STORED

The utility model relates to the technical field of display cabinets, in particular to a holographic projection display cabinet with a storable control panel, which comprises a projection unit, a display unit, a control unit and a machine body, wherein the projection unit, the display unit and the control unit are arranged on the machine body, the machine body is provided with a groove for accommodating the control unit, the control unit is positioned in the groove, and the control unit is connected with the machine body through a connecting piece. The control panel of the holographic projection display cabinet is arranged on the machine body and can be stored, so that the control panel can be stored and progressed in the cabinet body during transportation of the display cabinet, the protruding part of the machine body is reduced, the collision risk of the machine body is reduced, and the control panel can be protected. In addition, setting up decorative lamp such as atmosphere lamp around the projection screen, can make atmosphere lamp and the commodity of show mutually correspond, play supplementary effect of show, make the bandwagon effect better, improve customer's purchasing desire.



CLAIM 1. The utility model provides a holographic projection show cupboard that control panel can accommodate, includes projection unit, show unit, control unit and organism, projection unit show unit with control unit sets up on the organism, its characterized in that, the organism is provided with the holding control unit's recess, control unit is located in the recess, control unit with the organism passes through the connecting piece and connects.

N9610

CN219552841U

Priority Date: 16/05/2023

HEFEI YANJIA TECHNOLOGY

HOLOGRAPHIC INTERACTIVE IMAGE DISPLAY DEVICE

The utility model relates to the technical field of image display, and provides a holographic interactive image display device, which comprises: the stereoscopic display device comprises an installation component, wherein a stereoscopic display component for stereoscopic display of images is movably connected to the upper portion of the installation component, a top wall used with the stereoscopic display component is fixedly installed on the upper portion of the stereoscopic display component, a holographic image device used for projecting images is fixedly installed below the top wall, and an arc display component used for arc display of images is movably connected to the upper portion of the installation component. Through the top swing joint three-dimensional show wall and arc show wall at the background wall mounting bracket to reach and increase this holographic interactive image display device service function, convenient visitor watches image content more. Through above-mentioned technical scheme, solved among the prior art and used the three-dimensional show of image, lead to display device to use single problem.

CLAIM 1. The holographic interactive image display device is characterized by comprising a mounting assembly, wherein a three-dimensional display assembly is movably connected above the mounting assembly, a top wall (3) is fixedly arranged above the three-dimensional display assembly, a holographic image device (4) is fixedly arranged below the top wall (3), and an arc-shaped display assembly is movably connected above the mounting assembly; the arcuate display assembly includes: the movable mounting is in arc show wall (5) of installation component top, the below swing joint of arc show wall (5) has base (505), the below fixed mounting of base (505) has telescopic column (506), the below swing joint of telescopic column (506) has fixed column (509), the below fixed mounting of fixed column (509) has mount pad (510).

N9611

CN219552808U

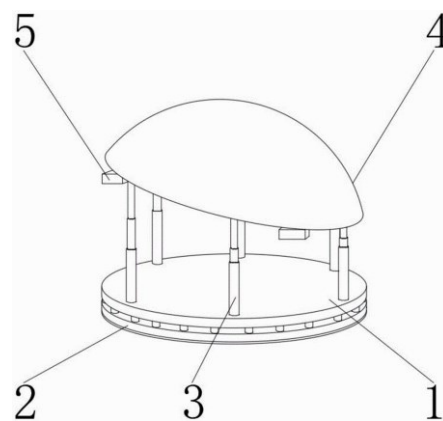
Priority Date: 10/03/2023

SHENZHEN MOXIU CULTURE TECHNOLOGY

SPHERICAL SCREEN HOLOGRAPHIC PROJECTION STAGE

The utility model discloses a spherical screen holographic projection stage, which relates to the field of spherical screen holographic projection and comprises a stage bottom plate, wherein a compression-resistant base is arranged on the outer surface of one end of the stage bottom plate, a lifting hydraulic cylinder is arranged on the outer surface of the other end of the stage bottom plate, a spherical screen shell is arranged on the outer surface of one end of the lifting hydraulic cylinder, a projector is arranged on the outer surface of one end of the spherical screen shell, an anti-slip bottom plate is arranged on the outer surface of one end of the compression-resistant base, and a compression-resistant rubber column is arranged on the outer surface of the other end of the compression-resistant base. According to the spherical screen holographic projection stage, the anti-compression base can play an anti-vibration and anti-compression effect on the stage bottom plate through the anti-compression rubber column when the spherical screen holographic projection stage is used, the anti-slip bottom plate can play an anti-slip effect when the spherical screen holographic projection stage is used, the stability of the stage bottom plate can be guaranteed, the influence of vibration on projection is reduced, the sound insulation effect of the spherical screen shell can be improved when the honeycomb foam plate and the sound insulation cotton plate are used, and the effect of noise on projection playing can be reduced when projection is carried out.

CLAIM 1. The utility model provides a ball curtain holographic projection stage, includes stage bottom plate (1), its characterized in that: the utility model discloses a stage bottom plate, including stage bottom plate (1), ball curtain casing (4), projecting apparatus (5), anti-skidding bottom plate (6), anti-compression base (2), ball curtain casing (4) and honeycomb foam board (8) are equipped with to the one end surface of stage bottom plate (1), the other end surface of stage bottom plate (1) is equipped with lift pneumatic cylinder (3), the one end surface of lift pneumatic cylinder (3) is equipped with ball curtain casing (4), the one end surface of ball curtain casing (4) is equipped with projecting apparatus (5), the one end surface of anti-compression base (2) is equipped with anti-skidding bottom plate (6), the other end surface of anti-compression base (2) is equipped with anti-compression glue post (7), the inner wall of ball curtain casing (4) is equipped with honeycomb foam board (8), the one end surface of honeycomb foam board (8) is equipped with soundproof cotton board (9), the one end surface of soundproof cotton board (9) is equipped with projection panel (10).



N9612

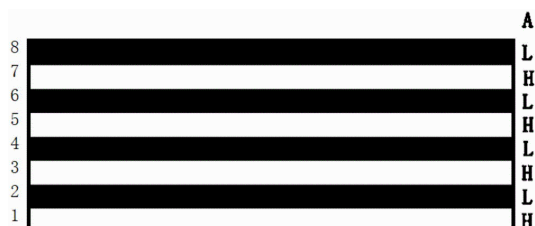
CN219533431U

Priority Date: 23/02/2023

4U TECHNOLOGY

OPTICAL FILM, BASE GLASS, AND PSEUDO-HOLOGRAM PROJECTION SYSTEM

The utility model provides an optical film, base glass and a pseudo-holographic projection system. The optical film is used for being arranged on the base glass, and comprises a plurality of optical material layers, wherein the refractive index of the optical material layer of an odd-numbered layer in the plurality of optical material layers is larger than that of the optical material layer of an even-numbered layer in the direction from the base glass to an air interface. The utility model solves the technical problem that the holographic image is distorted or not clear enough due to double-image ghosting in the related technology.



CLAIM 1. An optical film for placement on a base glass, the optical film comprising a plurality of layers of optical material, wherein the refractive index of the odd-numbered layers of the layers of optical material is greater than the refractive index of the even-numbered layers of the layers of optical material in the direction from the base glass to an air interface.

N9613

CN219512519U

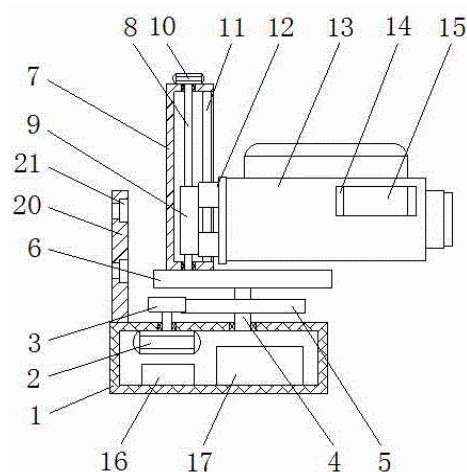
Priority Date: 24/12/2022

LIU QIAN

HOLOGRAPHIC PROJECTION IMAGING EQUIPMENT WITH GOOD DISPLAY EFFECT

The utility model discloses holographic projection imaging equipment with good display effect, which comprises a box body, wherein a first motor is fixedly connected to the left side of the top of an inner cavity of the box body, a first gear is fixedly connected to the output end of the first motor, a rotating rod is movably connected to the top of the box body through a bearing, and a second gear is sleeved on the surface of the rotating rod. According to the utility model, through the matching of the box body, the first motor, the first gear, the rotating rod, the second gear, the transverse plate, the shell, the threaded rod, the threaded sleeve, the second motor, the sliding rod, the sliding sleeve and the projection equipment body, the advantages of having the functions of height adjustment and horizontal angle adjustment are realized, and the problems that the conventional holographic projection imaging equipment has some problems in use, such as no functions of height adjustment and horizontal angle adjustment, can not accurately project images at designated positions, reduces the display effect of the holographic projection imaging equipment and can not meet the current market demands are solved.

CLAIM 1. Holographic projection imaging equipment that bandwagon effect is good, including box (1), its characterized in that: the utility model discloses a projection equipment, including box (1), box, casing, threaded rod (8), bearing swing joint has first gear (3) in the left side fixedly connected with at box (1) inner chamber top, the top of box (1) is through bearing swing joint has dwang (4), the surface cover of dwang (4) is equipped with second gear (5), second gear (5) and first gear (3) mesh mutually, the top fixedly connected with diaphragm (6) at dwang (4), the left side fixedly connected with casing (7) at diaphragm (6) top, the inner wall of casing (7) is through bearing swing joint threaded rod (8), the surface threaded connection of threaded rod (8) has thread bush (9), the top fixedly connected with second motor (10) of casing (7), the output of second motor (10) and the top fixedly connected with of threaded rod (8), the inner wall fixedly connected with sliding sleeve (11) of casing (7), the surface cover of sliding rod (11) is equipped with sliding sleeve (12), the left side fixedly connected with sliding sleeve (12) and sliding rod (13) on the side of sliding rod (12).



N9614

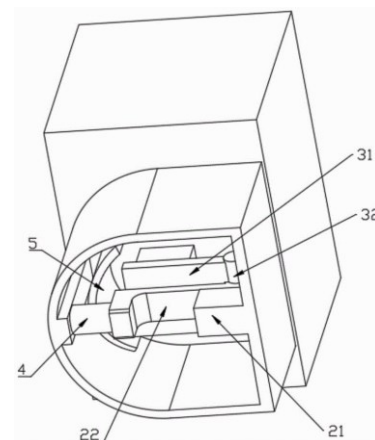
CN219496897U

Priority Date: 13/03/2023

XIAMEN OCEAN VOCATIONAL COLLEGE

DYNAMIC HOLOGRAPHIC DISPLAY DEVICE

The utility model discloses a dynamic holographic display device, which belongs to the technical field of holography, and comprises a holographic display and a rotary driving device, wherein the holographic display is fixed at a power output end of the rotary driving device so as to drive the holographic display to rotate; an arc-shaped plate is fixedly arranged on one side of the power output end of the rotary driving device, the arc-shaped plate and the rotary axis of the rotary driving device are coaxially arranged, an arc-shaped guide edge is arranged at the bottom of the arc-shaped plate, and the heights of the arc-shaped guide edge from the middle to the two sides are gradually increased; the rotary drive device is characterized in that a mounting base is arranged below the arc-shaped plate, the other side of the rotary drive device is rotationally connected to the mounting base through a hinge, a limiting roller is further arranged on the mounting base, and the axis of the limiting rod is perpendicular to the rotating shaft of the hinge. The holographic display can drive the curved plate to perform pitching motion simultaneously when rotating.



CLAIM 1. A dynamic holographic display, characterized by: the holographic display device comprises a holographic display and a rotary driving device, wherein the holographic display is fixed at the power output end of the rotary driving device so as to drive the holographic display to rotate; an arc-shaped plate is fixedly arranged on one side of the power output end of the rotary driving device, the arc-shaped plate and the rotary axis of the rotary driving device are coaxially arranged, an arc-shaped guide edge is arranged at the bottom of the arc-shaped plate, and the heights of the arc-shaped guide edge from the middle to the two sides are gradually increased; the rotary drive device is characterized in that a mounting base is arranged below the arc-shaped plate, the other side of the rotary drive device is rotationally connected to the mounting base through a hinge, a limiting roller is further arranged on the mounting base, and the axis of the limiting roller is perpendicular to the rotating shaft of the hinge.

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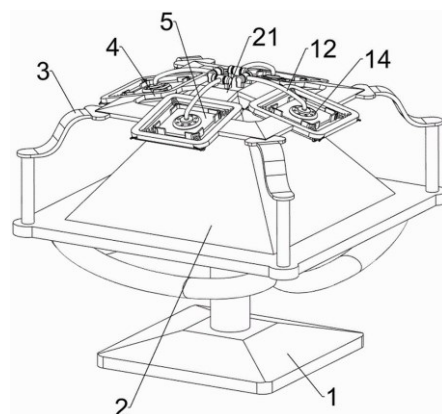
Priority Date: 11/04/2023

ZHONGSHU DIGITAL ENGINEERING SHENZHEN

HOLOGRAPHIC PROJECTION SHOWCASE

The utility model relates to a display cabinet, in particular to a holographic projection display cabinet. The utility model provides a holographic projection display cabinet, which comprises a supporting seat, a prismatic glass plate, a mounting plate, a fixing frame, a mounting frame, a pressing block and the like; the fixing frames are symmetrically arranged on four corners of the supporting seat, the mounting plates are jointly arranged on the fixing frames, the prismatic glass plates are arranged on the supporting seat, the prismatic glass plates are located between the supporting seat and the mounting plates, the mounting frames are respectively arranged on four sides of the mounting plates, and the pressing blocks are symmetrically arranged in the mounting frames through springs. The connecting rod is pulled upwards, the connecting rod rotates upwards along the fixed block, the sucking disc is driven to separate from the projection screen and move towards the direction away from the projection screen, after the connecting rod stops rotating, the connecting rod is stabilized on the fixed block under the action of the torsion spring, at the moment, the pressing block is pushed towards the direction close to the installation frame, the pressing block extrudes the spring for compression, the projector can be easily taken down, and the effect of conveniently disassembling and replacing the projector is achieved.

CLAIM 1. The utility model provides a holographic projection show cupboard, including supporting seat (1), prismatic glass board (2), mounting panel (21) and mount (3), mount (3) are installed to four corners symmetry ground on supporting seat (1), install mounting panel (21) jointly on mount (3), install prismatic glass board (2) on supporting seat (1), prismatic glass board (2) are located between supporting seat (1) and mounting panel (21), a serial communication port, still including installing frame (4), projection screen (5), spring (6) and briquetting (7), installing frame (4) are all installed to four sides of mounting panel (21), install briquetting (7) through spring (6) four corners symmetry ground in installing frame (4), briquetting (7) centre gripping have projection screen (5) jointly.



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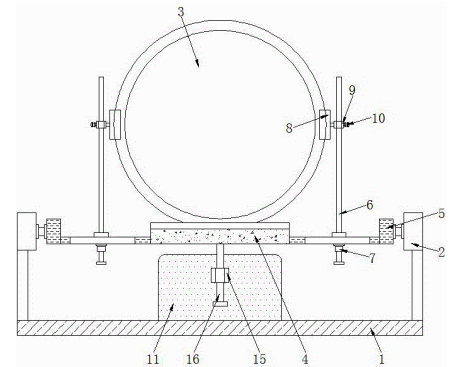
Priority Date: 17/02/2023

SOOCHOW UNIVERSITY

HOLOGRAPHIC WAVEGUIDE LENS DISPLAY DEVICE

The utility model discloses a holographic waveguide lens display device which comprises a bottom plate, fixing columns and a base, wherein the bottom plate is directly arranged on a desktop, the fixing columns are fixedly connected to the left side and the right side of the upper end of the bottom plate, the holographic waveguide lens body is arranged above the bottom plate, the base is connected with the holographic waveguide lens body in a clamping groove mode, fixing clamping blocks are symmetrically arranged at the left end and the right end of the holographic waveguide lens body, the fixing clamping blocks are used for clamping and limiting the holographic waveguide lens body, and an adjusting mechanism is arranged in the middle of the bottom plate. This holographic waveguide lens display device is convenient for carry out centre gripping installation and fixed to not unidimensional holographic waveguide lens body, prevents that holographic waveguide lens body from taking place to drop in the use, combines adjustment mechanism's setting, drives and rotates between fixed plate and the fixed column, is convenient for adjust the display angle of holographic waveguide lens body.

CLAIM 1. A holographic waveguide lens display device comprises a bottom plate (1) directly arranged on a desktop, fixing columns (2) fixedly connected to the left side and the right side of the upper end of the bottom plate (1), and a holographic waveguide lens body (3) arranged above the bottom plate (1); characterized by further comprising: the base (4) is connected with the holographic waveguide lens body (3) in a clamping groove mode, and the base (4) is used for supporting the holographic waveguide lens body (3); the fixing clamping blocks (8) are symmetrically arranged at the left end and the right end of the holographic waveguide lens body (3), the fixing clamping blocks (8) are used for clamping and limiting the holographic waveguide lens body (3), and the holographic waveguide lens body (3) forms a dismounting structure at the upper end of the base (4) through the fixing clamping blocks (8); the adjusting mechanism (12) is arranged in the middle of the bottom plate (1), and the adjusting mechanism (12) drives the holographic waveguide lens body (3) to form a turnover structure at the upper end of the bottom plate (1).



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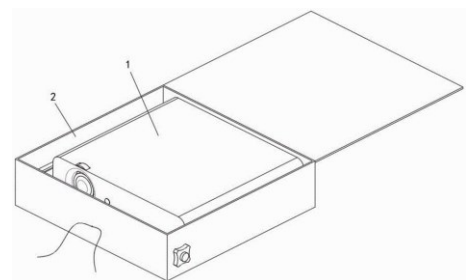
CN219435203U

Priority Date: 22/04/2023

ZHEJIANG XINHEFENG MEDIA TECHNOLOGY

IMMERSIVE LIVE-ACTION LIGHT AND SHADOW PLAY HOLOGRAPHIC DEVICE WITH FOLDING EFFECT

The utility model relates to the field of holographic projectors and discloses an immersive live-action light and shadow play holographic device with a folding effect, which comprises a holographic projection body, wherein a placement box is arranged on the outer side of the holographic projection body, one side in the placement box is rotationally connected with a connecting rod, one side of the connecting rod penetrates through the placement box, a fixed rotating cover is connected on the connecting rod positioned on the outer side of the placement box in a threaded manner, a first connecting plate is fixedly connected on the connecting rod, and a second connecting plate is connected on the first connecting plate in a sliding manner; this kind of novel immersive live-action light shadow play holographic device that is applied to have folding effect places the box through setting up, and the holographic projection body can fold to place and place the box in setting up, and is more convenient in carrying and use, and the operation is got up and is through screwing up with unscrewing fixed revolving cover, fixed button and adjusting knob can be realized holographic projection body's upper and lower altitude mixture control and upper and lower angular adjustment, and the practicality is stronger, and the operation is more convenient and fast.



CLAIM 1. The utility model provides an immersive live-action light shadow holographic device with folding effect, includes holographic projection body (1), its characterized in that, the outside of holographic projection body (1) is provided with places box (2), one side rotation in placing box (2) is connected with connecting rod (4), one side of connecting rod (4) runs through and places box (2), and is located on connecting rod (4) in placing box (2) outside threaded connection has fixed revolving cover (5), fixedly connected with first connecting plate (6) on connecting rod (4), sliding connection has second connecting plate (8) on first connecting plate (6), the upper end outside threaded connection of first connecting plate (6) has fixed knob (7), and fixed knob (7) and second connecting plate (8) offset setting, the both sides threaded connection of holographic projection body (1) has adjusting knob (9), the upper end and the adjusting knob (9) cover of second connecting plate (8) establish the setting.

N9619

CN116634126

Priority Date: 10/05/2023

SHENZHEN SHIDAI TECHNOLOGY GROUP

5D HOLOGRAPHIC PROJECTION CONTROL SYSTEM BASED ON BANQUET HALL

The application discloses a 5D holographic projection control system based on a banquet hall, which relates to the technical field of holographic projection, and solves the technical problems that in the specific implementation process of the holographic projection control system, although holographic projection is in a dynamic projection state, the projection area cannot be changed, so that the interaction between the projection area and personnel is caused.

CLAIM 1. The 5D holographic projection control system based on the banquet hall is characterized by comprising an area image acquisition end and a main control center; the main control center comprises an area image analysis unit, a station storage unit, a real-time image monitoring unit, a projection adjusting unit, a light intensity adjusting unit and a main control unit; the regional image acquisition end is used for acquiring the display regional image of the banquet hall and transmitting the acquired display regional image into the main control center; the regional image analysis unit is used for analyzing the acquired display regional image, predetermining the central point of the display region, dividing the display region according to the determined central point, and transmitting the divided station layout to the station storage unit for storage; the real-time image monitoring unit monitors the image of the display area in real time, and according to the image monitored in real time, the personnel station area is determined in advance, and then the projection area is determined; the projection adjusting unit is used for receiving the projection signal, acquiring and confirming the real-time monitoring image according to the projection signal, confirming the change of the personnel station from the real-time monitoring image, and adjusting the projection area station of the holographic projection according to the change of the personnel station; the light intensity adjusting unit receives the projection signals, confirms the real-time monitoring image of the period according to the received projection signals, adjusts the projection light intensity according to the illumination intensity of different projection areas, generates an adjustment data packet and transmits the adjustment data packet to the main control unit.

N9622

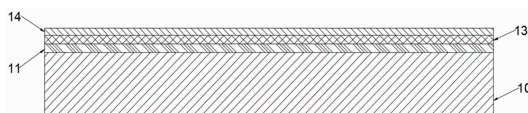
CN116626979

Priority Date: 24/05/2023

SHENZHEN SHENKUN TECHNOLOGY

GRAY NANOCRYSTAL IMAGING LAYER, HIGH-DEFINITION HIGH-TRANSPARENCY HOLOGRAPHIC IMAGE FILM AND PREPARATION METHOD

The invention discloses a gray nanocrystal imaging layer, a high-definition high-transparency holographic imaging film and a preparation method. The high-definition high-transparency holographic image film comprises: a transparent base layer, a transparent adhesive layer and a gray nanocrystal imaging layer. The gray nanocrystal imaging layer comprises: a nanocrystalline structure layer having a thickness of 50-100nm, and a rare earth material layer having a thickness of 25-50nm attached to the nanocrystalline structure layer; the nanocrystal structure layer is composed of: polystyrene nano particles with the particle size less than or equal to 15nm, titanium dioxide nano particles with the particle size less than or equal to 15nm and transparent resin; the rare earth material layer is a nano rare earth oxide-nano silver composite material layer, the particle size of the nano rare earth oxide is 7-15nm, and the particle size of the nano silver is less than or equal to 7nm. The high-definition high-transparency holographic image film obtained by the invention has the advantages of simple structure, low difficulty in the manufacturing process, great reduction in the production and manufacturing cost, effective improvement of the competitiveness of the product and convenient popularization and application.



CLAIM 1. A gray nanocrystal imaging layer comprising: a nanocrystalline structure layer having a thickness of 50-100nm, and a rare earth material layer having a thickness of 25-50nm attached to the nanocrystalline structure layer; the nanocrystal structure layer is composed of: polystyrene nano particles with the particle size less than or equal to 15nm, titanium dioxide nano particles with the particle size less than or equal to 15nm and transparent resin; the rare earth material layer is a nano rare earth oxide-nano silver composite material layer, wherein nano silver is attached to the nano rare earth oxide, the particle size of the nano rare earth oxide is 7-15nm, and the particle size of the nano silver is less than or equal to 7nm.

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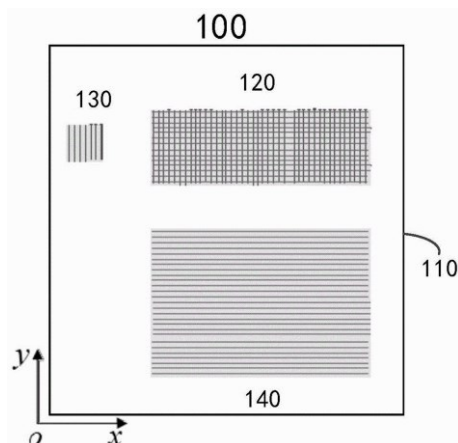
Priority Date: 18/04/2023

SHENZHEN LOCHN OPTICS HI TECHNOLOGY

TWO-DIMENSIONAL PUPIL-EXPANDING VOLUME HOLOGRAPHIC OPTICAL WAVEGUIDE AND MANUFACTURING METHOD AND MANUFACTURING DEVICE THEREOF

The invention relates to the technical field of optical waveguides and discloses a two-dimensional pupil-expanding volume holographic optical waveguide and a manufacturing method and a device thereof.

CLAIM 1. A two-dimensional mydriatic volume hologram optical waveguide, comprising: a waveguide substrate and a turning grating arranged on the waveguide substrate, the turning grating comprises a first volume holographic grating and a second volume holographic grating, the first volume holographic grating and the second volume holographic grating are overlapped in the thickness direction of the waveguide substrate, and an included angle between the grating vector directions of the first volume holographic grating and the second volume holographic grating is a preset angle; The first volume holographic grating is used for carrying out first diffraction on a light beam which is totally reflected and propagates in a first direction in the waveguide substrate, the second volume holographic grating is used for carrying out second diffraction on the light beam which is subjected to first diffraction so that the light beam propagates in a second direction in the waveguide substrate, and the preset angle is equal to an included angle between the first direction and the second direction.



N9626

CN116610217

Priority Date: 09/06/2023

DALIAN UNIVERSITY

CLOUD INTERCONNECTION INTELLIGENT HOME HOLOGRAPHIC PROJECTION INTERACTIVE CONTROL METHOD BASED ON DEEP LEARNING

A cloud interconnection intelligent home holographic projection interactive control method based on deep learning belongs to the technical field of intelligent home equipment and comprises the following steps: starting a gesture acquisition module and an action recognition module according to a preset period; detecting whether a legally connectable user exists in a preset starting action; the system control center is connected to a legally connectable user; the gesture acquisition module judges whether a legally connectable user sends out a next instruction; the action recognition module acquires an action instruction from the gesture acquisition module and activates the virtual assistant module and the cloud analysis module; the cloud analysis module ingests the data of the action recognition module, generates corresponding action instructions after analysis and sends the corresponding action instructions to the virtual assistant module; the virtual assistant module responds to the actions of the user through the holographic projection module. The invention adopts double authentication and encryption technology, ensures the safe transmission and storage of access data, and simultaneously improves the safety and usability of intelligent household equipment.

CLAIM 1. The cloud interconnection intelligent home holographic projection interactive control method based on deep learning is characterized by comprising the following steps of: s0: the gesture acquisition module and the action recognition module of the system are in a dormant state; s1: starting a gesture acquisition module and an action recognition module according to a preset period; s2: detecting whether a legally connectable user exists in a preset starting action or not during the starting period of the gesture acquisition module; if yes, enter step S3; otherwise, returning to the step S1; s3: the system control center is connected to a legally connectable user; s4: activating a holographic projection module; s5: the gesture acquisition module judges whether a legally connectable user sends out a next instruction; if yes, go to step S6; otherwise, returning to the step S0; s6: the action recognition module acquires an action instruction from the gesture acquisition module and activates the virtual assistant module and the cloud analysis module; s7: the cloud analysis module ingests the data of the action recognition module, generates corresponding action instructions after analysis and sends the corresponding action instructions to the virtual assistant module; s8: the virtual assistant module responds to the action of the user through the holographic projection module and returns to the step S5.

N9627

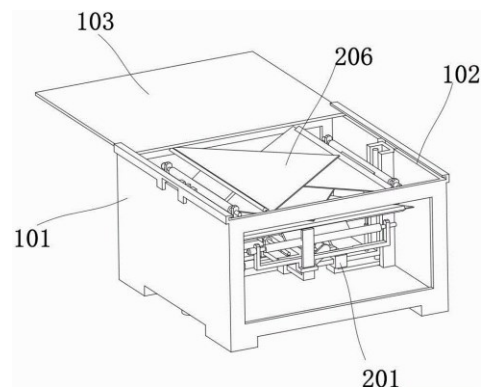
CN116610020

Priority Date: 14/06/2023

LI HUILI | SONG KAIXUAN

HOLOGRAPHIC PROJECTION DEVICE AND PROJECTION METHOD

The utility model relates to the technical field of holographic projection, in particular to a holographic projection device and a holographic projection method. A holographic projection device comprises a box body, wherein a sliding seat is connected in the box body in a matched manner, four slots are arranged on the sliding seat in a surrounding manner, control pieces are connected in the four slots in a matched manner, and a projection screen capable of rotating is connected on each control piece in a matched manner. A method of a holographic projection device, the method comprising the steps of: a: the heights of the four projection screens are gradually decreased from top to bottom; b: the four projection screens are controlled to be sequentially stacked in the vertical direction after being turned to a horizontal state; c: controlling four projection screens which are sequentially stacked to gather towards the center direction of the box body; d: controlling the four projection screens to move downwards and be accommodated in the box body; e: the four projection screens are sealed. The projection screen storage device has the beneficial effects that the projection screen can be stored when not used, and the storage space is saved.



CLAIM 1. The holographic projection device is characterized by comprising a box body (101), wherein a sliding seat (201) is connected in the box body (101) in a matched mode, four slots (102) are formed in the sliding seat (201) in a surrounding mode, control pieces are connected in the four slots (102) in a matched mode, and a projection screen (206) capable of rotating is connected to each control piece in a matched mode.

N9628

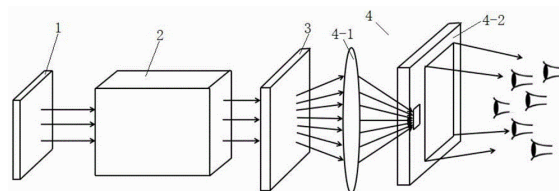
CN116609947

Priority Date: 02/06/2023

SOUTHEAST UNIVERSITY

HOLOGRAPHIC DISPLAY SYSTEM WITH LARGE EYE MOVEMENT RANGE

The application proposes a holographic display system of a large eye movement range, the display system comprising: a spatial light modulator, a projection optical module, a beam splitter, and a pupil expansion module; the computer-generated calculation hologram is uploaded to a spatial light modulator for modulation processing, then a projection optical module is used for filtering the modulated holographic wave front, the single-order holographic wave front passes through a beam splitter, the beam splitter modulates the incident narrow-view-angle holographic wave front to be expanded into multi-order continuous wide-view-angle holographic wave front, and the continuous wide-view-angle holographic wave front is further expanded through a pupil expansion module, so that a human eye can watch a large-size continuous holographic image in a larger eye movement range after the pupil expansion module.



CLAIM 1. A large eye movement range holographic display system comprising: a spatial light modulator (1) for modulating incident coherent light into a narrow-view holographic wavefront; the projection optical module (2) is used for filtering the narrow-view-angle holographic wavefront, eliminating zero-order diffraction orders and high-order diffraction orders and amplifying the filtered narrow-view-angle holographic wavefront; a beam splitter (3) for expanding the amplified narrow-view-angle holographic wavefront into a plurality of successive wide-view holographic wavefronts; and a pupil expansion module (4) for continuously expanding the multi-order continuous wide-view holographic wave front into a large-eye movement range, large-size and continuously viewable holographic image.

N9633

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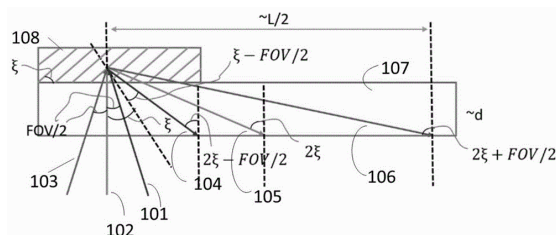
Priority Date: 17/04/2023

NANJING VOCATIONAL UNIVERSITY OF INDUSTRY TECHNOLOGY |
SOUTHEAST UNIVERSITY

OPTIMIZATION METHOD FOR HOLOGRAPHIC WAVEGUIDE VIEW FIELD AND COLOR UNIFORMITY

The invention discloses a holographic waveguide view field and color uniformity optimization method, which optimizes by introducing an incident light inclination angle and reasonably selecting a grating inclination angle. When the optical axis of the image source is perpendicular to the holographic waveguide structure, the central wavelength offset of the emergent light is reduced by optimizing the inclination angle of the grating on the premise of meeting the requirement of the angle of view, so that the color cast of the primary colors is inhibited. In order to further reduce the color shift of the primary colors in the view field, the range of the inclination angle of the grating can be further enlarged by introducing the inclination angle of the incident light, under the same view angle requirement, so that the Bragg angle can be further optimized, the values of the inclination angle and the Bragg angle of the incident light under different view angle requirements are obtained, and the color uniformity in the view field is improved.

CLAIM 1. The utility model provides an optimization method of holographic waveguide visual field and look degree of consistency, reflection type volume holographic grating sets up on the slab waveguide, and incident optical fiber is to the opposite side of reflection type volume holographic grating, and incident light is used for transmitting original light beam to the slab waveguide, and original light beam gets into reflection type volume holographic grating after the transmission of slab waveguide, carries out Bragg diffraction, and the light beam after Bragg diffraction carries out total reflection along the slab waveguide, its characterized in that: according to the method, by introducing the inclination angle of the incident light, under the same field angle requirement, a wider grating inclination angle range is obtained by optimization, so that a smaller Bragg angle and minimum primary color shift are realized, and the method comprises the following calculation steps: (1) According to the total reflection angle θ of the holographic waveguide grating t Limiting conditions of the field angle FOV and the inclination angle ζ of the reflection type volume holographic grating are that when the optical axis of the incident light is perpendicular to the slab waveguide, the ζ and the Bragg angle θ are combined B Relationship $\zeta = \theta$ of (2) B Under the requirement of the limited field angle, calculating to obtain the range of the Bragg angle; (2) From Bragg diffraction formula Calculating the relation between the Bragg angle and the primary color deviation, obtaining the range of the Bragg angle under the requirement of the field angle through the relation between the Bragg angle and the primary color deviation, and optimizing through selecting a proper Bragg angle to obtain smaller primary color deviation.



N9637

CN116522694

Priority Date: 05/07/2023

KDCHANGE TECHNOLOGY

INTERACTIVE HOLOGRAPHIC PROJECTION METHOD BASED ON THREE-DIMENSIONAL MODEL

The invention relates to the technical field of model analysis, and particularly discloses an interactive holographic projection method based on a three-dimensional model. The automobile driver is beneficial to the concentration of the driver to a certain extent, reduces the risk of various visual problems brought by the driver, and improves the driving safety to a certain extent.

CLAIM 1. An interactive holographic projection method based on a three-dimensional model is characterized by comprising the following steps:

step one, an information acquisition module: extracting reference information corresponding to the target track from a reference information base;

step two, a lamp matching module: obtaining basic parameters of each installation lamp from a reference information base, analyzing each installation lamp, and screening out a reference lamp of a target track;

step three, a brightness calculation module: according to the reference information corresponding to the target track, calculating to obtain a reference brightness value corresponding to the target track;

fourth, the brightness analysis module: according to the reference brightness value corresponding to the target track, further carrying out layout analysis on the lamp corresponding to the target track;

fifth, the brightness adjusting module: and performing brightness adjustment control on the lamp of the target track.

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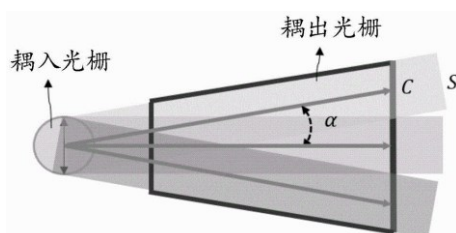
CN116520561

Priority Date: 13/04/2023

SHENZHEN LOCHN OPTICS HI TECHNOLOGY

EXPOSURE PARAMETER DETERMINATION METHOD, MANUFACTURING METHOD AND TWO-DIMENSIONAL PUPIL-EXPANDING VOLUME HOLOGRAPHIC OPTICAL WAVEGUIDE

The embodiment of the invention relates to the technical field of optical display, discloses a method and a device for determining exposure parameters of a volume holographic grating, a method and a system for manufacturing the volume holographic grating and a two-dimensional pupil-expanding volume holographic optical waveguide.



CLAIM 1. The method is characterized in that the volume holographic grating is applied to a two-dimensional pupil-expanding volume holographic optical waveguide, the two-dimensional pupil-expanding volume holographic optical waveguide comprises a coupling-in grating and a coupling-out grating, the coupling-in grating and the coupling-out grating are the volume holographic gratings, the two-dimensional pupil-expanding volume holographic optical waveguide comprises a plurality of independent channels, the total reflection propagation directions of each independent channel are different and face the same coupling-out grating from the same coupling-in grating, and the exposure parameters comprise design angles between the total reflection propagation directions of every two adjacent independent channels; The exposure parameter determining method comprises the following steps: acquiring the size and the pupil expansion range of the coupling-in grating, wherein the coupling-out grating is in the pupil expansion range; and determining the number of the independent channels and the design angle between the total reflection propagation directions of every two adjacent independent channels according to the size and the pupil expansion range of the coupling grating.

N9639

CN116503568

Priority Date: 27/06/2023

KDCHANGE TECHNOLOGY

THREE-DIMENSIONAL SCENE DISPLAY METHOD BASED ON HOLOGRAPHIC PROJECTION

The invention relates to the technical field of three-dimensional model analysis, and particularly discloses a three-dimensional scene display method based on holographic projection.

CLAIM 1. A three-dimensional scene display method based on holographic projection, which is characterized by comprising the following steps: firstly, constructing a wetland scene, and acquiring images of a target wetland by utilizing a VR camera so as to obtain a three-dimensional wetland model corresponding to the target wetland; analyzing the wetland environment, extracting temperature information of the target wetland corresponding to each acquisition day of the current season from a reference information base, analyzing to obtain the estimated average temperature of the target wetland corresponding to each reference month in the preset season, and calculating to obtain the estimated total icing time length of the target wetland corresponding to the set season; step three, screening the wetland environment, namely analyzing and obtaining the cleaning area of the target wetland corresponding to the DOM content value according to the estimated icing total duration of the target wetland corresponding to the set season; fourthly, monitoring the blockage of the wetland, arranging depth detection points of the target wetland according to preset equidistant intervals, and respectively arranging monitoring instruments at corresponding positions of the depth detection points, so as to monitor the penetration information of the depth detection points of the target wetland; fifthly, analyzing the wetland blockage, and further analyzing and obtaining the permeability coefficient corresponding to each depth detection point of the target wetland according to the permeability information corresponding to each depth detection point of the target wetland, thereby screening and obtaining each reclamation depth detection point of the target wetland; and step six, displaying a wetland scene, namely synchronously displaying the soil DOM removal amount of the target wetland corresponding to the set season and the three-dimensional wetland model of each reclamation depth detection point of the target wetland corresponding to the target wetland.

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

N9625

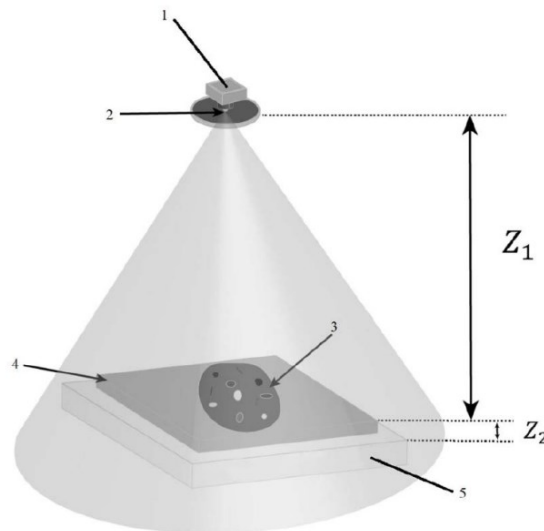
CN116625889

Priority Date: 23/05/2023

SHANGHAI UNIVERSITY OF ELECTRIC POWER

LENS-FREE HOLOGRAPHIC MICROSCOPY METHOD FOR QUANTITATIVELY DETECTING PARTICLES IN TRANSFORMER OIL

The application relates to a lens-free holographic microscopy method for quantitatively detecting particles in transformer oil, which comprises the following steps: acquiring holographic image information of transformer oil under irradiation of a light source through a small hole and performing reproduction treatment; and acquiring phase area information and phase height information of the particles based on the reconstructed image after the reproduction processing, and calculating the volume of the particles in the transformer oil based on the phase area information and the phase height information. And judging the running state of the transformer according to the impurity particles in the transformer oil detected by the lens-free device, and providing a basis for fault detection of the transformer. Compared with the prior art, the application has the advantages of large visual field, high-flux rapid measurement, simple and convenient operation, low cost and the like.



CLAIM 1. A lens-free holographic microscopy method for quantitatively detecting particles in transformer oil, comprising the steps of: acquiring holographic image information of transformer oil under irradiation of a light source through a small hole, and performing reproduction treatment to acquire a reconstruction image; and acquiring phase area information and phase height information of particles based on the reconstructed graph, and calculating the volume of particles in the transformer oil based on the phase area information and the phase height information.

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

N9598

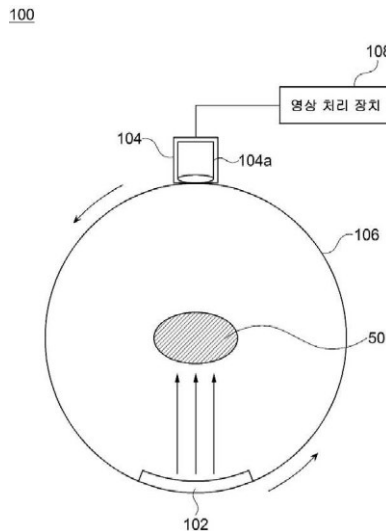
KR20230114373

Priority Date: 25/01/2022

KYUNG HEE UNIVERSITY

COMPUTERIZED TOMOGRAPHY SYSTEM AND METHOD USING SELF-INTERFERENCE HOLOGRAPHY

A computerized tomography system and method using a self-interference hologram are provided. A computerized tomography system includes a light emitting device configured to irradiate a light beam to an object, a rotating device configured to rotate the light emitting device based on a predetermined rotation axis, And a self-interference holographic camera configured to detect a light beam transmitted through the object to acquire a hologram image, and an image processing apparatus configured to detect a difference in refractive index according to the object based on the hologram image and acquire orthographic data according to the difference in refractive index to generate a three-dimensional (3 D) image of the object.



CLAIM 1. An imaging apparatus comprising: a light emitting device configured to irradiate an object with light; a rotating device configured to rotate the light emitting device about a predetermined rotation axis; a light receiving device provided opposite to the light emitting device and including a self-interference holographic camera configured to detect light transmitted through the object to obtain a hologram image; And an image processing device configured to detect a difference in refractive index according to the object based on the hologram image and acquire orthographic data according to the difference in refractive index to generate a three-dimensional (3 D) image of the object.

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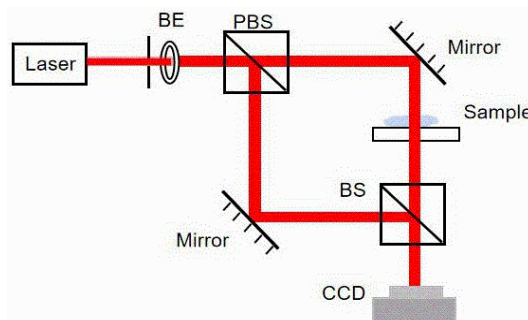
Priority Date: 28/03/2023

HEBEI BOXIA PHOTOELECTRIC INFORMATION TECHNOLOGY

THREE-DIMENSIONAL IMAGE ACQUISITION SYSTEM AND RECONSTRUCTION METHOD

The application discloses a reconstruction method of a three-dimensional image based on deep learning, which can rapidly reconstruct hologram phase information of different defocus distances, and simultaneously can reconstruct holograms with multi-scale large fields of view by using a generated network model CUE-Net. Compared with the traditional angular spectrum reconstruction method, the method improves the quality of the reconstructed image and simultaneously improves the reconstruction speed.

CLAIM 1. A three-dimensional image acquisition system, characterized by: the device comprises a He-Ne laser, a beam expanding-filtering-collimating device, a beam splitting edge angle, a beam combining prism and a CCD sensor; the laser with the wavelength of 632.8nm emitted by the He-Ne laser is split into two beams by the beam splitting prism after passing through the beam expanding-filtering-collimating device, one beam is used as an object light wave after passing through the sample, the other beam is used as a reference light wave, the object light wave and the reference light wave are combined by the beam combining prism, a holographic image is formed on the CCD sensor, and the holographic image is recorded and stored by the the CCD sensor.



N9624

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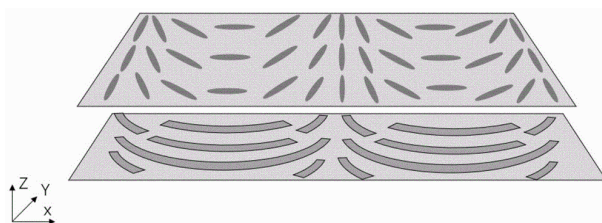
Priority Date: 31/05/2023

SOUTHEAST UNIVERSITY

PREPARATION METHOD OF POLARIZER HOLOGRAPHIC GRATING BASED ON SURFACE MICRO-NANO STRUCTURE

The invention discloses a method for preparing a surface micro-nano structure-based polarizer holographic grating, which designs an orientation structure of a liquid crystal polymer material according to the polarization characteristic of a prepared target grating; according to the designed liquid crystal orientation structure, preparing a layer of micro-nano structure on the substrate by adopting a micro-nano processing technology, wherein the grooves of the micro-nano structure are consistent with the designed liquid crystal orientation direction; and processing the liquid crystal polymer material to the surface of the micro-nano structure, orderly arranging the liquid crystal polymer according to the micro-nano structure, and generating an ordered spiral structure in a three-dimensional space by the liquid crystal polymer after a curing process to form the polarizer holographic grating polymer film with the Bragg body effect. According to the invention, the micro-nano surface structure with any structure is manufactured by design, the required alignment layer structure is directly prepared by micro-nano processing technology, and then the liquid crystal is guided to be aligned, so that the polarizer holographic grating is obtained. The method for preparing the surface orientation structure has high design freedom and is convenient for large-area efficient preparation.

CLAIM 1. A method for preparing a polarizer holographic grating based on a surface micro-nano structure is characterized by comprising the following steps: the method comprises the following steps: (1) according to the polarization characteristics of the prepared target grating, designing an orientation structure of a liquid crystal polymer material; (2) according to the designed liquid crystal orientation structure, preparing a layer of micro-nano structure on the substrate by adopting a micro-nano processing technology, wherein the grooves of the micro-nano structure are consistent with the designed liquid crystal orientation direction; (3) and processing the liquid crystal polymer material to the surface of the micro-nano structure, orderly arranging the liquid crystal polymer according to the micro-nano structure, and generating an ordered spiral structure in a three-dimensional space by the liquid crystal polymer after a curing process to form the polarizer holographic grating polymer film with the Bragg body effect.



N9629

CN116577848

Priority Date: 20/04/2023

WUHAN UNIVERSITY

MULTI-IMAGE ENCRYPTION METHOD BASED ON SUPER SURFACE, SUPER SURFACE AND DESIGN METHOD THEREOF

The invention belongs to the technical field of optics, and discloses a multi-image encryption method based on a super surface, the super surface and a design method thereof. The invention uses the super surface to present the near field nanometer printing image with three channels independently encoded and the far field vector holographic image with three channels independently encoded; the super surface additionally presents six-channel interference auxiliary vector encryption images including four-channel additional far-field vector holographic images and two-channel additional near-field nanometer printing images by utilizing overlapping multi-beams and introducing phase difference interference, so that the super surface can present twelve-channel optical images. The invention expands the encryption to twelve-channel near/far field optical images, expands the vector encryption capacity and has high hiding security.

CLAIM 1. A multi-image encryption method based on a super surface is characterized in that the super surface is utilized to present a three-channel independently encoded near-field nanometer printing image and a three-channel independently encoded far-field vector holographic image; utilizing overlapping multibeam and introducing phase difference interference to enable the super surface to additionally present a six-channel interference auxiliary vector encryption image, so that the super surface can present a twelve-channel optical image; the six-channel interference auxiliary vector encryption image comprises an additional far-field vector holographic image of four channels and an additional near-field nano printing image of two channels.

N9630

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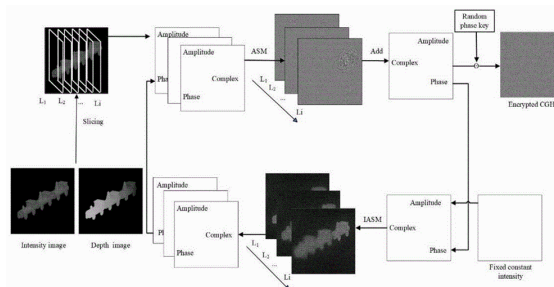
Priority Date: 19/05/2023

HEBEI UNIVERSITY OF ENGINEERING

THREE-DIMENSIONAL OBJECT ENCRYPTION HIDING METHOD BASED ON CALCULATION HOLOGRAPHIC WATERMARKING TECHNOLOGY

The invention discloses a three-dimensional object encryption hiding method based on a calculation holographic watermarking technology, which comprises the following steps: s1: dividing the three-dimensional object into a plurality of layers according to depth by a chromatography principle; s2: generating a calculation hologram through an iterative angular spectrum chromatography algorithm to inhibit noise generated by calculation hologram coding, and adding a random phase key in the process of generating the calculation hologram to improve safety; s3: embedding the encrypted calculation hologram serving as invisible watermark information into a two-dimensional host image by a method of fractional Fourier transform (FRFT) and Singular Value Decomposition (SVD), so as to realize encryption hiding of a three-dimensional object; s4: and decrypting and extracting the calculated holographic watermark hidden in the two-dimensional host image by a correct key and watermark extraction means, and finally decrypting and reconstructing the three-dimensional object by utilizing angular spectrum diffraction, the correct key and other correct parameters. The invention successfully realizes the encryption hiding and decryption of the three-dimensional object image by combining the calculation holographic technology and the optical encryption hiding technology, has good transparency and robustness, not only improves the capacity of encryption information, but also ensures the safety of the three-dimensional information.

CLAIM 1. The three-dimensional object encryption hiding method based on the calculation holographic watermarking technology is characterized by comprising the following steps of: s1: dividing the three-dimensional object into a plurality of layers according to depth by a chromatography principle; s2: generating a calculation hologram through an iterative angular spectrum chromatography algorithm to inhibit noise generated by calculation hologram coding, and adding a random phase key in the process of generating the calculation hologram to improve safety; s3: embedding the encrypted calculation hologram serving as invisible watermark information into a two-dimensional host image by a method of fractional Fourier transform (FRFT) and Singular Value Decomposition (SVD), so as to realize encryption hiding of a three-dimensional object; s4: and decrypting and extracting the calculated holographic watermark hidden in the two-dimensional host image by a correct key and watermark extraction means, and finally decrypting and reconstructing the three-dimensional object by utilizing angular spectrum diffraction, the correct key and other correct parameters.



N9634

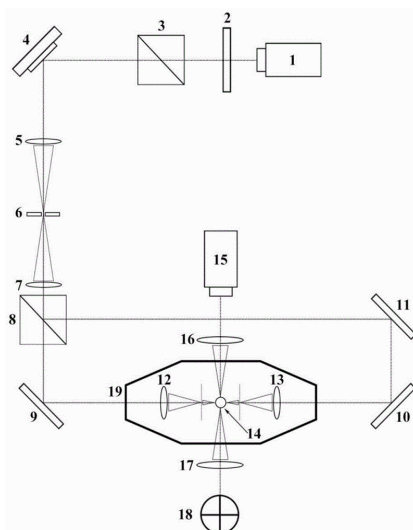
CN116540513

Priority Date: 11/05/2023

ZHEJIANG UNIVERSITY

HOLOGRAPHIC VACUUM OPTICAL TWEEZERS DEVICE BASED ON CIRCULAR AIRY LIGHT BEAM

The invention discloses a holographic vacuum optical tweezers device based on a circular Airy beam. The modulated light beam generating component generates modulated light beams, the modulated light beams are incident to a spectroscopy after passing through a 4F system, the transmitted light beams after passing through the spectroscopy are incident into a vacuum cavity after being reflected by a first reflecting mirror, and then the modulated light beams are converged by a third convex lens to form a first circular Airy light beam; the reflected light beams through the spectroscopy are sequentially reflected by the second reflecting mirror and the third reflecting mirror and then are incident into the vacuum cavity, and then are converged by the fourth convex lens to form a second circular Airy light beam, the first circular Airy light beam and the second circular Airy light beam are arranged in the vacuum cavity in a correlation way and form an optical trap capturing area, and micro-nano particles are captured in the optical trap capturing area and stably suspend in a high vacuum environment. The invention improves the stability of capturing micro-nano particles of the optical tweezers in a high-vacuum environment, can realize capturing micro-nano particles with larger mass, and is beneficial to further improving the vacuum degree and acceleration measurement precision of a vacuum optical tweezers system.



CLAIM 1. The holographic vacuum optical tweezers device based on the circular Airy light beam is characterized by comprising a vacuum cavity (19), a modulated light beam generating component, a 4F system, a spectroscopy (8), a first reflecting mirror (9), a second reflecting mirror (11), a third reflecting mirror (10), a third convex lens (12), a fourth convex lens (13) and a detection component; the micro-nano particles (14), the third convex lens (12) and the fourth convex lens (13) are all arranged in the vacuum cavity (19), the modulated light beams emitted by the modulated light beam generating assembly are incident into the spectroscopy (8) after passing through the 4F system, the transmitted light beams passing through the spectroscopy (8) are incident into the vacuum cavity (19) after being reflected by the first reflecting mirror (9), and then the first circular Airy light beams are formed after being converged by the third convex lens (12) in the vacuum cavity (19); the reflected light beams passing through the spectroscopy (8) are sequentially reflected by the second reflecting mirror (11) and reflected by the third reflecting mirror (10) and then are incident into the vacuum cavity (19), then are converged by the fourth convex lens (13) in the vacuum cavity (19) to form a second circular Airy light beam, the first circular Airy light beam and the second circular Airy light beam are oppositely arranged in the vacuum cavity and form an optical trap capturing area, the micro-nano particles (14) are captured in the optical trap capturing area and stably suspend in a high vacuum environment, and the detection assembly is arranged on the side surface of the vacuum cavity (19) and is used for detecting the movement of the micro-nano particles (14).

N9635

CN116524491

Priority Date: 28/04/2023

YANGZHOU UNIVERSITY

COLOR THREE-DIMENSIONAL HOLOGRAPHIC DISPLAY METHOD BASED ON SALIENT OBJECT DETECTION METHOD

The invention discloses a color three-dimensional holographic display technology based on a three-dimensional salient object detection method, and relates to the technical field of three-dimensional image segmentation. The method combines a two-dimensional image segmentation technology and a point cloud clustering technology, and comprises the following steps that S1, acquired two-dimensional images and depth pictures thereof are combined to generate point clouds; s2, performing image segmentation on the two-dimensional image; s3, binarizing the segmented two-dimensional segmented image, outputting the binarized two-dimensional segmented image as a mask, mapping the binarized two-dimensional segmented image into a three-dimensional point cloud, and denoising the point cloud; s4, clustering operation is carried out on the three-dimensional images obtained through mapping, and a wanted three-dimensional image segmentation result is obtained; s5, converting the point cloud into sparse point cloud by utilizing a point cloud sparsification technology, and carrying out holographic reconstruction by utilizing the sparse point cloud by utilizing a holographic technology to generate a hologram. The main method for detecting the saliency of the method provided by the application relies on a two-dimensional image segmentation technology, and compared with the method for directly carrying out three-dimensional image segmentation, the method improves the time efficiency and has higher accuracy.

CLAIM 1. The color three-dimensional holographic display method based on the saliency object detection method is characterized by being applied to electronic equipment and comprising the following steps of: s1, acquiring a depth picture and a corresponding color picture through a depth camera, and generating a point cloud by combining the color picture and the depth picture; s2, inputting the color picture into a YOLOv5 image segmentation algorithm to obtain a two-dimensional image segmentation result; s3, mapping the two-dimensional image segmentation result into a point cloud as a mask, and reducing the information quantity of the point cloud; s4, removing noise information of the screened point cloud to obtain a three-dimensional point cloud segmentation result; and S5, carrying out point cloud sparsification based on a point cloud segmentation result, and generating a holographic picture based on the sparsified point cloud by utilizing a Taylor-Rayleigh-Soxhlet diffraction point cloud grid algorithm.

N9636

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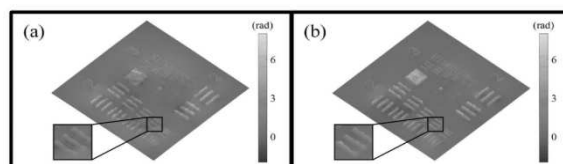
Priority Date: 06/05/2023

ZHEJIANG SCI-TECH UNIVERSITY

OBJECT HOLOGRAPHIC RING NOISE ELIMINATION METHOD BASED ON UNET CONVOLUTIONAL NEURAL NETWORK

The invention discloses an object holographic ring noise elimination method based on a Unet convolutional neural network. Firstly, a plurality of pairs of data sets which are input by taking holograms containing ring noise as a neural network and corresponding holograms without ring noise as labels are manufactured in a mode of combining simulation and experiment; and finally, carrying out noise reduction treatment on the hologram with ring noise acquired from the holographic optical path system by using a trained neural network model, and then carrying out holographic reconstruction treatment to obtain an intensity map and a phase map of the measured object. The method can accurately and conveniently eliminate ring noise in the hologram and realize high-quality reconstruction of the three-dimensional shape of the surface of the measured object.

CLAIM 1. An object holographic ring noise elimination method based on a Unet convolutional neural network is characterized by comprising the following steps of: the method comprises the following steps: step one: generating a simulated hologram through computer simulation, collecting an experimental hologram, enhancing expansion, and finally mixing the simulated hologram and the experimental hologram to form a comprehensive data set; step two: designing and constructing an improved Unet convolutional neural network; step three: training an improved Unet convolutional neural network; step four: and acquiring holograms containing ring noise obtained in the experiment, inputting the holograms into a trained improved Unet convolutional neural network to output new holograms, and carrying out holographic reconstruction processing to obtain an intensity map and a phase map of the measured object.



N9641

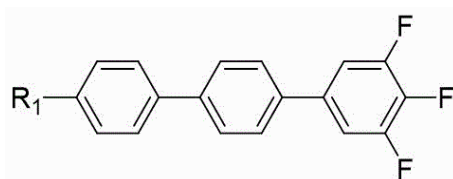
CN116496796

Priority Date: 29/06/2023

JOURNEY TECHNOLOGY

LIQUID CRYSTAL COMPOSITION, HOLOGRAPHIC POLYMER DISPERSED LIQUID CRYSTAL MATERIAL AND APPLICATION THEREOF

The invention provides a liquid crystal composition, a holographic polymer dispersed liquid crystal material and application thereof. The liquid crystal composition comprises at least one of compounds shown in a formula I, at least one of compounds shown in a formula II and at least one of compounds shown in a formula III; the invention also discloses a holographic polymer dispersed liquid crystal material which comprises an acrylic polymerizable monomer, a photoinitiator and a liquid crystal composition. The liquid crystal composition provided by the invention has larger double refractive index, the prepared holographic polymer dispersed liquid crystal material has excellent performance, and the obtained volume holographic grating has high diffraction efficiency and low haze, can be switched between a holographic state and a transparent state, and can meet the application requirements of the volume holographic optical waveguide.



CLAIM 1. A liquid crystal composition comprising: at least one of the compounds of formula I, and at least one of the compounds of formula II, and at least one of the compounds of formula III; a compound of formula I: ; a compound of formula II: ; a compound of formula III: ; wherein R is 1 ,R 2 And R 3 Each independently represents ,/> ,/> ,/> An alkyl group having 1 to 7 carbon atoms, an alkoxy group having 1 to 7 carbon atoms, an alkenyl group having 2 to 7 carbon atoms, an alkenyloxy group having 3 to 7 carbon atoms, wherein at least one hydrogen atom may be substituted with a fluorine atom; and-> Independent representation-> Or-> ; X 1 ~X 10 Each independently represents a hydrogen atom or a fluorine atom.

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HOLOGRAMS - 18 PATENTS

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P36684	WO	2023156485	24/08/2023	COVESTRO DEUTSCHLAND	EP	21/02/2022	EP2022000157766	WO2023156485	TRIARYLALKYL BORATE SALTS AS COINITIATORS IN NIR PHOTOPOLYMER COMPOSITIONS	
P36685	WO	2023156484	24/08/2023	COVESTRO DEUTSCHLAND	EP	21/02/2022	EP2022000157769	WO2023156484	PHOTOPOLYMER COMPOSITIONS FOR THERMOSTABLE PHOTOPOLYMERS IN THE VISIBLE SPECTRAL RANGE	
P36686	WO	2023156482	24/08/2023	COVESTRO DEUTSCHLAND	EP	21/02/2022	EP2022000157833	WO2023156482	THERMOSTABLE PHOTOPOLYMERS IN THE VISIBLE SPECTRAL RANGE AND PHOTOPOLYMER COMPOSITIONS CONTAINING SAME	
P36689	WO	2023148511	10/08/2023	SUN CHEMICAL	GB	07/02/2022	GB2022000001538	WO2023148511	WATER-BASED DE-METALLIZATION RESIST	
P36690	WO	2023148432	10/08/2023	SECURE IMAGE FEED	FI	05/02/2022	FI2022000005103	WO2023148432	A CAMERA, A SYSTEM FOR DETECTING AN OPTICAL IDENTITY TAG AND A METHOD FOR IDENTIFICATION	
P36691	WO	2023148250	10/08/2023	GIETZ	CH	02/02/2022	CH2022000009720	WO2023148250 CH-719395	FLAT EMBOSING PRINTING PRESS WITH A FILM WEB GUIDING AND TRANSPORTING DEVICE	
P36693	WO	2023141726	03/08/2023	IMDS GROUP	US	29/01/2022	US2022063304608	WO2023141726	METHOD AND SYSTEM FOR THE AUTHENTICATION OF HOLOGRAM PROTECTED IDENTITY DOCUMENTS	Passport
P36703	TW	811109	01/08/2023	NATIONAL CHUNG CHENG UNIVERSITY	TW	16/09/2022	TW2022000135196	TW811109	HOLOGRAM DETECTION METHOD	
P36707	KR	20230112877	28/07/2023	LEE, WOO SUNG	KR	21/01/2022	KR2022000009030	KR20230112877	INTERNATIONAL CURRENCY BANKNOTES EQUIPPED WITH HOLOGRAMS FOR ANTI-FORGERY DEVICES	
P36708	KR	20230111690	26/07/2023	RMG	KR	18/01/2022	KR2022000007245	KR20230111690	AUTHENTIC AUTHENTICATION LABEL AND AUTHENTICATION SYSTEM USING THE SAME	
P36721	JP	2023107332	03/08/2023	NATIONAL PRINTING BUREAU	JP	24/01/2022	JP2022000008478	JP2023107332	PHOTOLUMINESCENT MOVING PATTERN FORMING BODY	
P36722	JP	2023107331	03/08/2023	NATIONAL PRINTING BUREAU	JP	24/01/2022	JP2022000008477	JP2023107331	PHOTOLUMINESCENT VIDEO PATTERN FORMING BODY AND METHOD FOR MANUFACTURING SAME	
P36750	CN	219486971	08/08/2023	SHANGHAI SINYIM PRINTING	CN	29/07/2022	CN2022001976851	CN219486971U	LOCAL ANTI-FAKE TRANSFER PRINTING FILM PAPER	
P36754	CN	219457036	01/08/2023	WUXI NEW LIGHT IMPRESSION PREVENTING FAISE TECHNIQUE	CN	01/02/2023	CN2023000095918	CN219457036U	ANTI-FAKE LABEL STRUCTURE WITH TRIPLE ANTI-FAKE EFFECT	
P36770	CN	116596735	15/08/2023	HEBEI UNIVERSITY OF ENGINEERING	CN	23/05/2023	CN2023000582868	CN116596735	FRFT-SVD-BASED COMPUTATIONAL HOLOGRAPHIC WATERMARK EMBEDDING AND EXTRACTING METHOD	
P36774	CN	116577962	11/08/2023	BORN CHUANGSHENG TECHNOLOGY R D HUIZHOU	CN	19/04/2023	CN2023000425034	CN116577962	TEXTURE PROCESSING METHOD	OVD - Microlens
P36777	CN	116572632	11/08/2023	JIANGSU XINGGUANG PACKAGING SCIENCE & TECHNOLOGY	CN	11/05/2023	CN2023000526736	CN116572632	HOLOGRAPHIC THERMOPRINTING FILM MOULD PRESSING SYSTEM FOR BOX AND THERMOPRINTING METHOD	
P36782	CN	116552090	08/08/2023	JIANGSU ZHONGJIN MATAI MEDICINAL PACKAGING	CN	06/05/2023	CN2023000500248	CN116552090	PREPARATION METHOD OF HIGH-BARRIER ANTI-COUNTERFEITING COMPOSITE FILM	

VARIOUS OPTICAL EFFECTS - 10 PATENTS

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P36734	EP	4230426	23/08/2023	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	03/02/2022	DE202210000409	EP4230426 DE102022000409 CN116533664	SECURITY ELEMENT TRANSFER MATERIAL AND METHOD FOR PRODUCING THE SAME	
P36737	DE	102022111096	24/08/2023	KOENIG & BAUER	DE	05/05/2022	DE202210111096	DE102022111096	METHOD FOR AUTHENTICATING A SECURITY DOCUMENT	Microlens
P36742	CN	219553151	18/08/2023	SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP	CN	31/03/2023	CN2023000689630	CN219553151U	VARIABLE TRANSPARENT LASER THERMOPRINT INFORMATION ANTI-COUNTERFEIT LABEL	

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VARIOUS OPTICAL EFFECTS - 10 PATENTS (continuation)

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P36768	CN	116619889	22/08/2023	YUNNAN QIAOTONG PACKAGE PRINTING	CN	12/07/2023	CN2023000851615	CN116619889	PRINTING METHOD FOR MANUFACTURING LENS ON PAPER PRODUCT AND MATCHED EQUIPMENT THEREOF	
P36771	CN	116594236	15/08/2023	SOUTH CHINA NORMAL UNIVERSITY	CN	05/06/2023	CN2023000655680	CN116594236	LIQUID CRYSTAL DROPLET PATTERNING DEVICE BASED ON DIELECTROPHORESIS EFFECT, PREPARATION METHOD AND APPLICATION THEREOF	
P36772	CN	116589884	15/08/2023	CHINA BANKNOTE INK CHINA BANKNOTE PRINTING & MINT	CN	17/04/2023	CN2023000408239	CN116589884	MECHANOCROMATIC INK AND PREPARATION METHOD AND APPLICATION THEREOF	
P36774	CN	116577962	11/08/2023	BORN CHUANGSHENG TECHNOLOGY R D HUIZHOU	CN	19/04/2023	CN2023000425034	CN116577962	TEXTURE PROCESSING METHOD	Hologram - Microlens
P36775	CN	116577854	11/08/2023	GUANGZHOU ENPOT BARCODE INDUSTRIAL	CN	12/06/2023	CN2023000687441	CN116577854	ANTI-COUNTERFEIT LABEL AND GENERATION METHOD THEREOF	Microlens
P36783	CN	116543637	04/08/2023	DAWAN DISTRICT UNIVERSITY PREPARATORY	CN	20/04/2023	CN2023000431283	CN116543637	3D RANDOM MAGNETIC GRAIN DIGITAL ANTI-COUNTERFEITING MARK AND PREPARATION METHOD THEREOF	
P36791	CN	116500718	28/07/2023	SHANGHAI XIANHUAN HI TECHNOLOGY NEW MATERIALS SHANGHAI XIANREN NEW MAT PARTNERSHIP ENTERPRISE PARTNERSHIP	CN	24/04/2023	CN2023000450331	CN116500718	IDENTIFICATION ELEMENT AND IDENTIFICATION OBJECT	

NON SECURITY HOLOGRAMS - 53 PATENTS

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
N9589	WO	2023153129	17/08/2023	TOKYO UNIVERSITY OF AGRICULTURE & TECHNOLOGY	JP	14/02/2022	JP2022000020433	WO2023153129	DISPLAY DEVICE TO BE MOUNTED ON EYEBALL, CONTACT LENS, AND METHOD FOR DRIVING DISPLAY DEVICE	
N9590	WO	2023153025	17/08/2023	PANASONIC INTELLECTUAL PROPERTY MANAGEMENT	JP	10/02/2022	JP2022000019348	WO2023153025 JP2023116935	IMAGE DISPLAY DEVICE	
N9591	WO	2023148375	10/08/2023	CARL ZEISS JENA	DE	04/02/2022	DE202210102646	WO2023148374 WO2023148375 DE102022102646	DEVICE FOR REPLICATING A MASTER HOLOGRAPHIC OPTICAL ELEMENT WITH VARIABLE ILLUMINATION	
N9592	WO	2023148213	10/08/2023	CARL ZEISS JENA	DE	02/02/2022	DE202210102469	WO2023148213 DE102022102469	COPY CARRIER ARRANGEMENT AND METHOD FOR PRODUCING A HOLOGRAM	
N9593	WO	2023147023	03/08/2023	KENT STATE UNIVERSITY	US	27/01/2022	US2022063303579	WO2023147023	MOBILE HOLOGRAPHIC DISPLAY SYSTEM	
N9594	WO	2023144085	03/08/2023	SAINT GOBAIN	EP	26/01/2022	EP2022000153357	WO2023144085	COMPOSITE PANE WITH A HOLOGRAM ELEMENT AND ANTI-REFLECTIVE COATING	
N9595	WO	2023144084	03/08/2023	SAINT GOBAIN	EP	26/01/2022	EP2022000153356	WO2023144084	METHOD FOR PRODUCING A COMPOSITE PANE COMPRISING AT LEAST ONE HOLOGRAM	
N9596	KR	20230115729	03/08/2023	LG CHEM	KR	27/01/2022	KR2022000012542	KR20230115729	CURVED HOLOGRAPHIC OPTICAL ELEMENT PLANAR REPLICATION TECHNIQUES	
N9597	KR	20230114741	01/08/2023	LG DISPLAY SEOUL NATIONAL UNIVERSITY R&DB FOUNDATION	KR	19/07/2023	KR2023000093839	KR20190081864 KR20230114741	HOLOGRAPHIC DISPLAY DEVICE	
N9598	KR	20230114373	01/08/2023	KYUNG HEE UNIVERSITY	KR	25/01/2022	KR2022000010430	KR20230114373	COMPUTERIZED TOMOGRAPHY SYSTEM AND METHOD USING SELF-INTERFERENCE HOLOGRAPHY	
N9599	KR	2023011441	25/07/2023	BAEK, JI HUN	KR	18/01/2022	KR2022000007289	KR2023011441	NON-DISCOLORED HOLOGRAPHIC WATERPROOF STICKER	
N9600	KR	102562505	02/08/2023	K HOLO	KR	13/09/2022	KR2022000114871	KR102562505	A HOLOGRAM-BASED TRIPLE IMAGE PLAYBACK SYSTEM THAT ADDS THREE-DIMENSIONAL EFFECT AND VITALITY	
N9601	JP	2023114496	18/08/2023	NIPPON HOSO KYOKAI	JP	07/02/2022	JP2022000016807	JP2023114496	HOLOGRAM DATA GENERATING APPARATUS, ELECTROHOLOGRAPHIC DISPLAY APPARATUS, AND PROGRAMS THEREOF	

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NON SECURITY HOLOGRAMS - 53 PATENTS (continuation)

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
N9602	JP	2023111764	10/08/2023	DAI NIPPON PRINTING	JP	31/01/2022	JP2022000013778	JP2023111764	DECORATIVE LAMINATE	
N9603	JP	2023110743	09/08/2023	DAI NIPPON PRINTING	JP	28/01/2022	JP2022000012355	JP2023110743	HOLOGRAM SHEET, COMBINER, HEADS-UP DISPLAY, MOVING BODY, AND METHOD FOR MANUFACTURING HOLOGRAM SHEET	
N9604	JP	2023104672	28/07/2023	DAI NIPPON PRINTING	JP	18/01/2022	JP2022000005808	JP2023104672	COMBINER, HEADS-UP DISPLAY, MOVING BODY, AND METHOD FOR MANUFACTURING COMBINER	
N9605	JP	2023104663	28/07/2023	DAI NIPPON PRINTING	JP	18/01/2022	JP2022000005797	JP2023104663	HEADS-UP DISPLAY, MOVING BODY, COMBINER	
N9606	JP	2023104619	28/07/2023	DAI NIPPON PRINTING	JP	18/01/2022	JP2022000005731	JP2023104619	HEADS-UP DISPLAY, MOVING BODY	
N9607	EP	4224256	09/08/2023	KOREA UNIVERSITY RESEARCH & BUSINESS FOUNDATION SEJONG CAMPUS SAMSUNG ELECTRONICS UNIVERSITY KOREA RESEARCH BUSINESS FOUNDATION SEJONG CAMPUS	KR	04/02/2022	KR2022000015078	EP4224256 US20230251526 CN116560133 KR20230118439	COMPLEX LIGHT MODULATOR, HOLOGRAPHIC DISPLAY DEVICE, AND SEE-THROUGH DISPLAY DEVICE	
N9608	CN	219574611	22/08/2023	SICHUAN TOURISM UNIVERSITY	CN	30/03/2023	CN2023000671232	CN219574611U	PORTABLE HOLOGRAPHIC PROJECTION EQUIPMENT	
N9609	CN	219574610	22/08/2023	SHENZHEN JIAERXING TECHNOLOGY SHENZHEN TECHNOLOGY UNIVERSITY	CN	29/07/2022	CN2022002010221	CN219574610U	HOLOGRAPHIC PROJECTION DISPLAY CABINET WITH CONTROL PANEL CAPABLE OF BEING STORED	
N9610	CN	219552841	18/08/2023	HEFEI YANJIA TECHNOLOGY	CN	16/05/2023	CN2023001177432	CN219552841U	HOLOGRAPHIC INTERACTIVE IMAGE DISPLAY DEVICE	
N9611	CN	219552808	18/08/2023	SHENZHEN MOXIU CULTURE TECHNOLOGY	CN	10/03/2023	CN2023000452308	CN219552808U	SPHERICAL SCREEN HOLOGRAPHIC PROJECTION STAGE	
N9612	CN	219533431	15/08/2023	4U TECHNOLOGY	CN	23/02/2023	CN2023000290812	CN219533431U	OPTICAL FILM, BASE GLASS, AND PSEUDO-HOLOGRAM PROJECTION SYSTEM	
N9613	CN	219512519	11/08/2023	LIU QIAN	CN	24/12/2022	CN2022003461060	CN219512519U	HOLOGRAPHIC PROJECTION IMAGING EQUIPMENT WITH GOOD DISPLAY EFFECT	
N9614	CN	219496897	08/08/2023	XIAMEN OCEAN VOCATIONAL COLLEGE	CN	13/03/2023	CN2023000456104	CN219496897U	DYNAMIC HOLOGRAPHIC DISPLAY DEVICE	
N9615	CN	219476303	04/08/2023	ZHONGSHU DIGITAL ENGINEERING SHENZHEN	CN	11/04/2023	CN2023000789413	CN219476303U	HOLOGRAPHIC PROJECTION SHOWCASE	
N9616	CN	219469961	04/08/2023	HUIZHOU SHANGSHI HUA TECHNOLOGY	CN	28/10/2022	CN2022002875463	CN219469961U	LOCAL MATTE HOLOGRAPHIC LASER FILM	
N9617	CN	219456602	01/08/2023	SOOCHOW UNIVERSITY	CN	17/02/2023	CN2023000238839	CN219456602U	HOLOGRAPHIC WAVEGUIDE LENS DISPLAY DEVICE	
N9618	CN	219435203	28/07/2023	ZHEJIANG XINHEFENG MEDIA TECHNOLOGY	CN	22/04/2023	CN2023000917038	CN219435203U	IMMERSIVE LIVE-ACTION LIGHT AND SHADOW PLAY HOLOGRAPHIC DEVICE WITH FOLDING EFFECT	
N9619	CN	116634126	22/08/2023	SHENZHEN SHIDAI TECHNOLOGY GROUP	CN	10/05/2023	CN2023000519370	CN116634126	5D HOLOGRAPHIC PROJECTION CONTROL SYSTEM BASED ON BANQUET HALL	
N9620	CN	116630542	22/08/2023	LEI MING	CN	22/05/2023	CN2023000582335	CN116630542	MULTI-DEPTH HOLOGRAM GENERATION METHOD, SYSTEM, ELECTRONIC EQUIPMENT AND STORAGE MEDIUM	
N9621	CN	116630529	22/08/2023	HEBEI BOXIA PHOTOELECTRIC INFORMATION TECHNOLOGY	CN	28/03/2023	CN2023000312223	CN116630529	THREE-DIMENSIONAL IMAGE ACQUISITION SYSTEM AND RECONSTRUCTION METHOD	
N9622	CN	116626979	22/08/2023	SHENZHEN SHENKUN TECHNOLOGY	CN	24/05/2023	CN2023000595714	CN116626979	GRAY NANOCRYSTAL IMAGING LAYER, HIGH-DEFINITION HIGH-TRANSPARENCY HOLOGRAPHIC IMAGE FILM AND PREPARATION METHOD	
N9623	CN	116626808	22/08/2023	SHENZHEN LOCHN OPTICS III TECHNOLOGY	CN	18/04/2023	CN2023000454818	CN116626808	TWO-DIMENSIONAL PUPIL-EXPANDING VOLUME HOLOGRAPHIC OPTICAL WAVEGUIDE AND MANUFACTURING METHOD AND MANUFACTURING DEVICE THEREOF	

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NON SECURITY HOLOGRAMS - 53 PATENTS (continuation)

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
N9624	CN	116626798	22/08/2023	SOUTHEAST UNIVERSITY	CN	31/05/2023	CN2023000632277	CN116626798	PREPARATION METHOD OF POLARIZER HOLOGRAPHIC GRATING BASED ON SURFACE MICRO-NANO STRUCTURE	
N9625	CN	116625889	22/08/2023	SHANGHAI UNIVERSITY OF ELECTRIC POWER	CN	23/05/2023	CN2023000587730	CN116625889	LENS-FREE HOLOGRAPHIC MICROSCOPY METHOD FOR QUANTITATIVELY DETECTING PARTICLES IN TRANSFORMER OIL	
N9626	CN	116610217	18/08/2023	DALIAN UNIVERSITY	CN	09/06/2023	CN2023000677665	CN116610217	CLOUD INTERCONNECTION INTELLIGENT HOME HOLOGRAPHIC PROJECTION INTERACTIVE CONTROL METHOD BASED ON DEEP LEARNING	
N9627	CN	116610020	18/08/2023	LI HUILI SONG KAIXUAN	CN	14/06/2023	CN2023000704365	CN116610020	HOLOGRAPHIC PROJECTION DEVICE AND PROJECTION METHOD	
N9628	CN	116609947	18/08/2023	SOUTHEAST UNIVERSITY	CN	02/06/2023	CN2023000646265	CN116609947	HOLOGRAPHIC DISPLAY SYSTEM WITH LARGE EYE MOVEMENT RANGE	
N9629	CN	116577848	11/08/2023	WUHAN UNIVERSITY	CN	20/04/2023	CN2023000438030	CN116577848	MULTI-IMAGE ENCRYPTION METHOD BASED ON SUPER SURFACE, SUPER SURFACE AND DESIGN METHOD THEREOF	
N9630	CN	116561782	08/08/2023	HEBEI UNIVERSITY OF ENGINEERING	CN	19/05/2023	CN2023000568949	CN116561782	THREE-DIMENSIONAL OBJECT ENCRYPTION HIDING METHOD BASED ON CALCULATION HOLOGRAPHIC WATERMARKING TECHNOLOGY	
N9631	CN	116560203	08/08/2023	BEIJING INSTITUTE OF TECHNOLOGY SHENZHEN RESEARCH INSTITUTE HEBEI UNIVERSITY OF ENGINEERING	CN	07/06/2023	CN2023000666314	CN116560203	DIGITAL HOLOGRAPHIC SPECKLE SUPPRESSION IMAGING SYSTEM BASED ON RANDOM MICROLENS ARRAY	
N9632	CN	116560202	08/08/2023	KUNMING UNIVERSITY OF SCIENCE & TECHNOLOGY	CN	09/05/2023	CN2023000516731	CN116560202	SCANNING HOLOGRAPHIC DEVICE FOR OBTAINING HORIZONTAL PARALLAX HOLOGRAM ONLY	
N9633	CN	116560076	08/08/2023	NANJING VOCATIONAL UNIVERSITY OF INDUSTRY TECHNOLOGY SOUTHEAST UNIVERSITY	CN	17/04/2023	CN2023000401891	CN116560076	OPTIMIZATION METHOD FOR HOLOGRAPHIC WAVEGUIDE VIEW FIELD AND COLOR UNIFORMITY	
N9634	CN	116540513	04/08/2023	ZHEJIANG UNIVERSITY	CN	11/05/2023	CN2023000524908	CN116540513	HOLOGRAPHIC VACUUM OPTICAL TWEEZERS DEVICE BASED ON CIRCULAR AIRY LIGHT BEAM	
N9635	CN	116524491	01/08/2023	YANGZHOU UNIVERSITY	CN	28/04/2023	CN2023000478830	CN116524491	COLOR THREE-DIMENSIONAL HOLOGRAPHIC DISPLAY METHOD BASED ON SALIENT OBJECT DETECTION METHOD	
N9636	CN	116523789	01/08/2023	ZHEJIANG SCI-TECH UNIVERSITY	CN	06/05/2023	CN2023000506041	CN116523789	OBJECT HOLOGRAPHIC RING NOISE ELIMINATION METHOD BASED ON UNET CONVOLUTIONAL NEURAL NETWORK	
N9637	CN	116522694	01/08/2023	KDCHANGE TECHNOLOGY	CN	05/07/2023	CN2023000813407	CN116522694	INTERACTIVE HOLOGRAPHIC PROJECTION METHOD BASED ON THREE-DIMENSIONAL MODEL	
N9638	CN	116520561	01/08/2023	SHENZHEN LOCHN OPTICS III TECHNOLOGY	CN	13/04/2023	CN2023000437396	CN116520561	EXPOSURE PARAMETER DETERMINATION METHOD, MANUFACTURING METHOD AND TWO-DIMENSIONAL PUPIL-EXPANDING VOLUME HOLOGRAPHIC OPTICAL WAVEGUIDE	
N9639	CN	116503568	28/07/2023	KDCHANGE TECHNOLOGY	CN	27/06/2023	CN2023000761420	CN116503568	THREE-DIMENSIONAL SCENE DISPLAY METHOD BASED ON HOLOGRAPHIC PROJECTION	
N9640	CN	116500880	28/07/2023	LIZHEN TECHNOLOGY KUNSHAN	CN	28/06/2023	CN2023000770074	CN116500880	HOLOGRAPHIC IMAGE GENERATION SYSTEM, METHOD AND ELECTRONIC EQUIPMENT	
N9641	CN	116496796	28/07/2023	JOURNEY TECHNOLOGY	CN	29/06/2023	CN2023000780713	CN116496796	LIQUID CRYSTAL COMPOSITION, HOLOGRAPHIC POLYMER DISPERSED LIQUID CRYSTAL MATERIAL AND APPLICATION THEREOF	