

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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Please note that:

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

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P35784

**SECURITY HOLOGRAMS' COLUMN
PASSPORT – THREAD**

EP4086083

MUEHLBAUER ID SERVICES

Inventor(s):

KUSIN DIETER, ERTL THOMAS, EDERER MARTIN, BRUNNER ANTON

Application Nber / Date:

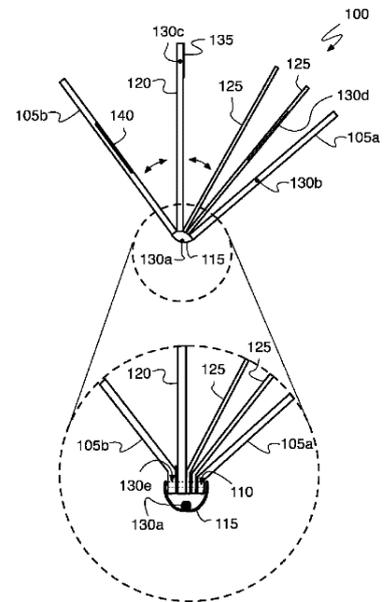
EP22169438 2022-04-22

Priority Nber / Date / Country:

DE10202111894 2021-05-06

SECURITY DOCUMENT WITH THREAD-LIKE SECURITY ELEMENT AND METHOD AND APPARATUS FOR ITS MANUFACTURING

A security document, e.g. book-like passport document (100), comprises: a number N of sheet-shaped substrates (105a-b), with $N \geq 1$; and a thread-like security element (130, 130a-e), which is integrated at least in sections into at least one of the N substrates or is fastened thereto and which has a microelectronic communication device (175) with an antenna device (180a-b) electrically connected thereto. The security element (130 e) can form part of a seam as a thread. The antenna lines (180a-b) together form, on the one hand, an antenna device as a dipole antenna for transmitting and receiving radio signals in the UHF band and, on the other hand, an induction device (self-inductance) for supplying energy. A strain relief element (190) can be provided which is capable of absorbing potential tensile forces acting externally on the security element in order to protect the antenna lines from such forces and thus to protect them from damage or destruction. In addition, the security element can have a protective layer as a wrapping (185, e.g. textile).



CLAIM 1. A security document (100), in particular an identity document or component or blank therefor, comprising: a number N of sheet-shaped substrates (105, 115, 120, 125), where $N \geq 1$; and a thread-like security element (130) which is integrated at least in sections into at least one of the N substrates (105, 115, 120, 125) or is fastened thereto and which has a first microelectronic communication device (175) with an antenna device (180 a, 180 b) for wireless communication of security-relevant first information to a communication counterpart (200) external with respect to the security document (100).

Equivalent: DE10202111894A1

Status: Pending

Research Report:

EP 4 086 083 A1



EUROPÄISCHER RECHERCHENBERICHT

Nummer der Anmeldung
EP 22 16 9438

EINSCHLÄGIGE DOKUMENTE			
Kategorie	Kennzeichnung des Dokuments mit Angabe, soweit erforderlich, der maßgeblichen Teile	Betrifft Anspruch	KLASSIFIKATION DER ANMELDUNG (IPC)
X	WO 2004/043706 A1 (MANTEGAZZA ANTONIO ART GRAFICH [IT]; LAZZERINI MAURIZIO [IT]) 27. Mai 2004 (2004-05-27)	1-5, 8, 9, 12-18, 20	INV. B42D25/305 B42D25/355
A	* das ganze Dokument *	6, 7, 10, 11, 19	G06K19/077 G06K19/18 G06K19/02
A	DE 10 2005 021477 A1 (PAV CARD GMBH [DE]) 4. Mai 2006 (2006-05-04) * das ganze Dokument *	1-19	B42B2/00 B42D25/24 B42D3/12

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

P35780

CARD – PASSPORT

EP4088946

IDEMIA FRANCE

Priority Date: 10/05/2021

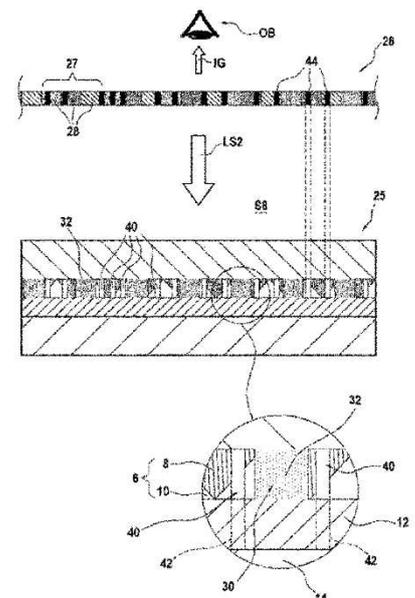
PRODUCTION OF AN IMAGE FROM A HOLOGRAPHIC STRUCTURE

The invention relates to a method comprising: Providing a metal holographic layer (6) comprising a metal sublayer (10) and forming an arrangement (26) of pixels (27), each pixel comprising a plurality of sub-pixels (28) of distinct colors; Partially destroying, by a first laser radiation (LS1), the holographic layer so as to selectively remove portions of the metal underlayer to form demetallized areas (30); and laminating the holographic layer with upper (4) and lower (12) polymer layers; And personalization of the pixel arrangement (26) by forming by means of a second laser radiation (LS2) in the holographic layer, Perforations (40) locally revealing areas (44) of color hue in the sub-pixels (28) caused by underlying regions (42) of the lower layer located opposite said perforations, so as to form a personalized image (IG).

FABRICATION D'UNE IMAGE À PARTIR D'UNE STRUCTURE HOLOGRAPHIQUE

L'invention vise un procédé comprenant : fourniture d'une couche (6) holographique métallique comprenant une sous-couche (10) de métal et formant un arrangement (26) de pixels (27), chaque pixel comportant une pluralité de sous-pixels (28) de couleurs distinctes ; destruction partielle, par un premier rayonnement laser (LS1), de la couche holographique de sorte à retirer sélectivement des portions de la sous-couche de métal pour former des zones démétallisées (30) ; et lamination de la couche holographique avec des couche supérieure (4) et inférieure (12) en polymère ; et une personnalisation de l'arrangement (26) de pixels par formation au moyen d'un deuxième rayonnement laser (LS2), dans la couche holographique, de perforations (40) révélant localement des zones (44) de nuance de couleur dans les sous-pixels (28) causées par des régions sous-jacentes (42) de la couche inférieure situées en regard desdites perforations, de sorte à former une image personnalisée (IG).

CLAIM 1. A method of manufacturing a secure document (25), said method comprising in succession: - Providing (S2) a first layer (6) comprising a metal holographic structure forming an array (26) of pixels (27), said holographic structure comprising a metal sublayer (10), each pixel comprising a plurality of sub-pixels (28) of distinct colors; - Partial destruction (S4), by a first laser radiation (LS1), of the first layer so as to selectively remove at least portions of the underlayer of metal in order to form demetallized zones (30) in the arrangement of pixels; And - laminating (S6) the first layer with an upper layer (4) of polymer and a lower layer (12) of polymer such that the first layer is sandwiched between the upper and lower layers; And - personalizing (S8) the pixel array (26) by forming by means of a second laser radiation (LS2), in the first layer, of perforations (40) locally revealing through the holographic structure areas (44) of color shade in the sub-pixels (28) caused by underlying regions (42) of the lower layer situated opposite said perforations, So as to form a personalized image (IG) from the arrangement of pixels combined with the areas of color shades.



P35781

OVD – BANKNOTE – CARD

EP4088945

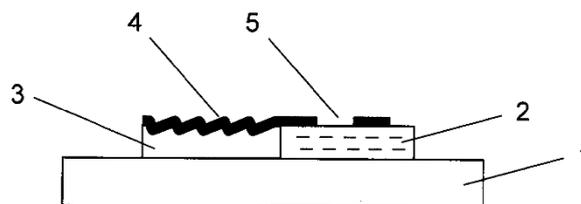
GIESECKE & DEVRIENT CURRENCY TECHNOLOGY

Priority Date: 10/05/2021

SECURITY ELEMENT WITH VOLUME HOLOGRAM AND ADDITIONAL EFFECTS

The invention relates to a security element for increasing the protection against forgery of security documents, such as banknotes, securities, identity cards, credit cards, debit cards or the like, wherein the security element consists of a substrate on which an exposable layer is arranged, wherein the exposable layer has a volume hologram. According to the invention, an embossed layer is arranged on the substrate adjacent to the exposable layer, an embossed structure in the form of a refractive optical element being provided in the surface of the embossed layer facing away from the substrate. A coating is at least partially applied to the surface of the exposable layer facing away from the substrate and to the embossed structure, wherein the coating overlaps the exposable layer and the embossed structure and has optically recognizable information in the form of a pattern, an alphanumeric character or a graphic image. The coating has at least one recess above the exposable layer, so that the volume hologram is visible through the at least one recess and is not visible outside the recess.

CLAIM 1. A security element for increasing the protection against forgery of security documents, such as banknotes, securities, identity cards, credit cards, debit cards or the like, wherein the security element consists of a substrate on which an exposable layer is arranged, wherein the exposable layer has a volume hologram, characterized in that In that an embossing layer is arranged on the substrate adjacent to the exposable layer, in the surface of which embossing layer which faces away from the substrate a non-diffractive embossing structure is applied, wherein a coating is applied at least partially to the surface of the exposable layer which faces away from the substrate and to the embossing structure, wherein the coating overlaps the exposable layer and the embossed structure and has optically recognizable information in the form of a pattern, an alphanumeric character or a graphic image, wherein the coating has at least one recess over the exposable layer.



P35782

BANKNOTE – CARD

EP4086864

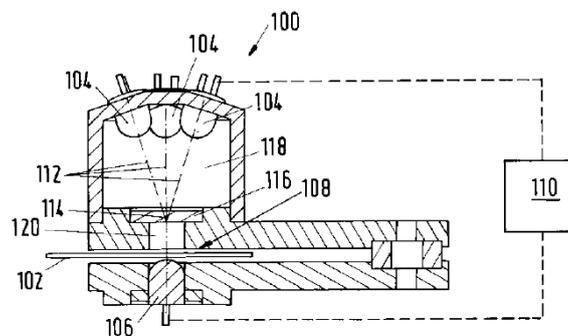
BUNDESDRUCKEREI

Priority Date: 30/04/2021

METHOD AND DEVICE FOR OPTICALLY VERIFYING A COMPONENT OF AN IDENTITY, VALUE OR SECURITY DOCUMENT

The invention relates to a device (100) for optically verifying at least one component (102) of an identification, value or security document (102), comprising a detection space (108) into which at least the component (102) of the identification, value or security document (102) can be inserted, Value or security document, having a set of light emitters (104) which is configured to emit light in the direction of the component (102) of the identification, value or security document, wherein at least one first light emitter (104) is configured to emit light in the direction of the component (102) of the identification, And wherein at least one second light emitter (104) is configured to emit light from a second wavelength range different from the first wavelength range, and having a photodetector (106) which is directed onto the detection space (108) and is designed to detect light transmitted through the component (102) of the identification, value or security document, reflected by the latter or deflected by the latter. The invention also relates to a method for optically verifying the authenticity of at least one component (102) of an identity document, value document or security document.

CLAIM 1. An apparatus (100) for optically verifying at least one component (102) of an identity, value or security document, comprising a detection space (108) into which at least the component (102) of the identity, value or security document can be introduced, having a set of light emitters (104) which is configured to emit light in the direction of the component (102) of the identification, value or security document, wherein at least one first light emitter (104) is configured to emit light in the direction of the component (102) of the identification, And wherein at least one second light emitter (104) is configured to emit light from a second wavelength range different from the first wavelength range, and having a photodetector (106) which is directed onto the detection space (108) and is designed to detect light transmitted through the component (102) of the identification, value or security document, reflected by the latter or deflected by the latter.



P35784

PATENT OF THE MONTH
PASSPORT – THREAD

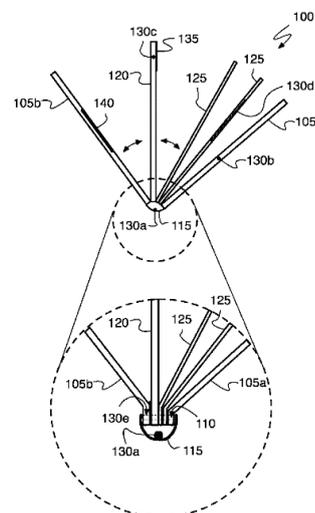
EP4086083

Priority Date: 06/05/2021

MUEHLBAUER ID SERVICES

SECURITY DOCUMENT WITH THREAD-LIKE SECURITY ELEMENT AND METHOD AND APPARATUS FOR ITS MANUFACTURING

A security document, e.g. book-like passport document (100), comprises: a number N of sheet-shaped substrates (105a-b), with $N \geq 1$; and a thread-like security element (130, 130a-e), which is integrated at least in sections into at least one of the N substrates or is fastened thereto and which has a microelectronic communication device (175) with an antenna device (180a-b) electrically connected thereto. The security element (130 e) can form part of a seam as a thread. The antenna lines (180a-b) together form, on the one hand, an antenna device as a dipole antenna for transmitting and receiving radio signals in the UHF band and, on the other hand, an induction device (self-inductance) for supplying energy. A strain relief element (190) can be provided which is capable of absorbing potential tensile forces acting externally on the security element in order to protect the antenna lines from such forces and thus to protect them from damage or destruction. In addition, the security element can have a protective layer as a wrapping (185, e.g. textile).



CLAIM 1. A security document (100), in particular an identity document or component or blank therefor, comprising: a number N of sheet-shaped substrates (105, 115, 120, 125), where $N \geq 1$; and a thread-like security element (130) which is integrated at least in sections into at least one of the N substrates (105, 115, 120, 125) or is fastened thereto and which has a first microelectronic communication device (175) with an antenna device (180 a, 180 b) for wireless communication of security-relevant first information to a communication counterpart (200) external with respect to the security document (100).

P35785

CARD

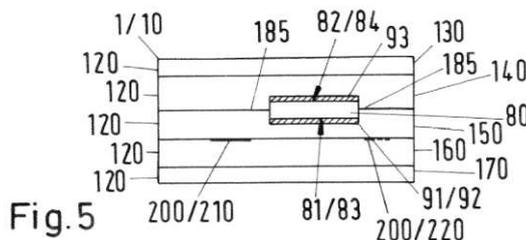
EP4086076

Priority Date: 05/05/2021

BUNDESDRUCKEREI

LAMINATION BODY WITH INTEGRATED HOLOGRAM AND METHOD FOR PRODUCING THE SAME

The invention relates to a method for producing a lamination body with an integrated exposure hologram and to such a lamination body. A lamination body with an integrated illumination hologram comprises a plurality of material layers (120) which are assembled from substrate layers (20) corresponding to the material layers (120) in a lamination process to form the lamination body (10), wherein an exposure hologram layer (80) is integrated between two of the material layers (20), which is connected to one of the two material layers (125) at least on an outer surface (81) by means of an adhesive (91), wherein the two material layers (125) are joined to one another directly in a planar manner by means of the lamination so as to run completely around the exposure hologram layer (80).



CLAIM 1. Lamination body (10) having an integrated exposure hologram, comprising a plurality of material layers (120) which are assembled from substrate layers (20) corresponding to the material layers (120) in a pressure-temperature lamination process to form the lamination body (10), characterized in that an exposure hologram layer (80) is integrated between two of the material layers (20) and is connected at least on one outer surface (81) to a material layer (150) of the two material layers (125) by means of an adhesive (91), wherein the two material layers (125) are directly joined to one another in a planar manner by means of the lamination in a completely circumferential manner around the exposure hologram layer (80).

P35792

LABEL

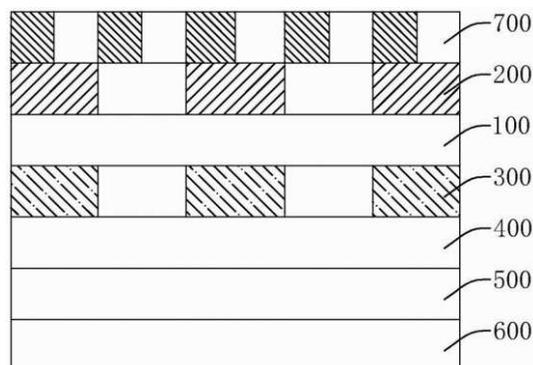
CN217880644U

Priority Date: 30/06/2022

ZHONGSHAN GUOAN TORCH TECHNOLOGY DEVELOPMENT

3D HOLOGRAPHIC ANTI-COUNTERFEIT LABEL

The utility model discloses a holographic antifalsification label of 3D from last down includes colored printing ink layer, base film layer, holographic layer, metal level, pressure sensitive adhesive layer, carrier layer in proper order, colored printing ink layer is provided with the multicolour pattern, holographic layer is provided with holographic pattern, holographic pattern with the multicolour pattern position corresponds, and holographic pattern and the accurate cover system of multicolour pattern can better show holographic pattern and multicolour pattern, discern more easily to make holographic layer have better metallic sense and third dimension through the metal level, the discernment is simple and easy, and the imitation degree of difficulty is big, has better anti-fake effect.



CLAIM 1. A 3D holographic security label, comprising: a base film layer (100); the colored ink layer (200) is positioned above the base film layer (100), and a colored pattern is arranged on the colored ink layer (200); the holographic layer (300) is positioned below the base film layer (100) and is provided with holographic patterns, and the holographic patterns correspond to the color patterns in position; a metal layer (400), the metal layer (400) being located below the holographic layer (300); a pressure sensitive adhesive layer (500), the pressure sensitive adhesive layer (500) being located below the metal layer (400); a carrier layer (600), the carrier layer (600) being located below the pressure sensitive adhesive layer (500).

P35795

PRINTING – BRAND PROTECTION

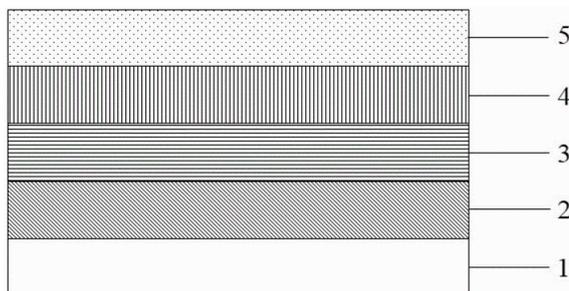
CN217869721U

Priority Date: 01/03/2022

GUANGZHOU HUADU LIANHUA PACKING MATERIAL

DYNAMICALLY DRIFTING SEAL PAPER

The utility model discloses a dynamically drifting facing slip paper, which comprises a raw paper layer, an information layer, an aluminum coating layer, a dynamic image-text layer and a protective layer which are arranged in sequence; the information layer is arranged on the upper surface of the raw paper layer; the aluminum layer is arranged on the upper surface of the information layer, and the dynamic image-text layer is arranged on the upper surface of the aluminum layer; the protective layer is arranged on the upper surface of the dynamic image-text layer. The utility model discloses a facing slip paper adopts vacuum aluminizing technique and dynamic picture and text suppression technique to combine together, and the product appearance presents holographic effect, under the shining of strong light source, demonstrates to encrypt the picture and text, along with the removal of light source, presents dynamic picture and text effect, and has promoted the aesthetic property and the anti-counterfeit performance of facing slip paper.



CLAIM 1. The dynamically driftable seal paper is characterized by comprising a raw paper layer, an information layer, an aluminum-plated layer, a dynamic image-text layer and a protective layer which are sequentially arranged from bottom to top; the information layer is arranged on the upper surface of the raw paper layer; the aluminum layer is arranged on the upper surface of the information layer, and the dynamic image-text layer is arranged on the upper surface of the aluminum layer; the protective layer is arranged on the upper surface of the dynamic image-text layer.

P35796

PRINTING

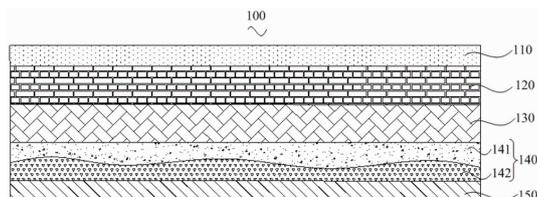
CN217863433U

Priority Date: 04/07/2022

SHENZHEN KUN HONG TECHNOLOGY

WATER TRANSFER PRINTING TRANSPARENT FILM

The utility model discloses a water transfer printing transparent film, this water transfer printing transparent film include the thin film basic unit that stacks gradually the setting, from type layer, antifriction layer, formation of image layer. The imaging layer comprises an acrylic acid layer and a holographic pattern layer, the holographic pattern layer is printed on the surface of the acrylic acid layer, which is back to the friction layer, and the release layer is a water-soluble release film. The utility model discloses technical scheme can improve the transparency of water rendition membrane.



CLAIM 1. A water transfer printing transparent film is characterized by comprising a film base layer, a release layer, a friction-resistant layer and an imaging layer which are sequentially stacked; the imaging layer comprises an acrylic acid layer and a holographic pattern layer, the holographic pattern layer is printed on the surface, back to the friction-resistant layer, of the acrylic acid layer, and the release layer is a water-soluble release film.

P35798

CN217847333U

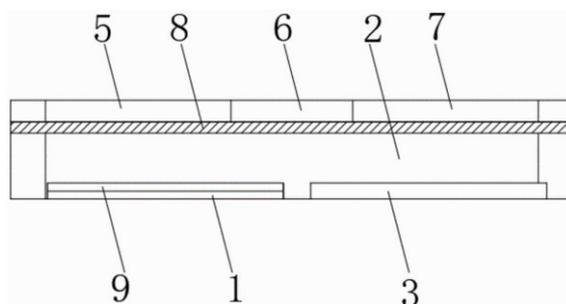
Priority Date: 14/06/2022

HUBEI GEDIAN DEVELOPMENT REGION CHENGUANG INDUSTRIAL

TRANSPARENT LASER HOLOGRAPHIC COMPOSITE ANTI-COUNTERFEITING PATCH

The utility model provides a holographic compound anti-fake paster of transparent laser relates to anti-fake paster technical field, including the paster body, first transfer glued membrane is installed in the front of paster body, and first transfer glued membrane and paster body surface bonding, be equipped with between first transfer glued membrane and the paster body and scrape the layer, and scrape the layer and cover on the surface of paster body, and first transfer glued membrane and the surface laminating of scraping the layer, the front edge of paster body is equipped with anti-fake frame. Adopt first rendition glued membrane and second rendition glued membrane, after pasting good to the paster body, when the paster body pastes, paste the back of body and have the second rendition glued membrane, the setting of second rendition glued membrane can prevent that the paster body from being stolen after tearing down because the second rendition glued membrane can leave the offset printing after tearing down to can not the secondary bond, can prevent to prevent burglary on the one hand, on the other hand improves and steals the cost of manufacture, protects the paster body not damaged.

CLAIM 1. The utility model provides a compound anti-fake paster of transparent laser holography, includes paster body (2), its characterized in that: first rendition glued membrane (1) is installed in the front of paster body (2), and first rendition glued membrane (1) and paster body (2) surface bonding, be equipped with between first rendition glued membrane (1) and the paster body (2) and scrape layer (9), and scrape layer (9) and cover on the surface of paster body (2), and first rendition glued membrane (1) and the surface laminating of scraping layer (9), the front edge of paster body (2) is equipped with anti-fake frame (4), and anti-fake frame (4) bond at paster body (2) surface, the back of paster body (2) is equipped with second adhesive linkage (6), and second adhesive linkage (6) and paster body (2) bond, the both sides of second adhesive linkage (6) are equipped with first adhesive linkage (5) and third adhesive linkage (7) respectively, and first adhesive linkage (5), third adhesive linkage (7) all bond with paster body (2).



P35803

PRINTING – BRAND PROTECTION

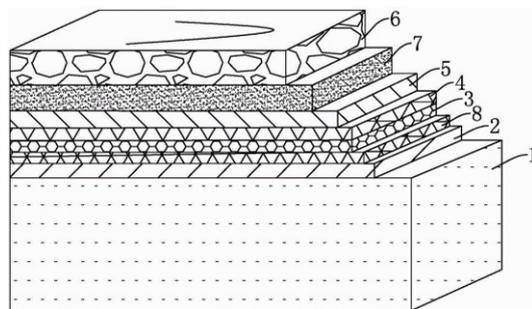
CN217810233U

Priority Date: 20/07/2022

ANHUI ZIJIANG METALLIZATION ENVIRONMENTAL PROTECTION MATERIAL | SHANGHAI ZIJIANG METALLIZATION ENVIRONMENTAL PROTECTION MATERIAL

ANTI-COUNTERFEITING PACKAGING PAPER WITH MULTI-LAYER HIGH-CONTRAST STAGGERED PATTERNS

The application discloses anti-fake wrapping paper with multilayer high contrast staggered pattern relates to anti-fake wrapping paper production technical field, and it includes base paper layer, flexography layer, aluminized layer, holographic laser layer, protection film layer, waterborne environmental protection varnish layer and the offset printing layer that sets gradually from bottom to top, and flexography layer picture and text combines with offset printing layer picture and text to form complete picture and text. This application possesses the characteristics that have the crisscross transform of high contrast pattern under different light source vision through making the packing product to make flexography printing layer picture and text and offset printing layer picture and text possess the characteristic that forms complete picture and text under the back light source shines, effectively promote the holistic visual effect of anti-fake wrapping paper and anti-fake grade.



CLAIM 1. An anti-counterfeiting wrapping paper with multi-layer high-contrast staggered patterns is characterized in that: the laser paper comprises a base paper layer (1), wherein a flexible printing layer (2), an aluminum plating layer (3), a holographic laser layer (4), a protective film layer (5) and an offset printing layer (6) are sequentially arranged on the base paper layer (1) from bottom to top.

P35810

PRINTING – BRAND PROTECTION

CN217778169U

Priority Date: 15/06/2022

YUNNAN QIAOTONG PACKAGE PRINTING

HOLOGRAPHIC TRUE COLOR THERMOPRINTING FILM

The invention belongs to the technical field of printing, and particularly relates to a holographic true-color hot stamping film which comprises a base film, wherein a release layer, an information layer, a color layer, an aluminizing layer and a hot stamping glue layer are sequentially arranged on the base film; coating a release layer on the base film through a coating machine; the information layer is a die-pressed holographic pattern, namely the die-pressed holographic pattern is formed on the base film containing the release layer; the color layer is printed by a flexible printing machine, namely, the base film of the die-pressing holographic pattern is directly printed in alignment with the connecting line of the flexible printing machine, and the pattern with the true color effect is displayed on the base film by ink in a way of printing the ink by the flexible printing machine to manufacture a color pattern base film; the aluminum plating layer is formed by plating aluminum on the base film printed with true color through an aluminum plating machine; and coating the hot-stamping glue on the aluminized surface by a coating machine. The invention provides a holographic true color hot stamping film which can realize good and accurate true color overprinting.

CLAIM 1. A holographic true color thermoprinting film comprises a base film and is characterized in that a release layer, an information layer, a color layer, an aluminum plating layer and a hot stamping adhesive layer are sequentially arranged on the base film; the release layer is coated on the base film through a coating machine; the information layer is a die-pressed holographic pattern, namely the die-pressed holographic pattern is formed on the base film containing the release layer; the color layer is printed by a flexo printing machine, namely the base film of the die stamping holographic pattern is directly connected with the flexo printing machine for contraposition printing, and the pattern with the true color effect is displayed on the base film by ink in a way of printing the ink by the flexo printing machine to manufacture a base film with a color pattern; the aluminum plating is to plate aluminum on the base film printed with true color by an aluminum plating machine; and coating the hot-stamping glue on the aluminized surface by a coating machine.



P35812

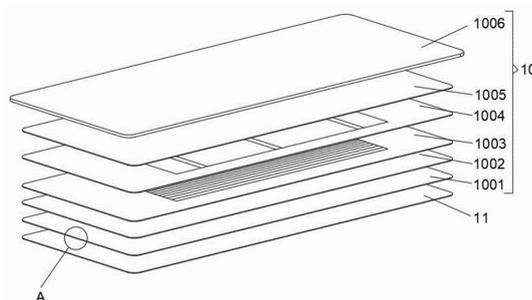
CN217753334U

Priority Date: 22/07/2022

ZHEJIANG HONGYE PACKAGING MATERIAL

HOLOGRAPHIC THERMOPRINTING FOIL WITH GOOD LAMINATING EFFECT

The utility model discloses an effectual holographic thermoprinting paper tinsel of laminating, including the thermoprinting paper tinsel main part of laminating each other with from the type membrane, the thermoprinting paper tinsel main part includes substrate layer, inoxidizing coating, holographic carrier layer, anti-fake information layer, matte layer, the wearing layer of pressfitting of each other, the recess of bar is seted up to the substrate layer bottom, the surface of wearing layer is provided with the waterproof layer, include the base film from the type membrane, from type layer, aluminize layer and rubber coating. The utility model has the advantages of scientific and reasonable structural design for the gilding foil structure has good visual effect and antifalsification advantage concurrently, and anti-counterfeit performance strengthens, has guaranteed product packaging's whole compatibility simultaneously, and the matte layer covers on the anti-fake information layer surface, has formed good matte effect, through the recess that sets up the intercommunication of each other in the substrate layer bottom, when laminating the gilding foil, the accessible recess is with air escape, has further guaranteed the laminating effect of gilding foil, has improved the incorruptibility of device.



CLAIM 1. The utility model provides an effectual holographic thermoprinting of laminating, is including thermoprinting foil main part (10) of laminating each other and from type membrane (11), its characterized in that: thermoprinting foil main part (10) are including substrate layer (1001), inoxidizing coating (1002), holographic carrier layer (1003), anti-fake information layer (1004), matte layer (1005), wearing layer (1006) of pressfitting each other, the recess (1007) of bar is seted up to substrate layer (1001) bottom, the surface of wearing layer (1006) is provided with the waterproof layer, include base film (1101), leave type layer (1102), aluminize layer (1103) and rubber coating (1104) from type membrane (11).

P35816

SEAL

CN217718900U

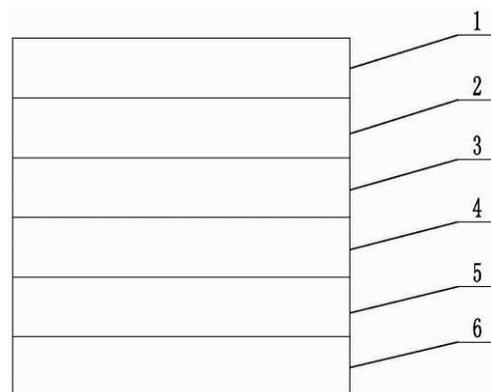
Priority Date: 22/07/2022

SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP

LOCAL VARIABLE HOLOGRAPHIC EFFECT ANTI-COUNTERFEITING MARK

The utility model belongs to the technical field of the false proof mark, concretely relates to local variable holographic effect false proof mark. The local variable holographic effect anti-counterfeiting mark comprises a plastic film layer, a local variable hollow printing layer, an adhesive layer, a holographic effect structure layer, a pressure-sensitive adhesive layer and a silicone oil paper layer which are sequentially arranged from top to bottom. The utility model discloses the sign has local variable holographic effect, and anti-fake information is unique, both is difficult to counterfeit and can distinguish fast again, and the sign layering destroys when wholly shifting, can not wholly shift, can effectively prevent the secondary and use.

CLAIM 1. A local variable holographic effect anti-counterfeiting mark is characterized in that: the holographic printing paper comprises a plastic film layer (1), a local variable hollow printing layer (2), an adhesive layer (3), a holographic effect structure layer (4), a pressure-sensitive adhesive layer (5) and a silicone oil paper layer (6) which are sequentially arranged from top to bottom.



P35826

LABEL

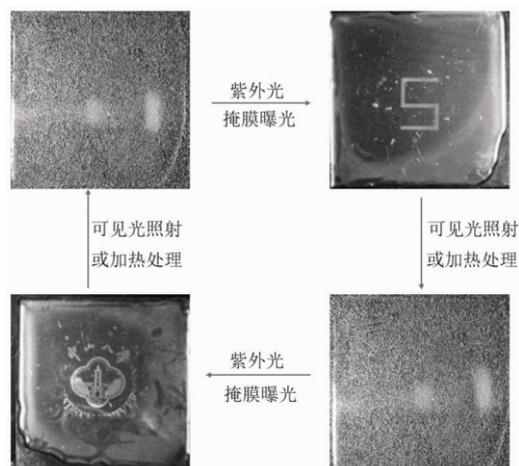
CN115353623

SUN YAT SEN UNIVERSITY

Priority Date: 09/08/2022

POLYIMIDE PHOTOSENSITIVE MATERIAL AND PREPARATION METHOD AND APPLICATION THEREOF

The invention belongs to the field of compound preparation, and particularly relates to a polyimide photosensitive material, and a preparation method and application thereof. The polyimide photosensitive material is formed by polycondensation of a photosensitive functional terphenylenediamine monomer with azobenzene, structural diamine and dianhydride, can form a film with patterns and a two-dimensional concave-convex structure on the surfaces of various substrates under the stimulation of ultraviolet lithography, mask exposure or holographic exposure, can observe rainbow color patterns due to diffraction effect under illumination, has obvious angle dependence of pattern colors, disappears under the irradiation of visible light or heating treatment, can form the two-dimensional concave-convex patterns again after ultraviolet lithography, mask exposure or holographic exposure, has the function of repeated 'recording-erasing', and has wide application prospects in the fields of anti-counterfeiting, information recording, micro-nano structures and the like.



CLAIM 1. A polyimide photosensitive material, wherein the structural formula of the polyimide is shown as formula (I): in formula (I), A is substituted or unsubstituted tetravalent aromatic group, B is substituted or unsubstituted divalent aromatic group, C is substituted or unsubstituted divalent aromatic or aliphatic group, $m = 1-20$, and the ratio of x to y is $y : x = (0-100) 1$, Azo has a structure shown in formula (II): in the formula (II), R 1 ,R 2 ,R 3 ,R 4 ,R 5 ,R 6 ,R 7 ,R 8 ,R 9 Each independently hydrogen, halogen, hydroxyl, aldehyde group, C 1~4 Alkyl radical, C 1~4 Amide, C 1~4 Ether radical, C 1~4 Ester group, C 1~4 Keto group, C 1~4 Alkoxy or C 1~4 An aryloxy group; the mole percentage of the side chain containing the Azo group in the polyimide in the main chain is 3.5-50%.

P35828

BRAND PROTECTION

CN115340833

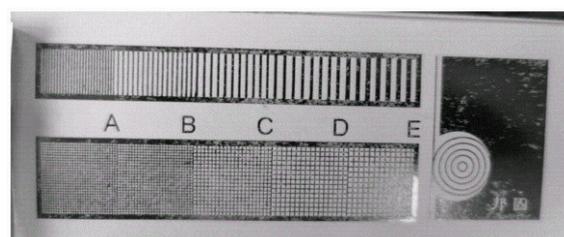
GUANGDONG BANGGU CHEMICAL TECHNOLOGY | GUANGDONG BANGGU FILM COATING INNOVATION ACADEMY

Priority Date: 02/12/2021

ENVIRONMENT-FRIENDLY WATER-BASED GUM FOR TIPPING PAPER HOT STAMPING FILM FOR HIGH-SPEED STAMPING AND PREPARATION METHOD THEREOF

The invention relates to the field of IPC 09J, in particular to an environment-friendly water-based gum for a tipping paper hot stamping film for high-speed ironing and a preparation method thereof. The water-based back adhesive comprises the following raw materials in parts by weight: 20-100 parts of aqueous acrylic emulsion, 0-60 parts of tackifying dispersion liquid, 0-10 parts of hyperbranched defoaming agent and 0-150 parts of first solvent, wherein the first solvent is aqueous gum, the VOC content is as low as 20g/L, the adhesive force of the gum is improved by adopting the combined action of the self-made aqueous acrylic emulsion, the tackifying dispersion liquid, the hyperbranched defoaming agent and the like, high-speed hot stamping (the hot stamping speed is as high as 120 m/min) can be realized, the printing fastness is good, the hot stamping can be repeated for multiple times, the gold flying and the powder falling are avoided, and the hot stamping quality is good. The waterborne gum has excellent edge cutting performance, can meet the fine line requirement (less than 0.1 mm) of holographic hot stamping anti-counterfeiting technology, and has wide application prospect.

CLAIM 1. The environment-friendly water-based gum for the tipping paper hot stamping film for high-speed stamping is characterized by comprising the following raw materials in parts by weight: 20-100 parts of water-based acrylic emulsion, 0-60 parts of tackifying dispersion liquid, 0-10 parts of hyperbranched defoaming agent and 0-150 parts of first solvent.



P35829

PRINTING

CN115340793

Priority Date: 11/08/2022

GUANGDONG LASER OPTRONICS TECHNOLOGY | GUANGZHOU UNIVERSITY

WATER-BASED EMULSION AND APPLICATION THEREOF IN LASER HOLOGRAPHIC ELECTROCHEMICAL ALUMINUM HOT STAMPING FILM

The invention discloses a water-based emulsion, which comprises the following preparation raw materials in parts by weight: 15-30 parts of water-based silicone-acrylic resin, 20-30 parts of water-based acrylic resin, 1-3 parts of wetting agent, 0.1-1 part of defoaming agent, 3-8 parts of alcoholic solution and 40-60 parts of water. The invention adopts the synergistic effect of polyester modified silicone-acrylate resin, organic silicon modified acrylic resin and epoxy modified silicone-acrylate resin, so that the coating material has certain tensile property, the coating material can be stretched along with a base film layer in the printing process, the obtained printing image has high precision and small deviation, the hot stamping coating material with excellent stripping property, strong plasticity and high temperature resistance can be prepared by the modified resin under a proper weight ratio, the cutting property after hot stamping is good, the production period is shortened, and meanwhile, the invention adopts water as a solvent to prepare aqueous system emulsion, thereby having good environmental protection effect, low residual quantity of VOCs and less discharge of organic solvent.

CLAIM 1. The aqueous emulsion is characterized by comprising the following preparation raw materials in parts by weight: 15-30 parts of water-based silicone-acrylic resin, 20-30 parts of water-based acrylic resin, 1-3 parts of wetting agent, 0.1-1 part of defoaming agent, 3-8 parts of alcoholic solution and 40-60 parts of water.

P35832

BRAND PROTECTION – LUMINESCENCE

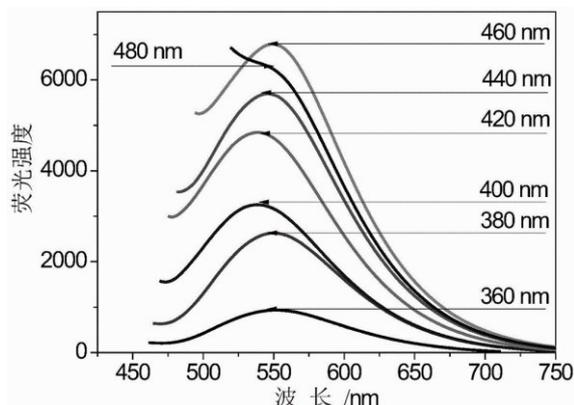
CN115302882

Priority Date: 12/07/2022

SHANDONG TAIBAO PACKAGING PRODUCT

NITROGEN AND FLUORINE CO-DOPED CARBON DOT HOLOGRAPHIC ANTI-COUNTERFEITING ALUMINUM FOIL AND MANUFACTURING METHOD THEREOF

The invention relates to a nitrogen and fluorine co-doped carbon dot holographic anti-counterfeiting aluminum foil and a preparation method thereof, wherein the aluminum foil layer is sequentially provided with a dry transfer adhesive layer, an aluminum-plated layer, a shielding layer, a holographic information layer, a holographic imprinting coating, a carbon dot fluorescent coating and a surface coating from inside to outside; the method comprises the following steps: 1) Preparing a carbon dot fluorescent coating; 2) Carbon dot fluorescent coating; 6) Aluminum plating; 7) Compounding; 8) Transferring; 9) And (6) top coating. The invention has the following advantages: 1) The fluorine atom-doped carbon dot fluorescent anti-counterfeiting technology and the holographic anti-counterfeiting technology are combined on the anti-counterfeiting aluminum foil, so that anti-counterfeiting means are enriched, and the anti-counterfeiting performance is improved; 2) The carbon dot fluorescence wavelength is adjustable, and the authenticity can be detected by a fluorescence spectrometer by setting a specific wavelength, so that the anti-counterfeiting performance is further improved; 3) Compared with the traditional organic dye and inorganic semiconductor quantum dot, the carbon dot overcomes the defects of unstable light emission and easy photobleaching of the organic dye and the defect of low biocompatibility of the inorganic semiconductor quantum dot.



CLAIM 1. The utility model provides a nitrogen, fluorine codope carbon dot holographic anti-fake aluminium foil, includes the aluminium foil layer, its characterized in that aluminium foil layer is equipped with the dry-type from inside to outside in proper order and shifts the glue film, aluminize the layer, shielding layer, holographic information layer, holographic impression coating, carbon dot fluorescence coating, top-coat coating, the raw materials and the ratio of carbon dot fluorescence coating are as follows: the proportion of the carbon dot fluorescent coating is as follows:

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BRAND PROTECTION – LUMINESCENCE

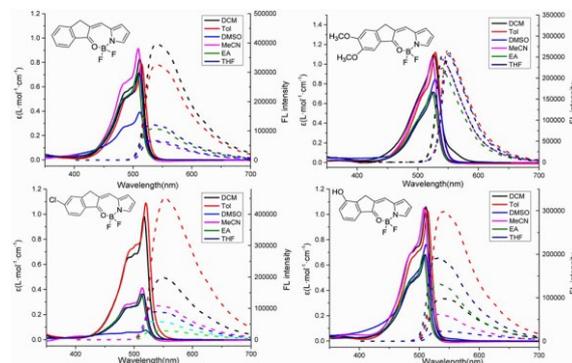
CN115286650

CHINA THREE GORGES UNIVERSITY

Priority Date: 29/07/2022

PREPARATION AND APPLICATION OF SEVEN-MEMBERED N, O HETEROCYCLIC COMPOUND

The invention discloses a preparation method and application of a seven-membered N, O heterocyclic compound, wherein the structure of the compound is as follows: the dye takes 1-indanone and 2-formyl pyrrole as raw materials, and is subjected to Knoevenagel condensation reaction under the action of a triethylamine catalyst to finally generate the seven-membered N, O-fluorine boron fluorescent dye. The dye and acrylic resin are combined on a film to form the film rapidly, and clear fluorescence can be seen under an ultraviolet lamp. The fluorescent dye has the advantages of simple synthesis method, short reaction time, high yield, low manufacturing cost and huge potential in the fields of fluorescent holographic anti-counterfeiting packaging films, OLDE (organic light emitting diode) and the like.



CLAIM 1. The BODIPY solid fluorescent dye is characterized in that the chemical structural formula of the fluorescent dye is as follows: wherein R is 1 is-H, -MeO, or-Cl; r 2 is-H, -MeO; r 3 Is H or-OH.

P35836

PRINTING – BRAND PROTECTION

CN115284764

HUBEI HUAGONG IMAGE TECHNOLOGY DEVELOPMENT

Priority Date: 16/08/2022

METHOD FOR PREPARING PACKAGE WITH COLOR PRINTING AND HOLOGRAPHIC LASER ANTI-COUNTERFEITING EFFECT AND PRODUCT

The invention belongs to the technical field of printing anti-counterfeiting packages, and discloses a preparation method of a package with color printing and holographic laser anti-counterfeiting effects, which comprises the following steps: carrying out color printing by taking the PET film as a base film to obtain a color printing film with transfer performance and protective performance; taking the color printing film as a first unreeling and the cold transfer film with the laser holographic pattern as a second unreeling to prepare a holographic color printing transfer film with a holographic laser effect; preparing a holographic laser color printing film with metallic luster; and positioning, compounding and stripping the holographic laser color printing film and paper to obtain the packaging product with both color printing patterns and holographic laser anti-counterfeiting effect. The invention also discloses a corresponding product. The invention can effectively combine color printing and holographic laser to be displayed on the PET base film at one time, and has the advantages of shortened process flow, simple operation, convenient control, low cost and the like.

CLAIM 1. A method for preparing a package with color printing and holographic laser anti-counterfeiting effects is characterized by comprising the following steps: step one, preparation of color printing film Carrying out color printing by taking the PET film as a base film, wherein a layer of release resin gloss oil with stripping capability is printed in full page of a first color group, a plurality of color groups are printed from a second color group to form a color printing pattern, and a layer of protective gloss oil is printed in full page of a last color group, so that the color printing film with transfer performance and protective performance is prepared; step two, preparation of holographic color printing transfer film Taking the color printing film prepared in the first step as a first unreeling, taking the cold transfer film with the laser holographic patterns as a second unreeling, firstly, uniformly coating a layer of UV gloss oil on the color printing film in a full-page manner, and then, carrying out laminating synchronization and UV curing treatment on the coated color printing film and the second unreeling; after the film is completely solidified, peeling the color printing film and the cold transfer film, thereby preparing the holographic color printing transfer film with the holographic laser effect; step three, vacuum evaporation treatment Carrying out vacuum evaporation treatment on the holographic color printing transfer film prepared in the step two, and cutting the holographic color printing transfer film according to the required specification to prepare a holographic laser color printing film with metallic luster; step four, paper composite treatment And (3) coating glue on the evaporation surface of the holographic laser color printing film prepared in the step three, positioning and compounding the evaporation surface with paper, and then stripping, positioning and breaking the paper, so that the required anti-counterfeiting packaging piece is prepared and has the color printing pattern and holographic laser anti-counterfeiting effect.

P35837

PRINTING

CN115284762

Priority Date: 14/09/2022

SICHUAN LANJIAN GOLD STAMP

HOLOGRAPHIC POSITIONING SCREEN PRINTING WRINKLE INK METHOD

The invention discloses a holographic positioning silk-screen wrinkle printing ink method, which comprises the following steps: formulating a silk-screen printing plate, and installing the silk-screen printing plate on silk-screen equipment; blending UV wrinkle printing ink, and adding the UV wrinkle printing ink to the silk-screen printing plate; a lamp tube of the wrinkle blooming machine and an ultraviolet lamp tube are additionally arranged on the silk-screen device; and placing the positioning paper on the silk-screen printing equipment for printing. According to the holographic positioning screen printing wrinkle ink method, a production solution with high efficiency, stability and low defects is formed through UV wrinkle ink blending, machine improvement and an operation method, and the production feasibility of the products is promoted. The UV wrinkle printing ink is quickly solidified on the holographic positioning paper at one time by mainly adjusting the formula of the printing ink and relevant production process parameters and performing feasibility production tests through silk-screen printing equipment, thereby avoiding the inaccurate overprinting registration and realizing automatic production.

CLAIM 1. A holographic positioning screen printing wrinkle ink method is characterized by comprising the following steps: formulating a silk-screen printing plate, and installing the silk-screen printing plate on silk-screen equipment; blending UV wrinkle printing ink, and adding the UV wrinkle printing ink to the screen printing plate; a lamp tube of the wrinkle blooming machine and an ultraviolet lamp tube are additionally arranged on the silk-screen device; and placing the positioning paper on the silk-screen printing equipment for printing.

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PRINTING – BRAND PROTECTION

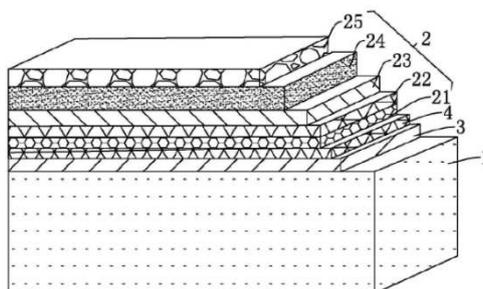
CN115262282

Priority Date: 20/07/2022

ANHUI ZIJIANG METALLIZATION ENVIRONMENTAL PROTECTION MATERIAL | SHANGHAI ZIJIANG METALLIZATION ENVIRONMENTAL PROTECTION MATERIAL

METHOD FOR MAKING ANTI-COUNTERFEITING PACKAGING PAPER

The application discloses a manufacturing method of anti-counterfeiting packaging paper, relates to the technical field of anti-counterfeiting packaging paper production, and comprises the following steps: s1, designing and positioning graphics and texts; s2, plate making; s3, printing pictures and texts on the base paper layer; s4, compounding the base paper layer and the surface paper film; s5, positioning and printing the surface layer graphics; s6, die cutting, slitting and packaging. This application possesses the characteristics that have the crisscross transform of high contrast pattern through making the packing product possess under different light source vision to make flexography printing layer picture and text and offset printing layer picture and text possess the characteristic that forms complete picture and text under the back light source shines, make between the superimposed anti-fake picture and text relevant each other, thereby reach the holistic visual effect of effective reinforcing anti-fake wrapping paper, promote the effect of its anti-fake grade.



CLAIM 1. The manufacturing method of the anti-counterfeiting wrapping paper is characterized by comprising the following steps: s1, image-text design and positioning: the printing design, the positioning and overlapping design and the laser holographic design of the pictures and texts of the base paper layer (1) and the surface layer (2); s2, plate making: the base paper layer (1) and the surface layer (2) are used for graphic and text color printing plate making; laser holographic plate making; making up and electroforming plate making; s3, printing pictures and texts on the base paper layer (1); s4, compounding the base paper layer (1) and the surface layer (2) with a paper film; s5, printing the pictures and texts on the surface layer (2) in a positioning manner; s6, die cutting, slitting and packaging.

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

P35732

BANKNOTE – RELIEF

WO2022242912

Priority Date: 18/05/2021

GIESECKE & DEVRIENT CURRENCY TECHNOLOGY

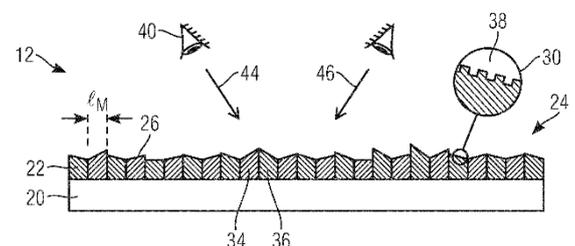
OPTICALLY VARIABLE REPRESENTATION ELEMENT

The invention relates to an optically variable representation element (12) with a reflective surface region (24) which, upon observation in reflected light, generates a respective three-dimensional representation (14, 16) for at least two different observation directions (44, 46), with the three-dimensional representations (14, 16) at least partially overlapping and having different colors at least regionally within the overlap region. In this case, provision is made for the reflective surface region (24) to contain a respective multiplicity of reflective facets (34, 36) in a first and a second partial region which at least partially overlap one another, said reflective facets being oriented such that the facets (34) in the first partial region generate a first three-dimensional representation (14) with a surface that jumps out and/or is set back in relation to its actual spatial shape for the observer from the first observation direction (44) and the facets (36) in the second partial region generate a second three-dimensional representation (16) with a surface that jumps out and/or is set back in relation to its actual spatial shape for the observer from the second observation direction (46). In the overlap region of the first and the second partial regions, the facets (34, 36) of the reflective surface region (24) are provided at least regionally with sub-wavelength structures (38) which generate the different colors of the three-dimensional representations (14, 16).

ÉLÉMENT DE REPRÉSENTATION OPTIQUEMENT VARIABLE

L'invention concerne un élément de représentation (12) optiquement variable comprenant une zone de surface (24) réfléchissante qui, lorsqu'elle est observée dans une lumière réfléchie, génère pour au moins deux directions d'observation (44, 46) différentes, respectivement une représentation tridimensionnelle (14,16), les représentations tridimensionnelles (14,16) se chevauchant au moins partiellement et présentant au moins par endroits des couleurs différentes dans la zone de chevauchement. Selon l'invention, la zone de surface (24) réfléchissante comporte dans une première et une deuxième zone partielle qui se chevauchent au moins partiellement, respectivement une pluralité de facettes réfléchissantes (34, 36) qui sont orientées de sorte que les facettes (34) de la première zone partielle génèrent pour l'observateur à partir de la première direction d'observation (44) une première représentation tridimensionnelle (14) présentant une surface en saillie et/ou en retrait par rapport à sa forme réelle dans l'espace, et de manière que les facettes (36) de la deuxième zone partielle génèrent pour l'observateur à partir de la deuxième direction d'observation (46) une deuxième représentation tridimensionnelle (16) présentant une surface en saillie et/ou en retrait par rapport à sa forme réelle dans l'espace. Les facettes (34, 36) de la zone de surface (24) réfléchissante comportent, dans la zone de chevauchement de la première et de la deuxième zone partielle, au moins par endroits, des structures sous-longueur d'onde (38) qui produisent les différentes couleurs des représentations tridimensionnelles.

CLAIM 1. Optically variable display element having at least one reflective surface region which, when viewed in reflected light, generates in each case a three-dimensional display for at least two different viewing directions, wherein the three-dimensional representations overlap at least partially and have different colors in at least some regions in the overlap region, wherein the at least one reflective surface region in a first and a second partial region, which overlap one another at least partially, in each case contains a multiplicity of reflective facets which are oriented in such a way that, characterized in that the facets of the first partial region generate for the viewer from the first viewing direction a first three-dimensional representation with a surface projecting and/ or receding with respect to its actual spatial shape, and the facets of the second partial region form a second three-dimensional representation for the viewer from the second viewing direction with a first and/ or recessed surface and the facets of the reflective surface region in the overlap region of the first and second partial region are provided at least in regions with sub-wavelength structures which produce the different colours of the three-dimensional representations.

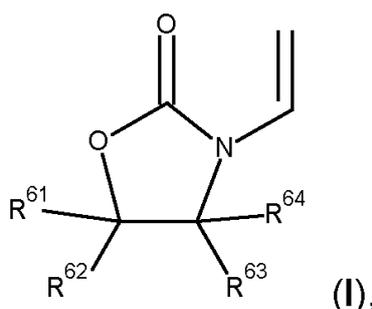


COMPOSITIONS, COMPRISING PLATELET-SHAPED TRANSITION METAL PARTICLES

The present invention relates to compositions, comprising (A) platelet-shaped transition metal particles, wherein the number mean diameter of the platelet-shaped transition metal particles, present in the composition, is in the range of from 15 nm to 1000 nm, the transition metal is selected from silver, copper, gold and palladium, especially silver and copper, very especially silver; (B) one, or more reactive diluents (B); (C) one, or more oligomers (C); (D) one, or more photoinitiators (D); (E) at least a surfactant (E), which is a block copolymer, comprising at least a block A and a block B, wherein a) the block A comprises a1) monomer units (A1) derived from a compound selected from alkyl (meth)acrylates, alkyl (meth)acrylamides, or any mixture thereof, and a2) monomer units (A2) derived from a hydroxy group, or ether group containing alkyl (meth)acrylate; b) the block B comprises monomer units (B) derived from a compound selected from fluorinated (meth)acrylic esters of formula $H_2C=CR_{46}(C(O)ORF-1)$ (XX), wherein R_{46} is H, or a methyl group; and RF-1 is an organic residue containing a perfluorinated alkyl group; (F) optionally one, or more polymeric binders; (F) optionally one, or more solvents; and (H) optionally further additives. The coatings, obtained with said compositions, show one color, when observed in transmission and another color, when observed in reflection on both sides of the cured coating.

COMPOSITIONS COMPRENANT DES PARTICULES DE MÉTAL DE TRANSITION EN FORME DE PLAQUETTES

La présente invention concerne des compositions, comprenant les éléments suivants : (A) des particules de métal de transition en forme de plaquettes, le diamètre moyen en nombre des particules de métal de transition en forme de plaquettes, présentes dans la composition, étant dans la gamme de 15 nm à 1000 nm, le métal de transition étant choisi parmi l'argent, le cuivre, l'or et le palladium, en particulier l'argent et le cuivre, tout particulièrement l'argent ; (B) un ou plusieurs diluants réactifs (B) ; (C) un ou plusieurs oligomères (C) ; (D) un ou plusieurs photoinitiateurs (D) ; (E) au moins un agent tensioactif (E), à savoir un copolymère séquencé, comprenant au moins un bloc A et un bloc B, sachant que a) le bloc A comprend a1) des motifs monomères (A1) dérivés d'un composé choisi parmi les (méth)acrylates d'alkyle, les (méth)acrylamides d'alkyle, ou tout mélange de ceux-ci, et a2) des motifs monomères (A2) dérivés d'un (méth)acrylate d'alkyle contenant un groupe hydroxy ou un groupe éther ; b) le bloc B comprend des unités monomères (B) dérivées d'un composé choisi parmi les esters (méth)acryliques fluorés de formule $H_2C=CR_{46}(C(O)ORF-1)$ (XX), où R_{46} est H, ou un groupe méthyle, et RF-1 est un résidu organique contenant un groupe alkyle perfluoré ; (F) éventuellement un, ou plusieurs liants polymères ; (F) éventuellement un, ou plusieurs solvants ; et (H) éventuellement d'autres additifs. Les revêtements, obtenus avec lesdites compositions, présentent une couleur, lorsqu'ils sont observés en transmission et une autre couleur, lorsqu'ils sont observés en réflexion sur les deux côtés du revêtement durci.



CLAIM 1. A radically curable composition, especially a UV-Vis radiation radically curable printing ink, comprising (A) platelet-shaped transition metal particles, wherein the number mean diameter of the platelet-shaped transition metal particles, present in the composition, is in the range of from 15 nm to 1000 nm, the transition metal is selected from silver, copper, gold and palladium, especially silver and copper, very especially silver; (B) one, or more reactive diluents (B); (C) optionally one, or more oligomers (C); (D) one, or more photoinitiators (D); (E) at least a surfactant (E), which is a block copolymer, comprising at least a block A and a block B, wherein a) the block A comprises a1) monomer units (A1) derived from a compound selected from alkyl (meth)acrylates, alkyl (meth)acrylamides, or any mixture thereof, and a2) monomer units (A2) derived from a hydroxy group, or ether group containing alkyl (meth)acrylate; b) the block B comprises monomer units (B) derived from a compound selected from fluorinated (meth)acrylic esters of formula $H_2C=CR_{46}(C(O)ORF-1)$ (XX), wherein R_{46} is H, or a methyl group; and RF-1 is an organic residue containing a perfluorinated alkyl group; (F) optionally one, or more polymeric binders; and (G) optionally one, or more solvents; (H) optionally further additives.

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WO2022238146

Priority Date: 12/05/2021

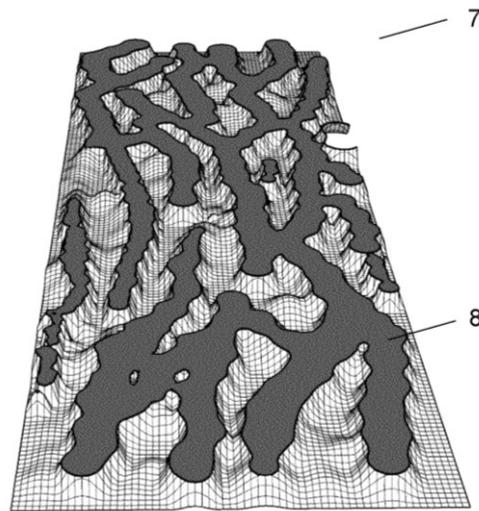
ROLIC TECHNOLOGIES

METHOD FOR CREATING SURFACE MICROSTRUCTURES

The present invention relates to methods for designing and creating surface microstructures and includes 3D scanning of existing surface microstructures as well as transferring processed data of the scanned microstructures to a material using a proper writing tool. Surface microstructures created with the methods of the invention have a wide field of applications, such as for security features in optical security elements, alignment layers for liquid crystals, antireflection surfaces, AR/VR applications, optical filters, light coupling, micro-optics, as well as for light management in many different technical areas.

PROCÉDÉ DE CRÉATION DE MICROSTRUCTURES DE SURFACE

La présente invention concerne des procédés de conception et de création de microstructures de surface et comprend le balayage 3D de microstructures de surface existantes ainsi que le transfert de données traitées des microstructures balayées vers un matériau à l'aide d'un outil d'écriture approprié. Les microstructures de surface créées avec les procédés de l'invention présentent un large champ d'applications, tels que pour des caractéristiques de sécurité dans des éléments de sécurité optique, des couches d'alignement pour cristaux liquides, des surfaces antireflet, des applications AR/VR, des filtres optiques, un couplage de lumière, des micro-optiques, ainsi que pour la gestion de la lumière dans de nombreuses zones techniques différentes.



CLAIM 1. Method for creation of a desired surface microstructure, the method comprising the steps providing a material with a surface microstructure which has a topography, the surface microstructure being considered as the original surface microstructure; providing a 3D surface profilometer; acquiring digital data of the original surface microstructure topography with the 3D surface profilometer; providing a writing tool; processing the digital data of the original surface microstructure topography to obtain structure describing data to be written by the writing tool; providing the structure describing data for a desired surface microstructure to the writing tool; providing a target material; optionally providing a resin; creating the desired surface microstructure in or on the target material comprising writing with the writing tool a structure in or on the target material or in a resin using the structure describing data.

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Priority Date: 07/05/2021

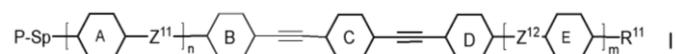
MERCK

REACTIVE MESOGENS

The invention relates to reactive mesogens (RMs), to mixtures and formulations comprising them, to polymers obtained from such RMs and RM mixtures, and the use of the RMs, RM mixtures and polymers in optical or electrooptical components or devices.

MÉSOGÈNES RÉACTIFS

L'invention concerne des mésogènes réactifs (MR), des mélanges et des formulations les comprenant, des polymères obtenus à partir de tels MR et mélanges de MR et l'utilisation des MR, des mélanges de MR et des polymères dans des composants ou des dispositifs optiques ou électro-optiques.



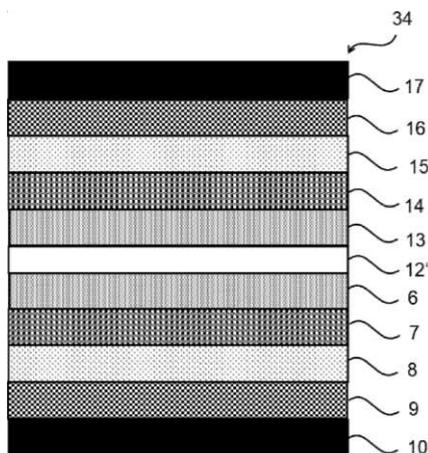
CLAIM 1. A compound of formula I, wherein P is a polymerisable group, Sp is a spacer group or a single bond, R11 is F, Cl, CN, NCS, alkyl, alkoxy, thioalkyl, alkylcarbonyl, alkoxy carbonyl, alkylcarbonyloxy or alkoxy carbonyloxy preferably with 1 to 15 C atoms which is more preferably optionally fluorinated or P-Sp, A, B, D, and E denote, in case of multiple occurrence independently of one another an alicyclic, heterocyclic, aromatic or heteroaromatic group with 4 to 20 ring atoms, which is monocyclic or polycyclic and which is optionally substituted by one or more groups L or P-Sp-, and one of rings C and D may also denote a single bond, L F, Cl, -CN, P-Sp-, or straight chain, branched or cyclic alkyl having 1 to 25 C atoms, wherein one or more non-adjacent CH₂- groups are optionally replaced by -O-, -S-, -CO-, -CO-O-, -O-CO-, -O-CO-O-, CR₀=CR₀-, -C⁻C-, in such a manner that O- and/or S-atoms are not directly connected with each other, and wherein one or more FI atoms are each optionally replaced by P-Sp-, F or Cl, or two substituents L that are connected to directly adjacent C atoms may also form a cycloalkyl or cycloalkenyl group with 5, 6, 7 or 8 C atoms, M denotes CH₂, C(CH₃)₂, CHF, CF₂, NH, S or O, Z11, Z12 denotes, in case of multiple occurrence independently of one another, -O-, -S-, -CO-, -COO-, -OCO-, -S-CO-, -CO-S-, -O-CO-, -CO-NR₀-, -NR₀-CO-, -NR₀-CO-NR₀-, -NR₀-CO-O-, -O-CO-NR₀-, -OCH₂-, -CH₂O-, -SCH₂-, -CH₂S-, -CF₂O-, -OCF₂-, -CF₂S-, -SCF₂-, -CH₂CH₂-, -(CH₂)_ni, -CF₂CH₂-, -CH₂CF₂-, -CF₂CF₂-, -CH=N-, -N=CH-, -N=N-, -CH=CR₀-, -CY₁=CY₂-, -C⁻C-, -CH=CH-COO-, -OCO-CFI=CFI- or a single bond, preferably -COO-, -OCO-, -C⁻C-, or a single bond, n1 is 1, 2, 3 or 4, r denotes 0, 1, 2, 3 or 4, preferably 0, 1 or 2, s denotes 0, 1, 2 or 3, preferably 0, 1 or 2, t denotes 0, 1 or 2, preferably 0 or 1, R₀ R₀₀ denote FI or alkyl having 1 to 12 C atoms, Y1, Y2 independently of each other denote H, F, Cl, NCS, or CN, n is 0, 1, 2, 3 or 4, preferably 0, 1 or 2, more preferably 0 or 1, most preferably 0, m is 0, 1, 2, 3 or 4, preferably 0, 1 or 2, more preferably 0 or 1, most preferably 0.

MULTILAYER BODY AND PROCESS FOR PRODUCTION THEREOF

The invention relates to a multilayer body comprising two layer structures bonded by means of an adhesive layer, wherein at least one of the two layer structures has a colour-shifting thin-film element. The invention further relates to a process for production of a multilayer body, comprising the providing of a first layer structure having a colour-shifting thin-film element; the providing of a second layer structure having a colour-shifting thin-film element; the step of bonding of the first layer structure to the second layer structure by means of at least one adhesive layer present over the full area or in structured or partial form, wherein the at least one adhesive layer is provided on the outside of at least one of the two layer structures, preferably on the outside of both layer structures.

CORPS MULTICOUCHE ET SON PROCÉDÉ DE PRODUCTION

L'invention se rapporte à un corps multicouche comprenant deux structures de couches liées au moyen d'une couche adhésive, au moins l'une des deux structures de couches présentant un élément à couches minces à couleur changeante. L'invention se rapporte outre à un procédé de fabrication d'un corps multicouche, consistant à fournir une première structure de couche ayant un élément de film mince à couleur changeante ; à fournir une seconde structure de couche ayant un élément de film mince à couleur changeante ; et comprenant l'étape consistant à coller la première structure de couche à la seconde structure de couche au moyen d'au moins une couche adhésive présente sur toute la surface ou sous forme structurée ou partielle, la ou les couches adhésives étant disposées sur l'extérieur d'au moins l'une des deux structures de couche, de préférence sur l'extérieur des deux structures de couche.



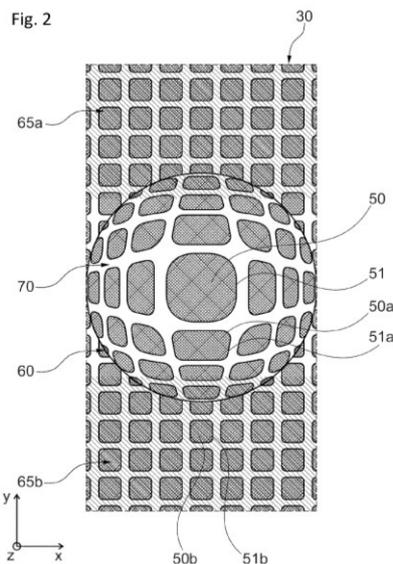
CLAIM 1. Multilayer body, comprising two layer structures joined by means of an adhesive layer, at least one of the two layer structures having a color-shifting thin-film element.

OPTICALLY VARIABLE SECURITY ELEMENT

The invention relates to an optically variable security element (10) having a motif region (20). A plurality of differently oriented facets (111) are arranged in the motif region (20). A pattern (30) comprising visible pattern elements (50, 50a, 50b) is visible in the motif region (20) to a viewer at least at a first viewing angle. The visible pattern elements (50, 50a, 50b) are designed differently in order to portray a motif (60) to the viewer. The motif (60) is a three-dimensional motif (60). The pattern elements (50, 50a, 50b) are designed differently such that they portray a perspective of the three-dimensional motif (60) to the viewer.

ÉLÉMENT DE SÉCURITÉ OPTIQUEMENT VARIABLE

L'invention se rapporte à un élément de sécurité optiquement variable (10) présentant une zone de motif (20). Une pluralité de facettes (111) orientées différemment sont disposées dans la zone de motif (20). Un motif (30) comprenant des éléments de motif (50, 50a, 50b) visible est visible dans la région de motif (20) pour un observateur au moins à un premier angle de visualisation. Les éléments de motif (50, 50a, 50b) visible sont conçus différemment pour représenter un motif (60) pour l'observateur. Le motif (60) est un motif tridimensionnel (60). Les éléments de motif (50, 50a, 50b) sont conçus différemment de telle sorte qu'ils représentent une perspective du motif tridimensionnel (60) pour l'observateur.



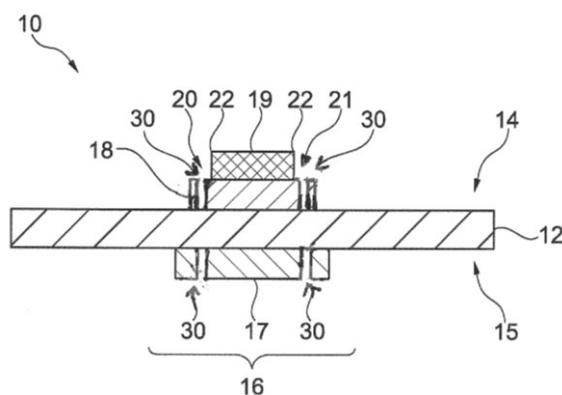
CLAIM 1. An optically variable security element (10) having a motif region (20), wherein (a) a plurality of differently oriented facets (111) is arranged in the motif region (20), (b) a pattern (30) with visible pattern elements (50, 50 a, 50 b) in the motif region (20) is visible to a viewer at least at a first viewing angle, (c) wherein the visible pattern elements (50, 50 a, 50 b) are designed differently in order to present a motif (60) to the viewer, (d) wherein the motif (60) is a three-dimensional motif (60), and (e) wherein the pattern elements (50, 50 a, 50 b) are designed differently in such a way that they represent a perspective of the three-dimensional motif (60) for the viewer.

METHOD FOR PRODUCING A SECURITY ELEMENT, AND SECURITY ELEMENT

The invention relates to a method for producing a security element, to a security element, and to a security document. The method comprises the following steps: providing a substrate (12) embodied with a planar extent and having a front and a rear side (14, 15) and at least one portion (16); b1) applying a stabilizing coating (17) in the portion (16) on the rear side (15) of the substrate (12); b2) applying an adhesion promoter coating (18) in the portion (16) on the front side (14) of the substrate (12); and c) applying a transfer element (19) on the adhesion promoter coating (18). As seen in a plan view of the planar substrate (12), the transfer element (19) is arranged in a manner bounded by an edge (22) lying within the portion (16) on at least a first and a second side (20, 21), and the stabilizing coating (17) and the adhesion promoter coating (18) are each formed on at least one of the first and second sides (20, 21) of the transfer element (19) in a manner extending beyond the edge (22) thereof. The stabilizing coating (17) and the adhesion promoter coating (18) each comprise a, more particularly optical or machine-readable, e.g. luminescent, feature component, the stabilizing coating (17) and the adhesion promoter coating (18) jointly forming a security feature of the security element.

PROCÉDÉ DE FABRICATION D'UN ÉLÉMENT DE SÉCURITÉ, ET ÉLÉMENT DE SÉCURITÉ

L'invention concerne un procédé de fabrication d'un élément de sécurité, un élément de sécurité et un document de sécurité. Le procédé consiste à : fournir un substrat (12) réalisé avec une étendue plane et ayant un côté avant et un côté arrière (14, 15) et au moins une partie (16) ; b1) appliquer un revêtement stabilisant (17) dans la partie (16) sur le côté arrière (15) du substrat (12) ; b2) appliquer un revêtement promoteur d'adhésion (18) dans la partie (16) sur le côté avant (14) du substrat (12) ; et c) appliquer un élément de transfert (19) sur le revêtement promoteur d'adhésion (18). Comme on peut le voir dans une vue en plan du substrat plan (12), l'élément de transfert (19) est agencé d'une manière délimitée par un bord (22) se trouvant à l'intérieur de la partie (16) sur au moins un premier et un second côté (20, 21), et le revêtement stabilisant (17) et le revêtement promoteur d'adhésion (18) sont chacun formés sur au moins l'un des premier et second côtés (20, 21) de l'élément de transfert (19) d'une manière s'étendant au-delà du bord (22) de celui-ci. Le revêtement stabilisant (17) et le revêtement promoteur d'adhésion (18) comprennent chacun un élément caractéristique, plus particulièrement optique ou lisible par machine, par exemple luminescent, le revêtement stabilisant (17) et le revêtement promoteur d'adhésion (18) formant conjointement une caractéristique de sécurité de l'élément de sécurité.



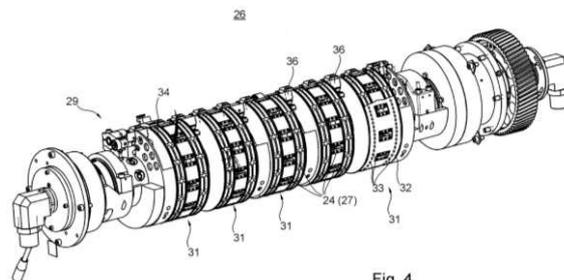
CLAIM 1. A method for producing a security element (10; 100; 200; 300; 400; 500; 600) having a security feature, comprising the following steps: a) providing a flat extended substrate (12), and at least one portion (16); b1) applying a stabilizing coating (17) in said portion (16) to said back side (15) of said substrate (12); B2) applying an adhesion promoter coating (18) in the section (16) to the front side (14) of the substrate (12); and c) applying a transfer element (19) to the adhesion promoter coating (18); wherein, as seen in a plan view of the planar substrate (12), the transfer element (19) is arranged on at least a first and a second side (20, 21) Is arranged so as to be delimited by an edge (22) lying within the section (16), and the stabilization coating (17) and the adhesion promoter coating (18) are each formed on at least one of the first and second sides (20, 21) of the transfer element (19) so as to extend beyond the edge (22) thereof; wherein the stabilization coating (17) and the adhesion promoter coating (18) each comprise a feature component, in particular an optical or machine-readable feature component, and wherein the stabilization coating (17) and the adhesion promoter coating (18) together form the security feature.

DEVICE FOR ALIGNING MAGNETIC OR MAGNETISABLE PARTICLES, AND MACHINE FOR GENERATING OPTICALLY VARIABLE IMAGE ELEMENTS

The invention relates to a device for aligning magnetic or magnetisable particles (P) which are contained in a coating agent (06), said device comprising: a cylinder (26) which, in the region of its outer circumference, has, in the form of a matrix, a number of $n \times m$ (in words n times m ; where n and m are chosen from 0 and 1) elements (24) that provide magnetic fields, or magnetic elements (24) for short, which are arranged one behind the other in m columns extending in the circumferential direction of the cylinder (26) and side by side in n rows extending parallel to the axis, wherein, in several of the columns of magnetic elements (24) arranged one behind the other in the circumferential direction, at least one of the magnetic elements (24) is positioned and/or mounted on a single-part or multi-part cylinder body (29) of the cylinder (26) so as to be adjustable in the axial direction independently of at least one further magnetic element (24) in the same column, and wherein the magnetic elements (24) in these columns are each mounted as a group at or on a common support element (31) and can be varied with the support element (31) as a group jointly and independently of the magnetic elements (24) in an adjacent column with respect to their axial position in or on the cylinder (26). In addition to this device, the invention also relates to a machine for generating optically variable image elements.

DISPOSITIF PERMETTANT D'ALIGNER DES PARTICULES MAGNÉTIQUES OU MAGNÉTISABLES, ET MACHINE PERMETTANT DE GÉNÉRER DES ÉLÉMENTS D'IMAGE OPTIQUEMENT VARIABLES

L'invention se rapporte à un dispositif permettant d'aligner des particules magnétiques ou magnétisables (P) qui sont contenues dans un agent de revêtement (06), ledit dispositif comprenant : un cylindre (26) qui, dans la région de sa circonférence externe, présente, sous la forme d'une matrice, un nombre de $n \times m$ (en termes de n fois m ; n et m étant choisis parmi 0 et 1) éléments (24) qui fournissent des champs magnétiques, ou des éléments magnétiques (24) pour faire court, qui sont agencés les uns derrière les autres dans m colonnes s'étendant dans la direction circonférentielle du cylindre (26) et côte à côte dans n rangées s'étendant parallèlement à l'axe ; dans plusieurs des colonnes d'éléments magnétiques (24) agencés les uns derrière les autres dans la direction circonférentielle, au moins l'un des éléments magnétiques (24) est positionné et/ou monté sur un corps de cylindre en une seule pièce ou en plusieurs parties (29) du cylindre (26) de sorte à pouvoir être réglé dans la direction axiale indépendamment d'au moins un autre élément magnétique (24) dans la même colonne et les éléments magnétiques (24) dans ces colonnes sont montés chacun en tant que groupe au niveau d'un élément de support commun (31), ou sur celui-ci, et peuvent être amenés à varier avec l'élément de support (31) en tant que groupe conjointement et indépendamment des éléments magnétiques (24) dans une colonne adjacente par rapport à leur position axiale dans le cylindre (26) ou sur celui-ci. En plus de ce dispositif, l'invention se rapporte également à une machine permettant de générer des éléments d'image optiquement variables.

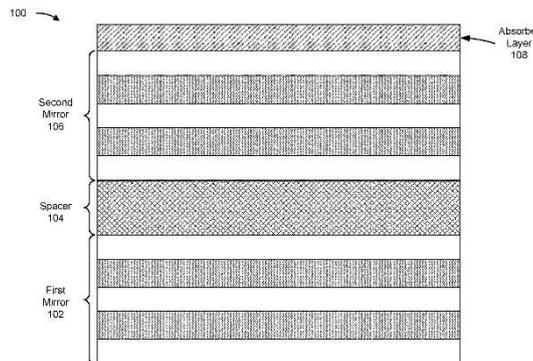


CLAIM 1. An apparatus for aligning magnetic or magnetizable particles (P) contained in coating means (06), having a cylinder (26) which, in the region of its outer circumference, has a number of $n \times m$ (in words n times m ; with $n, m \geq 0$ And $m \geq 0$), short magnet elements (24) which are arranged one behind the other in m columns running in the circumferential direction of the cylinder (26) and next to one another in n rows running axially parallel, wherein in a plurality of the columns of magnet elements (24) arranged one behind the other in the circumferential direction in each case at least one of the magnet elements (24) is arranged and/or mounted on a single-part or multi-part cylinder body (29) of the cylinder (26) so as to be adjustable in the axial direction independently of at least one further magnet element (24) of the same column, characterised in that the magnetic elements (24) of these gaps are each mounted as a group on or on a common support element (31) and can be varied with the support element (31) as a group jointly and independently of the magnetic elements (24) of an adjacent gap with respect to their axial position in or on the cylinder (26).

OPTICAL COMPONENT OF A SECURITY ARTICLE

A security article includes an optical component that includes a plurality of optical channels with a Fano resonance characteristic. An optical channel, of the plurality of optical channels, is configured to pass a first portion of a first set of light beams (that are associated with a first wavelength range) when the first set of light beams falls incident on at least one of a first surface or a second surface of the optical channel, reflect a second portion of the first set of light beams when the first set of light beams falls incident on the first surface of the optical channel, and reflect at least a portion of a second set of light beams (that are associated with a second wavelength range) when the second set of light beams falls incident on the second surface of the optical channel.

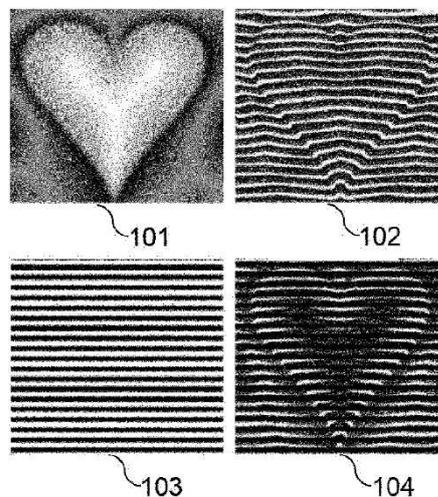
CLAIM 1. A security article comprising: an optical component that includes a plurality of optical channels with a Fano resonance characteristic, wherein: a number of optical channels, of the plurality of optical channels, is greater than or equal to a threshold number of optical channels, and an optical channel, of the plurality of optical channels, is configured to: pass a first portion of a first set of light beams when the first set of light beams falls incident on at least one of a first surface or a second surface of the optical channel, wherein the first set of light beams is associated with a first wavelength range; reflect a second portion of the first set of light beams when the first set of light beams falls incident on the first surface of the optical channel; and reflect at least a portion of a second set of light beams when the second set of light beams falls incident on the second surface of the optical channel, wherein the second set of light beams is associated with a second wavelength range.



FABRICATION OF MOIRÉ ON CURVED SURFACES

Moiré is an appealing visual effect observable when two or more repetitive patterns are superposed. We introduce a method for designing and fabricating level-line moirés on curved surfaces. These moiré shapes are obtained by superposing a partly absorbing or partly light deviating curved base layer and a curved revealing layer formed by a grating of transparent lines or cylindrical lenses. The distances between base layer and revealing layer are adapted to the locally varying distances between successive transparent lines or cylindrical lenses of the curved revealing layer grating. We demonstrate the quality of our method by rendered simulations and by fabrication. The resulting level-line moiré display devices can be manufactured using different fabrication techniques, from multi-material 3D printing to molding.

CLAIM 1. A method for producing a level-line moir device on a curved surface formed by a curved revealing layer made of a grating of cylindrical lenses superposed with a curved base layer formed by a grating of bands, said method comprising the steps of: (i) defining the target curved surface on which the level-line moir is to appear; (ii) creating a planar level-line moir design by selecting an elevation profile, by defining the common repetition period of a planar grating of cylindrical lenses and of a planar grating of bands and by shifting said planar grating of bands according to said elevation profile; (iii) projecting the planar revealing layer of cylindrical lenses onto said target curved surface thereby obtaining the curved pitch surface; (iv) calculating the curvature radii of the cylindrical lens shapes that are placed onto the curved pitch surface, thereby obtaining the curved lens surface of said revealing layer grating of cylindrical lenses; (v) laying out the base layer grating of shifted bands as a smooth surface at distances below the pitch surface, said distances being equal or larger than the curvature radii of the cylindrical lenses located above them, thereby obtaining the curved base layer; (vi) creating the meshes of the resulting curved revealing layer comprising the curved lens surface and of the resulting curved base layer; (vii) with the created meshes fabricating the curved surface level-line moir device; where the elevation profile represents a recognizable shape that is reproduced as a level-line moir on said fabricated curved surface moir device.



P35750

LABEL – RELIEF – MICROLENS

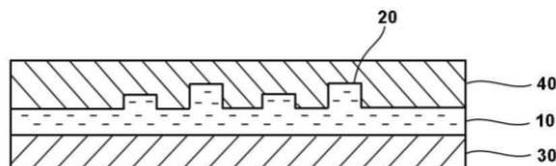
KR20220151315

Priority Date: 06/05/2021

LENTECH KOREA | WIN GLOBAL

AN OPTICAL SECURITY LABEL FOR ANTI-COUNTERFEIT AND A METHOD OF ADHERING THE SAME

The present invention relates to an optical film comprising: A) an optical pattern layer on which a series of optical patterns of micro or nanoscale are formed such that an image or color for authenticity identification is optically implemented; b) a hot-melt layer formed under the optical pattern layer such that the optical pattern layer is adhered to an adherend by hot pressing; And c) a release layer which is applied and cured without voids of the optical pattern so that the optical pattern does not become blunt or deformed upon heat pressing, and which is removed after sticking of an adherend of the optical pattern layer.



CLAIM 1. An optical device comprising: A) an optical pattern layer on which a series of micro- or nano-scale optical patterns are formed so that an image or color for authenticity identification is optically implemented; b) a hot-melt layer formed under the optical pattern layer so that the optical pattern layer is adhered to an adherend by thermocompression; And c) a release layer which is applied and cured without voids of the optical pattern so that the optical pattern does not become blunt or deformed upon heat pressing, and which is removed after sticking of an adherend of the optical pattern layer.

P35752

LABEL – RELIEF – MICROLENS

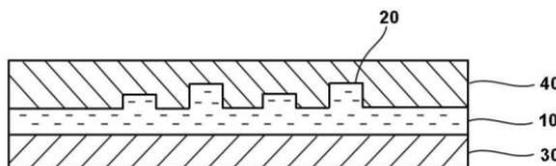
KR20220147965

Priority Date: 28/04/2021

LENTECH KOREA | WIN GLOBAL

AN OPTICAL SECURITY LABEL FOR ANTI-COUNTERFEIT AND A METHOD OF ADHERING THE SAME

The present invention relates to an optical film comprising: A) an optical pattern layer on which a series of optical patterns of micro or nanoscale are formed such that an image or color for authenticity identification is optically implemented; b) a hot-melt layer formed under the optical pattern layer such that the optical pattern layer is adhered to an adherend by hot pressing; And c) a release layer which is applied and cured without voids of the optical pattern so that the optical pattern does not become blunt or deformed upon heat pressing, and which is removed after sticking of an adherend of the optical pattern layer.



CLAIM 1. An optical device comprising: A) an optical pattern layer on which a series of micro- or nano-scale optical patterns are formed so that an image or color for authenticity identification is optically implemented; b) a hot-melt layer formed under the optical pattern layer so that the optical pattern layer is adhered to an adherend by thermocompression; And c) a release layer which is applied and cured without voids of the optical pattern so that the optical pattern does not become blunt or deformed upon heat pressing, and which is removed after sticking of an adherend of the optical pattern layer.

P35756

PRINTING – LABEL – TAMPER EVIDENCE – LIQUID CRYSTALS

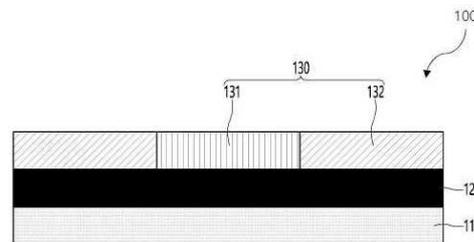
KR102460582

NBST

Priority Date: 18/10/2021

ANTI-COUNTERFEITING MEANS FOR IMPROVING VISIBILITY BY USING COMPLEMENTARY COLOR CONTRAST RELATIONSHIP MANUFACTURING METHOD THEREOF AND FORGERY AUTHENTICATION METHOD USING THE SAME

The present disclosure relates to a multilayer substrate comprising a substrate layer; And an indication layer disposed on an upper side of the base layer and printed with a liquid crystal ink containing a complementary dye or containing a complementary dye, in which a latent identification pattern that is not to be identified by the naked eye in a state of being irradiated with unpolarized light is included, wherein a color of the complementary dye is a color modulating relation that a complementary color contrast is achieved with the dye applied on the base layer.



CLAIM 1. A display device comprising: A base layer; and a display layer disposed on an upper side of the base layer, the display layer being printed with a liquid crystal ink including a complementary dye or including a complementary dye, and having a latent identification pattern that is not to be identified by a naked eye in a state of being irradiated with unpolarized light, wherein the display layer includes: A first display layer including the complementary dye; Wherein a color of a complementary dye included in the first display layer has a complementary color contrast relationship with a color of a dye applied to the base material layer or a color of a dye included in the second display layer, wherein a color of a complementary dye included in the third display layer has a similar color or an opposite color relationship with a color of a dye applied to the base material layer or a color of a dye included in the second display layer, The complementary color contrast relationship may be determined by the Munshell A. And the hue-value is color relationship in each of a color phase of H, Munsell or a color system color phase of a practical use system, the hue-relationship being in points of symmetry with each other.

P35757

PRINTING – LABEL – TAMPER EVIDENCE – LIQUID CRYSTALS

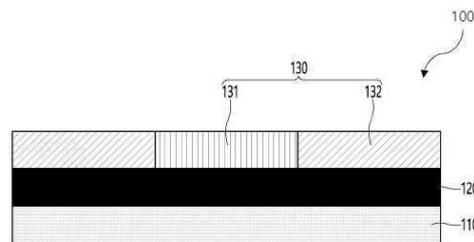
KR102460572

NBST

Priority Date: 28/10/2021

ANTI-COUNTERFEITING MEANS FOR IMPROVING VISIBILITY BY USING BRIGHTNESS CONTRAST RELATION MANUFACTURING METHOD THEREOF AND FORGERY AUTHENTICATION METHOD USING THE SAME

The present invention relates to an antireflection means including: A base layer; and an indication layer disposed on an upper side of the base layer, which is printed with a liquid crystal ink or a colored liquid crystal film, and in which a latent pattern of discrimination features that are not to be discerned by a naked eye in a state where unpolarized light is applied to the indication layer, wherein a color developing on the indication layer forms a chroma contrast relationship with a dye applied to the base layer.



CLAIM 1. A liquid crystal display device comprising: A substrate layer; and an indication layer disposed on an upper side of the substrate layer, which is printed with a liquid crystal ink or is provided with a colored liquid crystal film, and in which a latent fingerprint identification pattern that is not to be identified by a naked eye in a state where unpolarized light is irradiated, wherein the indication layer includes a cholesteric liquid crystal microcapsule; and a third indication layer including a cholesteric liquid crystal microcapsule, Wherein a hue of the first display layer upon the polarized light irradiation is in a chroma-contrast relationship with a hue of a dye included in the substrate layer or the second display layer, wherein a hue of the third display layer upon the polarized light irradiation is in a chroma-relationship with a hue of a dye included in the substrate layer or the second display layer, The hue expressed in the display layer in a state where polarized light is irradiated is a hue which forms a saturation contrast with a dye applied to the base material layer, and the saturation contrast is a hue which forms a saturation contrast relation with that of the Munshell A. H, Munsell hue values difference on the color system system of each of H, and Munsell is 7 or more color relationships, the similar saturation relationships are color relationships positioned so as to differ by a predetermined value or less different on top and bottom saturation posts, and a first question amount expressed by the display layer irradiated with polarized light is recognized through the first display layer through a display device; And a second authentication step in which a second pattern expressed through the second display layer is recognized through a display device.

P35764

JP2022164152

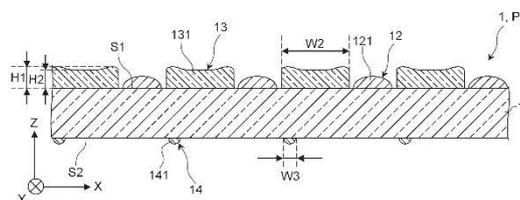
Priority Date: 16/04/2021

TOPPAN PRINTING

DISPLAY

TOPIC: To provide a technique capable of achieving a high anti-counterfeiting effect. INVENTION: a display body 1 including: a light-transmissive base material 11 having a first main surface S1 and a second main surface S2; a first coloring layer 12 including a plurality of first coloring linear portions 121 arranged in a width direction on the first or second main surface; A plurality of optically transparent linear portions 131 extending in a lengthwise direction of the gaps on the first main surface at positions corresponding to the gaps between the first colored linear portions, the optically transparent linear portions having a refractive index different from a refractive index of the optically transparent base material; The arrangement constituted by the light-transmissive linear portions includes a light-transmissive layer 13 having a shape different from that of the arrangement constituted by the first coloring linear portions, and a light-transmissive layer 13 arranged corresponding to the light-transmissive linear portions on the second main surface, A plurality of second coloring linear portions 141 each extending in the length direction of the optically transparent linear portion, and each of the second coloring linear portions includes a second coloring layer 14 provided at a position corresponding thereto and having a smaller width than the optically transparent linear portion.

CLAIM 1. A light transmitting substrate having a first main surface and a second main surface that is a rear surface of the first main surface; a first coloring layer including a plurality of first coloring linear portions arranged in a width direction on the first main surface or the second main surface; and a second coloring layer disposed on the first main surface and including: A plurality of optically transparent linear parts extending in a lengthwise direction of a gap at a position corresponding to the gap between the first coloring linear parts, wherein the plurality of optically transparent linear parts have a refractive index different from a refractive index of the optically transparent base member, and The arrangement of the plurality of optically transparent linear portions having a shape different from that of the arrangement of the plurality of first colored linear portions; and A plurality of second coloring linear portions each extending in a length direction of the plurality of optically transparent linear portions, wherein each of the plurality of second coloring linear portions includes a second coloring layer provided at a position corresponding to the plurality of second coloring linear portions and having a smaller width than each of the optically transparent linear portions.



P35767

CARD

JP7173394

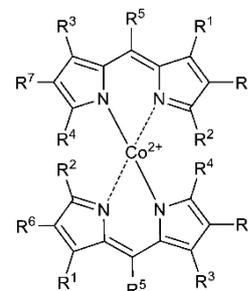
Priority Date: 07/01/2022

TOPPAN PRINTING

AN OPTICAL FILM, A COMPOSITION FOR FORMING A COLORED LAYER, A DIPYRRROMETHENE COBALT COMPLEX, AND A DISPLAY DEVICE

TOPIC: To provide an optical film capable of selectively and efficiently absorbing light having a wavelength in the vicinity of 500 nm and excellent in light resistance. INVENTION: The color filter includes a transparent base material and a colored layer, the colored layer contains a dye (a), the dye (a) contains a coloring material having an absorption maximum wavelength in the range of 470 to 530 nm, The coloring material contains a dipyrromethene cobalt complex having a structure represented by the following formula (I), in which R 1 to R 7 in the formula (I) are applied to a predetermined reaction formula, and R 1 to R 7 are combined so that a free energy change before and after the reaction is -1.0 kcal/mol or more.

CLAIM 1. A color filter comprising: A transparent substrate; and a colored layer laminated on at least one surface side of the transparent substrate, The color film according to claim 1, wherein the colored layer contains a dye (a), The dye (a) contains a coloring material having an absorption maximum wavelength in the range of 470 to 530 nm, The method of claim 1, wherein the colorant is a dipyrromethene cobalt complex having a structure represented by the following formula (I), wherein R1 to R7 in the formula (I) are applied to the following reaction formula (II), An optical film comprising a dipyrromethene cobalt complex in which R1 to R7 are combined so that a free energy change before and after reaction calculated by a basis function of 6-31 G (d, p) (where a basis function LanL2DZ is assigned to an element having an atomic number larger than KR in the periodic table) is 0.92 kcal/mol or more. In the formula, R 1 to R 7 each independently represent a hydrogen atom, a halogen atom, an aliphatic hydrocarbon group, An alkoxy group, an alkylthio group, an aromatic hydrocarbon group, a heterocyclic group, a hydroxyl group, A mercapto group, a nitro group, a substituted amino group, an unsubstituted amino group, a cyano group, An ester group, and an acyl group).



P35768

CARD

JP7168051

TOPPAN PRINTING

Priority Date: 30/08/2021

A COMPOSITION FOR FORMING A COLORED LAYER, AN OPTICAL FILM, AND A DISPLAY DEVICE

TOPIC: To provide a composition for forming a colored layer, an optical film, and a display device, capable of improving color purity and luminance efficiency, achieving both color purity and luminance efficiency, and improving display quality.

INVENTION: The photosensitive resin composition contains a dye (a), an additive (B), an active energy ray-curable resin (C), a photopolymerization initiator (D), a solvent (E), Wherein the dye (a) contains a first coloring material, the first coloring material contains a dipyrromethene boron complex having a specific structure, A composition for forming a colored layer.

CLAIM 1. A photosensitive resin composition comprising a dye (a), an additive (B), an active energy ray-curable resin (C), a photopolymerization initiator (D), a solvent (E), Of the total weight of the composition, The dye (a) contains a first coloring material, The first coloring material contains a dipyrromethene boron complex having a structure represented by the following formula (I). [In the formula (I), R 1to R 11each independently represent a monovalent group, R 2and R 3, and R 4and R 5may be bonded to each other to form an aromatic ring condensed to a pyrrole ring, The aromatic ring may have a substituent, and the condensed aromatic ring formed by them may be the same or different, R 8 To R. 10 Y represents a group bonded to boron, and a plurality of Y may be the same or different, or may be bonded to each other to form a ring.]

P35769

PRINTING – PASSPORT – RELIEF – MICROLENS

JP7164855

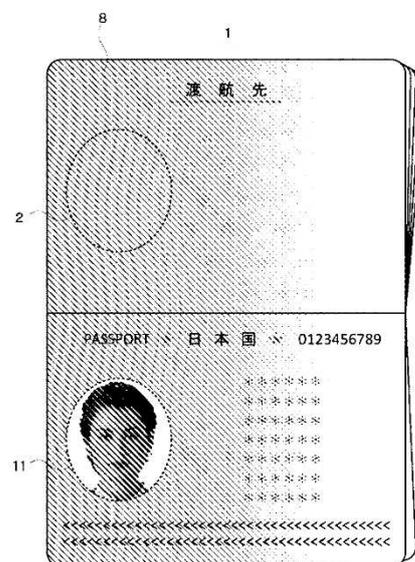
NATIONAL PRINTING BUREAU

Priority Date: 20/10/2021

ANTI-COUNTERFEIT PRINTED MATERIALS

TOPIC: To provide an anti-counterfeit printed matter which is a printed matter subjected to a plurality of anti-counterfeit technologies and can obtain a printed matter and a latent image of high image quality regardless of output resolution of a printer for printing. INVENTION: A printing pattern has a plurality of units having at least a first image line region and a second image line region arranged on a base material, and the units have a first image line region formed on the same line in the plurality of units adjacent along a first direction, And a second image line region which has a phase different from that of the first image line region and is formed on the same line in the plurality of adjacent units, the first image line region has a color different from that of the base material, And a latent image pattern is formed by a latent image element reproduced by the copying machine, and the second image line region has a color different from that of the base material, The unit is formed of a camouflage element which is not reproduced by a copying machine, and the arrangement of the unit is a brick-stacked arrangement.

CLAIM 1. A printed pattern in which a plurality of units having at least a first image line region and a second image line region are arranged on at least a part of a substrate, The image processing apparatus according to claim 1, wherein the unit includes: The first image line region formed on the same line in the plurality of units adjacent to each other along a first direction; and a second image line region formed on the same line in the plurality of units adjacent to each other along the first direction, Wherein the first image line region has the second image line region formed on the same line in the plurality of adjacent units, The image forming apparatus according to claim 1, wherein in the first image line region, a latent image pattern is formed by a latent image element having a color different from that of the base material and reproduced by a copying machine, The image processing apparatus according to claim 1, wherein the second image line region is formed by a camouflage element having a color different from that of the substrate and not reproduced by a copying machine, And the arrangement of the units is a brick-stacked arrangement.



P35774

PRINTING

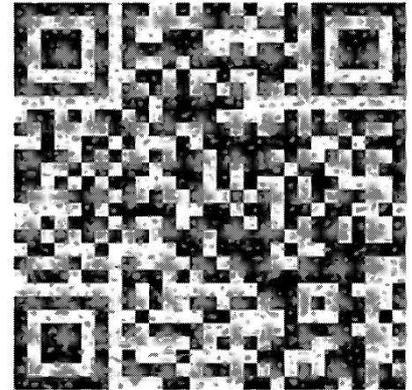
FR3122513

Priority Date: 02/05/2021

GUIGAN

SECURE SIGNIFYING MARKING

The invention is a secure marking comprising optical disturbers whose appearance varies according to the viewpoint and/or the lighting conditions. Its appearance has its own meaning called characteristic signal such as a bar code, a character string or a photograph.



MARQUAGE SIGNIFIANT SÉCURISÉ

L'invention est un marquage sécurisé comportant des perturbateurs optiques dont l'aspect varie selon le point de vue et/ou les conditions d'éclairage. Son apparence a une signification propre dite signal caractéristique comme un code-barres, une chaîne de caractères ou une photographie.

CLAIM 1. Secure marking comprising optical disturbers whose appearance varies according to the viewpoint and/or the lighting conditions, characterized in that its appearance has a specific meaning called characteristic signal such as a bar code, a character string or a photograph.

P35775

PRINTING

FR3122278

Priority Date: 26/04/2021

GUIGAN FRANCK

SECURE SIGNIFYING MARKING

The invention is a secure marking comprising optical disturbers whose appearance varies according to the viewpoint and/or the lighting conditions. Its appearance has its own meaning called characteristic signal such as a bar code, a character string or a photograph.

MARQUAGE SIGNIFIANT SÉCURISÉ

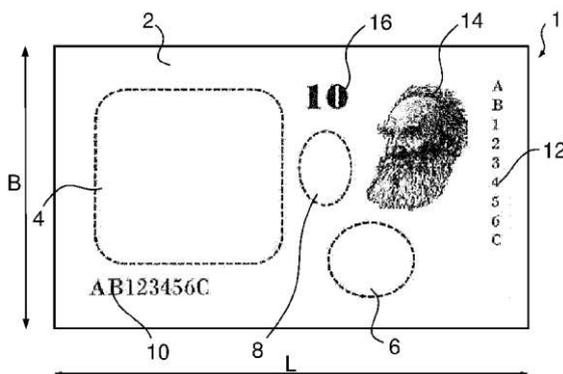
L'invention est un marquage sécurisé comportant des perturbateurs optiques dont l'aspect varie selon le point de vue et/ou les conditions d'éclairage. Son apparence a une signification propre dite signal caractéristique comme un code-barres, une chaîne de caractères ou une photographie.



CLAIM 1. Secure marking comprising optical disturbers whose appearance varies according to the viewpoint and/or the lighting conditions, characterized in that its appearance has a specific meaning called characteristic signal such as a bar code, a character string or a photograph.

VALUABLE DOCUMENT AND METHOD FOR PRODUCING A VALUABLE DOCUMENT

A document of value, such as a bank note, a check, a credit card or other payment card, an identity card or the like, which has a front side and a rear side. The value document shows in plan view from the front a representation which can be seen with the naked eye and has certain dimensions (L, B) in plan view. The value document (1) has a substrate body (2) which, in plan view, has the specific dimensions (L, B) and is connected to a first transparent film (18) which has an inner side and an outer side in such a way that the substrate body (2), characterized in that the substrate body (2) bears against the inner side of the first transparent film (18), so that the substrate body (2) faces the rear side and the outer side of the transparent first film (18) faces the front side. The first transparent film (18) likewise has the specific dimensions (L, B) in plan view, and the illustration which can be seen from the front side is produced by a first metallized embossed structure (20) which is arranged on the inner side of the first transparent film (18). Furthermore, a first, only machine-readable security element is arranged on the inside of the first transparent film (18).



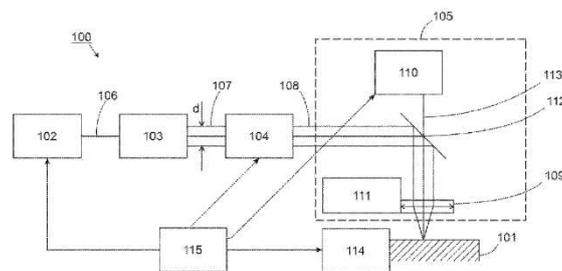
CLAIM 1. A document of value, such as a bank note, a check, a credit card or other payment card, an identity card or the like, which- a front side and a rear side, - shows, in plan view from the front side, a representation which can be seen with the naked eye, - has dimensions (L, B) determined in plan view, and - comprises a substrate body (2) which, in plan view, has the specific dimensions (L, B) and is connected to a first transparent film (18) which has an inner side and an outer side in such a way that, characterized in that the substrate body (2) rests against the inner side of the first transparent film (18) so that the substrate body (2) points towards the rear side and the outer side of the first transparent film (18) points towards the front side,- - the first transparent film (18) also has the determined dimensions (L, B) in plan view, and - - the representation which can be seen from the front side is produced by a first metallized embossed structure (20) which is arranged on the inner side of the first transparent film (18), characterized in that - a first, machine-readable only security element is arranged on the inside of the first transparent film (18).

A DEVICE AND A METHOD FOR OPTICAL ENGRAVING OF A DIFFRACTION GRATING ON A WORKPIECE

A device for engraving a diffraction grating on a workpiece, comprises an optical set-up comprising a laser, a beam forming device, a beam splitting device, and a focusing head. The laser is configured to output a laser beam. The beam forming device is configured to control a diameter of and a light intensity distribution in the laser beam, and output a primary laser beam. The beam splitting device is configured for a splitting of the primary laser beam into a plurality of split beams for the engraving. The focusing head comprises a microscope objective lens (109) configured to focus the respective split beams in respective foci on the workpiece, an auto-focusing system configured to produce a positioning signal for adjusting and maintaining a distance between the microscope objective lens and the workpiece in order to maintain the respective foci of the split beams on the workpiece and output the positioning signal; and a micro-actuator configured to receive the positioning signal and adjust the distance between the microscope objective lens and the workpiece, whereby the auto-focusing system and the micro-actuator are operationally connected in a closed-loop. The device for engraving further comprises a positioning device configured to perform a relative positioning between the workpiece in the respective foci of the split beams, and the optical set-up; and a controller configured to control the positioning device and the laser according to engraving instructions for the diffraction grating.

DISPOSITIF ET PROCÉDÉ DE GRAVURE OPTIQUE D'UN RÉSEAU DE DIFFRACTION SUR UNE PIÈCE À USINER

Un dispositif de gravure d'un réseau de diffraction sur une pièce comprend un ensemble optique comprenant un laser, un dispositif de formation de faisceau, un dispositif de division de faisceau et une tête de focalisation. Le laser est configuré pour émettre un faisceau laser. Le dispositif de formation de faisceau est configuré pour commander un diamètre et une répartition d'intensité de lumière dans le faisceau laser et délivrer en sortie un faisceau laser primaire. Le dispositif de division de faisceau est configuré pour diviser le faisceau laser primaire en une pluralité de faisceaux divisés pour la gravure. La tête de focalisation comprend une lentille d'objectif de microscope (109) configurée pour focaliser les faisceaux divisés respectifs dans des foyers respectifs sur la pièce, un système de focalisation automatique configuré pour produire un signal de positionnement destiné à ajuster et maintenir une distance entre la lentille microscopique et la pièce afin de maintenir les foyers respectifs des faisceaux divisés sur la pièce et délivrer en sortie le signal de positionnement ; et un micro-actionneur configuré pour recevoir le signal de positionnement et ajuster la distance entre la lentille d'objectif de microscope et la pièce, le système de focalisation automatique et le micro-actionneur étant fonctionnellement connectés en une boucle fermée. Le dispositif de gravure comprend en outre un dispositif de positionnement configuré pour réaliser un positionnement relatif entre la pièce dans les foyers respectifs des faisceaux divisés et l'ensemble optique ; et un dispositif de commande configuré pour commander le dispositif de positionnement et le laser selon des instructions de gravure pour le réseau de diffraction.



CLAIM 1. A device for engraving a diffraction grating on a workpiece, comprising an optical set-up comprising a laser (102), a beam forming device (103), a beam splitting device (104), and a focusing head (105); the laser (102) configured to output a laser beam (106); the beam forming device (103) configured to control a diameter of and a light intensity distribution in the laser beam (106), and output a primary laser beam (107); the beam splitting device (104) configured for a splitting of the primary laser beam (107) into a plurality of split beams (108) for the engraving; the focusing head (105) comprising a microscope objective lens (109) configured to focus the respective split beams in respective foci on the workpiece (101), an auto-focusing system (110) configured to produce a positioning signal for adjusting and maintaining a distance between the microscope objective lens (109) and the workpiece (101) in order to maintain the respective foci of the split beams on the workpiece (101) and output the positioning signal; and a micro-actuator (111) configured to receive the positioning signal and adjust the distance between the microscope objective lens (109) and the workpiece (101), whereby the auto-focusing system and the micro-actuator are operationally connected in a closed-loop; a positioning device (114) configured to perform a relative positioning between the workpiece (101) in the respective foci of the split beams, and the optical set-up; and a controller (115) configured to control the positioning device (114) and the laser (102) according to engraving instructions for the diffraction grating.

P35781

HOLOGRAM – BANKNOTE – CARD

EP4088945

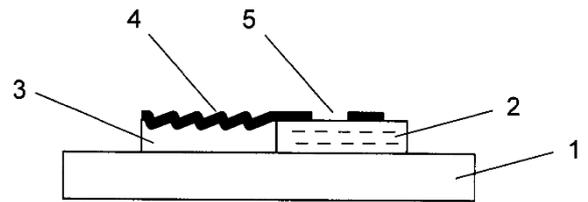
GIESECKE & DEVRIENT CURRENCY TECHNOLOGY

Priority Date: 10/05/2021

SECURITY ELEMENT WITH VOLUME HOLOGRAM AND ADDITIONAL EFFECTS

The invention relates to a security element for increasing the protection against forgery of security documents, such as banknotes, securities, identity cards, credit cards, debit cards or the like, wherein the security element consists of a substrate on which an exposable layer is arranged, wherein the exposable layer has a volume hologram. According to the invention, an embossed layer is arranged on the substrate adjacent to the exposable layer, an embossed structure in the form of a refractive optical element being provided in the surface of the embossed layer facing away from the substrate. A coating is at least partially applied to the surface of the exposable layer facing away from the substrate and to the embossed structure, wherein the coating overlaps the exposable layer and the embossed structure and has optically recognizable information in the form of a pattern, an alphanumeric character or a graphic image. The coating has at least one recess above the exposable layer, so that the volume hologram is visible through the at least one recess and is not visible outside the recess.

CLAIM 1. A security element for increasing the protection against forgery of security documents, such as banknotes, securities, identity cards, credit cards, debit cards or the like, wherein the security element consists of a substrate on which an exposable layer is arranged, wherein the exposable layer has a volume hologram, characterized in that In that an embossing layer is arranged on the substrate adjacent to the exposable layer, in the surface of which embossing layer which faces away from the substrate a non-diffractive embossing structure is applied, wherein a coating is applied at least partially to the surface of the exposable layer which faces away from the substrate and to the embossing structure, wherein the coating overlaps the exposable layer and the embossed structure and has optically recognizable information in the form of a pattern, an alphanumeric character or a graphic image, wherein the coating has at least one recess over the exposable layer.



P35783

BANKNOTE

EP4086084

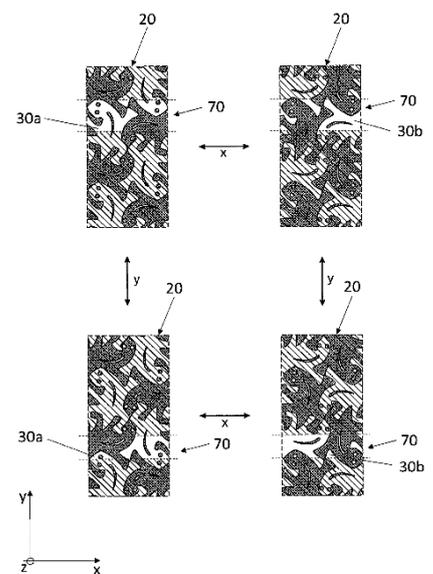
GIESECKE & DEVRIENT CURRENCY TECHNOLOGY

Priority Date: 03/05/2021

OPTICALLY VARIABLE SECURITY ELEMENT AND VALUE DOCUMENT COMPRISING THE OPTICALLY VARIABLE SECURITY ELEMENT

The invention relates to an optically variable security element having a motif region. The motif region comprises a first portion and a second portion. At least part of the first section of the motif region is brightly visible to an observer at at least one first viewing angle. At least part of the second section of the motif region is darkly visible by the viewer at at least the first viewing angle. The part of the first section of the motif region is darkly visible by the viewer at at least one second viewing angle. The part of the second section of the motif region is brightly visible by the viewer at at least the second viewing angle. A transition from the first viewing angle to the second viewing angle can be carried out by tilting the optically variable security element about a first axis. By tilting the optically variable security element about a second axis, which is not parallel to the first axis, a kinematic effect in the motif region is visible to the viewer.

CLAIM 1. An optically variable security element (10) having a motif region (20), wherein (a) the motif region (20) comprises a first portion (21 a) and a second portion (21 b); (b) At least a part (22 a) of the first section (21 a) of the motif region (20) is brightly visible by a viewer at least at a first viewing angle and at least a part (22 b) of the second section (21 b) of the motif region (20) is darkly visible by the viewer at least at the first viewing angle; (c) The part (22 a) of the first section (21 a) of the motif region (20) is darkly visible by the viewer at least at a second viewing angle, and the part of the second section (21 b) of the motif region (20) is brightly visible by the viewer at least at the second viewing angle; (d) A transition from the first viewing angle to the second viewing angle can be carried out by tilting the optically variable security element (10) about a first axis; characterized in that Such that (e) by tilting the optically variable security element (10) about a second axis which is not parallel to the first axis, a kinematic effect in the motif region (20) is visible by the viewer.



P35793

LABEL

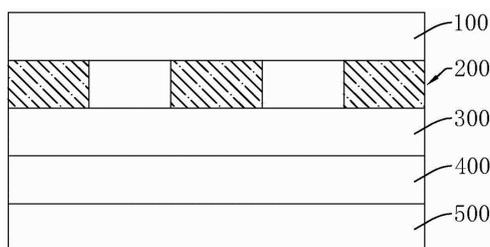
CN217880642U

Priority Date: 30/06/2022

ZHONGSHAN GUOAN TORCH TECHNOLOGY DEVELOPMENT

LASER ANTI-COUNTERFEIT LABEL

The utility model discloses a radium-shine antifalsification label down includes in proper order from last: the laser anti-counterfeiting label comprises a base film layer, a local dropping layer, a laser ink layer, a pressure-sensitive adhesive layer and a carrier layer, wherein the local dropping layer is positioned below the base film layer, the local dropping layer is provided with a non-dropping area of characters and/or patterns, when the anti-counterfeiting label is pasted on a pasted object and the base film layer is uncovered, the dropping area of the local dropping layer is peeled off along with the base film layer, the characters or the patterns which show the non-dropping area on the pasted object have the display effect of laser particles, and the characters or the patterns which correspond to the dropping area are also shown on the back of the uncovered base film layer.



CLAIM 1. A laser anti-counterfeit label is characterized by comprising: a base film layer (100); a local release layer (200), wherein the local release layer (200) is positioned below the base film layer (100), and the local release layer (200) is provided with a non-release area (210) of characters and/or patterns; the laser ink layer (300), the laser ink layer (300) is positioned below the local peeling layer (200); the pressure-sensitive adhesive layer (400), the pressure-sensitive adhesive layer (400) is positioned below the laser ink layer (300); a carrier layer (500), wherein the carrier layer (500) is positioned below the laser ink layer (300).

P35813

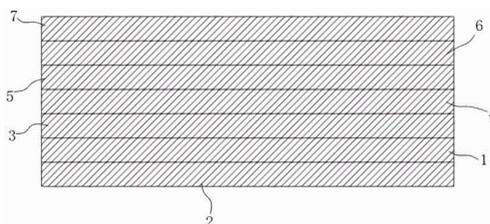
CN217753275U

Priority Date: 22/07/2022

ZHEJIANG HONGYE PACKAGING MATERIAL

HIGH-BARRIER LASER TRANSFER FILM

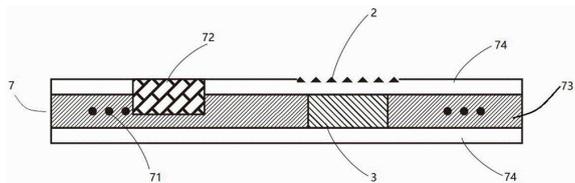
The utility model discloses a radium-shine transfer membrane of high resistant separation, including paper basic unit, paper basic unit bottom is provided with the BOPET film, paper basic unit upper end is provided with radium-shine layer, radium-shine layer upper end is provided with the aluminium foil layer, aluminium foil layer upper end is provided with the flexible layer, flexible layer upper end is provided with the sclerosis layer, sclerosis layer upper end is provided with the wearing layer. This kind of radium-shine transfer membrane of high resistant separation is through combining sclerosis layer and flexible layer to radium-shine layer on, can make radium-shine transfer membrane improve resistant scratch and prevent the performance of impaling when using to can guarantee stable high resistant oxidation behavior, through the cooperation on macromolecular polymer layer and UPE layer, can improve the abrasion resistance of transfer membrane, prevent that the transfer membrane from receiving wearing and tearing damage, further strengthened the wearability and the toughness of radium-shine transfer membrane body.



CLAIM 1. The utility model provides a radium-shine transfer membrane of high resistant separation, includes paper basic unit (1), its characterized in that: paper basic unit (1) bottom is provided with BOPET film (2), paper basic unit (1) upper end is provided with radium-shine layer (3), radium-shine layer (3) upper end is provided with aluminium foil layer (4), aluminium foil layer (4) upper end is provided with flexible layer (5), flexible layer (5) upper end is provided with sclerosis layer (6), sclerosis layer (6) upper end is provided with wearing layer (7).

SECURITY ELEMENT

The utility model discloses an anti-fake element, anti-fake element includes base member and diffraction device, the perspective window has been seted up on the base member, the diffraction device sets up the base member surface is located the perspective window. The light is diffracted by the diffraction device, a diffraction light spot is formed on the other side of the base body through the perspective window, preset anti-counterfeiting information can be formed around the diffraction light spot and can be observed by human eyes, and the authenticity of the main body to be checked can be checked by the human eyes without other machines or equipment while the anti-counterfeiting performance of the base body is improved.



CLAIM 1. A security element, comprising: the device comprises a base body, a transparent window and a transparent window, wherein the base body is provided with the transparent window; the diffraction device is arranged on the surface of the substrate and is positioned at the window of the perspective window; light is diffracted through the diffraction device, a diffraction light spot can be formed on the other side of the base body through the perspective window, preset anti-counterfeiting information can be formed around the diffraction light spot, and the anti-counterfeiting information can be observed by human eyes.

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

N9033

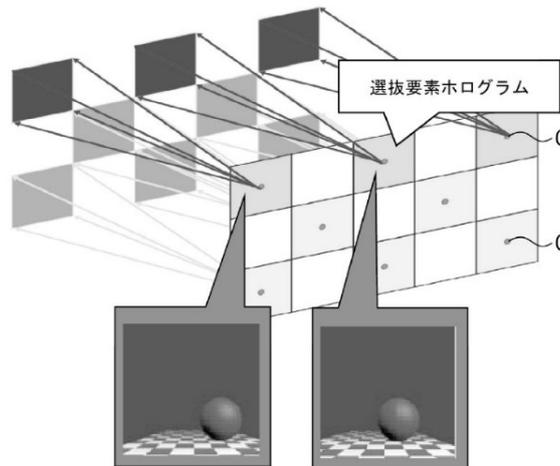
JP2022163605

KDDI

Priority Date: 14/04/2021

COMPUTER COMPOSITE HOLOGRAM GENERATION APPARATUS, METHOD, AND PROGRAM

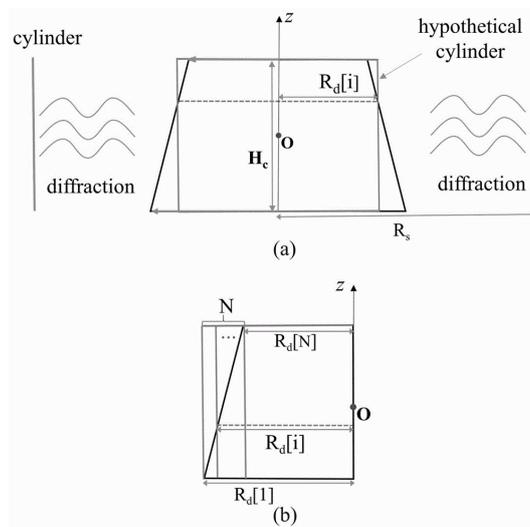
TOPIC: To reduce a memory size required for hologram generation and generate a hologram at high speed without degrading substantial display quality of the hologram. INVENTION: a 3 D model input section 10 places a 3 D model in virtual space. Element hologram selecting unit 20 selects the selected element hologram from the element holograms. The object point light source registration unit 30 registers, as an object point light source, a point on the 3 D model that can be observed from the center of each of the selection element holograms. The object point light source reduction unit 40 integrates point light sources having the same three-dimensional coordinates or short distances among the object point light sources registered in different selection element holograms into one common point. The object point light source associating unit 50 associates the object point light sources to be used in the light wave propagation calculation with the non-selection element holograms. The light wave propagation calculating unit 60 calculates the light wave propagation from each point light source to each corresponding element hologram surface. The interference fringe calculating unit 70 performs interference calculation by inserting a reference light wave into an object light wave on the hologram surface.



CLAIM 1. An apparatus for generating a computer composite hologram on the basis of interference calculation between object light and reference light on a hologram surface, the apparatus comprising: means for arranging a 3 D model used for hologram calculation in a virtual space; means for registering an observable point on the 3 D model as an object point light source for each element hologram on the hologram surface; A computer composite hologram generation apparatus comprising: a means for integrating a plurality of object point light sources respectively registered with different element holograms and having a predetermined relationship into a single common object point light source to reduce a total number of object point light sources; and a means for calculating light wave propagation to each element hologram corresponding to each object point light source.

CONICAL SURFACE HOLOGRAM RAPID GENERATION METHOD BASED ON BIDIRECTIONAL PHASE COMPENSATION

The invention provides a conical surface hologram rapid generation method based on bidirectional phase compensation. The method comprises two parts of conical surface hologram rapid generation and hologram reconstruction. The method comprises the steps of obtaining a line diffraction field on a conical surface under a radius corresponding to a certain height to obtain conical surface diffraction field distribution consisting of the line diffraction field, then performing sparse line recording, performing bidirectional phase compensation by using an optical path difference, then encoding to obtain a hologram, and finally reconstructing by using a chromatography. Compared with the traditional method, the method has the advantages that the generation speed of the conical surface hologram is improved by 3 times, and the reconstruction result similar to that of the traditional method is obtained; the proposed method solves the problem of the conical hologram generation speed for the first time.



CLAIM 1. The method for rapidly generating the conical surface hologram based on the bidirectional phase compensation is characterized by comprising two parts of rapidly generating the conical surface hologram and reconstructing the hologram; the concrete description of the conical surface hologram rapid generation process is as follows: firstly, according to a formula $U_d = \text{IFFT}[\text{FFT}(U_s) \text{FFT}(h)] dz$, obtaining the radius R of the cone at a certain height d [i] Corresponding line diffraction field $H_i = \{|\text{IFFT}[\text{FFT}(U_s) \text{FFT}(h)]|\}$ $R_d[i]$ Wherein U is d Representing cone diffraction field, U_s For the object plane, h is a point spread function, $\int dz$ is a one-dimensional integral in the vertical direction, $\text{FFT} \{ \cdot \}$ and $\text{IFFT} \{ \cdot \}$ represent fast Fourier transform and inverse fast Fourier transform, R is d Represents the radius of the conical surface, i is a positive integer; step two, based on the step one, converting the diffraction distribution of the conical surface into a combination of diffraction fields of rows corresponding to the radii at different heights, namely $U_d = [H_1; H_2; \dots; H_N]$ In which H_1 Represents the diffraction field of line 1 on the cone, H_N Represents the diffraction field of the n th row on the cone, where N represents the number of samples in the vertical direction; step three, obtaining a sparse row recording surface $U_{\text{sparse}} = \text{spark}(D)$, in which $\text{spark}(\cdot)$ means taking only one of every few lines for direct calculation, where the parameter D of the function $\text{spark}(\cdot)$ is odd, representing direct calculation every D lines; step four, obtaining the phase of the adjacent line by adopting a bidirectional phase compensation method, and when D is 3, H_i Are respectively compensated as $H_{i+1} = H_i \times \exp(jk \cdot \Delta d)$ and $H_{i-1} = H_i \times \exp(-jk \cdot \Delta d)$, from which U is obtained $d' | D=3 = [\dots; H_{i-1}; H_i; H_{i+1} \dots]$ ($i=3 \dots n-1$), where j is an imaginary unit, k is a wave number, d is a compensation distance between adjacent rows, $U_{d'}$ Represents the compensated cone diffraction field, n is a positive integer, and when D is any other value, the diffraction distribution is represented as $U_{d' | D} = [\dots; H_{i-(D-1)/2} \dots; H_{i-2}; H_{i-1}; H_i; H_{i+1}; H_{i+2} \dots; H_{i+(D-1)/2} \dots]$ ($i = D \dots n - (D-1)/2$); step five, using a formula $U_{\text{holo}} = \text{Encode}(U_{d' | D})$ Encoding to obtain a hologram U_{holo} $\text{Encode}(\cdot)$ represents an encoding function; the specific description of the conical surface hologram reconstruction process is as follows: and D , reconstructing by using a chromatography to obtain a reconstructed image according to the hologram obtained in the step five.

N9052

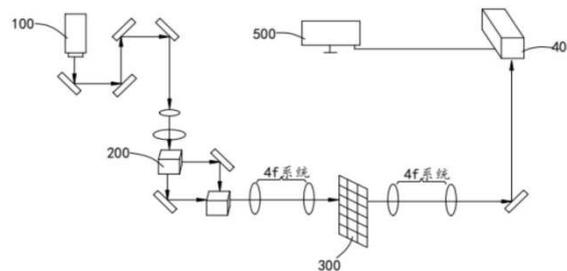
CN115348434

Priority Date: 22/07/2022

WUYI UNIVERSITY

ULTRAFAST HOLOGRAPHIC IMAGING METHOD, SYSTEM, ELECTRONIC DEVICE AND STORAGE MEDIUM

The embodiment of the application provides an ultrafast holographic imaging method, an ultrafast holographic imaging system, electronic equipment and a storage medium, wherein a plurality of interference images of a dynamic object are encoded to obtain an encoded image; compressing the encoded image to obtain a compressed hologram of the dynamic object; according to the coding matrix corresponding to the coding processing, image reconstruction processing based on a compressed sensing method is carried out on the compressed hologram to obtain a hologram sequence frame; phase reconstruction is carried out on the hologram sequence frame to obtain a phase image of the dynamic object; the optical path is simple, no specific constraint condition is provided for a light source, the number of imaging frames is large, the time resolution is high, and holographic imaging processing can be performed on an ultrafast dynamic object scene.



CLAIM 1. An ultrafast holographic imaging method, comprising: coding a plurality of interference images of the dynamic object to obtain a coded image; compressing the coded image to obtain a compressed hologram of the dynamic object; performing image reconstruction processing on the compressed hologram according to the coding matrix corresponding to the coding method; and carrying out phase reconstruction on the hologram sequence frame to obtain a phase image of the dynamic object.

N9058

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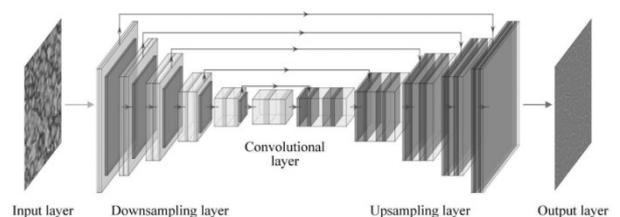
Priority Date: 10/08/2022

CHINESE PEOPLE S LIBERATION GROUND FORCE ARMORED TROOP ACADEMY

RANDOM GRAPH TRAINING SET AND HOLOGRAM GENERATION METHOD AND SYSTEM

The invention relates to a random graph training set and a method and a system for generating a hologram, in particular to the technical field of image processing. The random graph training set generation method comprises the following steps: randomly generating a plurality of graphic sets, wherein each graphic set comprises a square, a circle and a regular triangle; gradually filling each graph in the graph set to obtain a gradually changed graph set; and respectively carrying out translational transformation for a set number of times on each graph in the gradient graph set to obtain random graphs corresponding to the graph set, and determining the random graphs corresponding to all the graph sets as random graph training sets. The invention can provide more comprehensive training data and improve the training effect of the model.

CLAIM 1. A method for generating a random graph training set is characterized by comprising the following steps: randomly generating a plurality of graphic sets, wherein each graphic set comprises a square, a circle and a regular triangle; for any one graph set, performing gradient filling on each graph in the graph set respectively to obtain a gradient graph set; and respectively carrying out translational transformation on each graph in the gradient graph set for a set number of times to obtain random graphs corresponding to the graph set, and determining the random graphs corresponding to all the graph sets as random graph training sets.



N9062

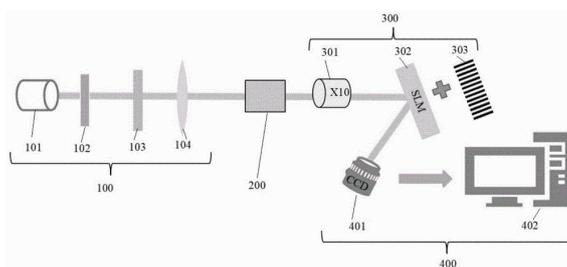
CN115291489

Priority Date: 19/07/2022

HEFEI UNIVERSITY OF TECHNOLOGY

INCOHERENT LIGHT DIGITAL HOLOGRAPHIC IMAGING DEVICE BASED ON DYNAMIC GRATING

The invention provides a non-coherent light digital holographic imaging device based on a dynamic grating, which comprises: the device comprises a light source module, a gain module and a data processing module; the gain module comprises a spatial modulator and a grating arranged on the spatial modulator, and the spatial modulator adopts a reflective liquid crystal spatial light modulator. In the invention, a grating is loaded on the reflection type liquid crystal spatial light modulator. The reflective liquid crystal spatial light modulator can be adjusted, so that the period of the grating can be dynamically adjusted according to the imaging field of view through the adjustment of the spatial modulator, and the use and adjustment of the digital holographic imaging system based on the reflective liquid crystal spatial light modulator are more flexible.



CLAIM 1. An incoherent light digital holographic imaging device based on a dynamic grating, which is characterized by comprising: a light source module (100), a gain module (300) and a data processing module (400); the gain module (300) comprises a spatial modulator (302) and a grating (303) arranged on the spatial modulator (302), and the spatial modulator (302) adopts a reflective liquid crystal spatial light modulator; a test station is arranged between the light source module (100) and the spatial modulator (302); the light source module (100) is used for emitting light beams, the light beams carry object information to enter the space modulator (302) after passing through a target object (200) on the test station, and the light beams modulated by the space modulator (302) are received by the data processing module (400) and analyze the object information of the target object.

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N9050

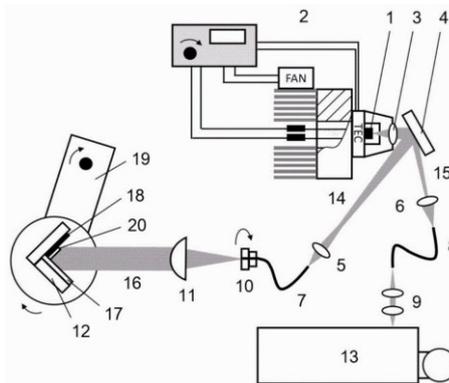
CN115373229

Priority Date: 29/08/2022

INSTITUTE OF SEMICONDUCTORS - CHINESE ACADEMY OF SCIENCES

DEVICE FOR REALIZING HOLOGRAPHIC PHOTOETCHING BY USING SEMICONDUCTOR LASER

The invention discloses a device for realizing holographic lithography by using a semiconductor laser, which can be applied to the technical field of semiconductor photoelectric devices. The device comprises: the device comprises a laser emitting assembly, a detection assembly and an interference device. The laser emitting assembly includes: the laser comprises a blue laser diode, a collimating lens, a driving/temperature control module and a grating, wherein the grating forms a grating external cavity structure and is used for generating and outputting single longitudinal mode blue laser; the detection assembly is used for monitoring the spectrum and the light intensity of the single longitudinal mode blue laser in real time; and the interference device is used for executing the holographic photoetching process on the experimental sample by using the single longitudinal mode blue laser. The invention generates and outputs single longitudinal mode blue laser through the grating external cavity structure, realizes the application of the single longitudinal mode blue laser to the holographic lithography technology, has simple and convenient device, can prepare small-area Bragg grating, is suitable for the development of distributed feedback lasers, promotes the industrial application of the distributed feedback lasers, and simultaneously promotes the research, development and application of blue-violet light to ultraviolet light semiconductor laser diodes.



CLAIM 1. An apparatus for performing holographic lithography using a semiconductor laser, comprising: a laser emitting assembly comprising: a blue laser diode adapted to generate a laser beam; the collimating lens is suitable for converting the laser beam into a first quasi-parallel beam and converting the external cavity laser beam into a second quasi-parallel beam; the driving/temperature control module is suitable for generating driving current with adjustable magnitude for the blue-ray laser diode and controlling the temperature through a semiconductor thermoelectric refrigeration component and a fan/radiating fin radiating component so as to ensure that the blue-ray laser diode stably works; providing a coaxial mounting base for the blue laser diode and the collimating lens simultaneously; and a grating configured as a reflective periodic reticle grating adapted to produce multiple orders of diffraction, including negative first order diffraction, zero order diffraction, and positive first order diffraction, of the first quasi-parallel beam; the negative first-order diffraction is incident into the blue laser diode again so as to provide optical feedback for the blue laser diode to form a grating external cavity structure and generate the external cavity laser beam; the negative first order diffraction is further adapted to utilize a mode competition mechanism to perform mode selection within the grating external cavity structure such that the second quasi-parallel beam is split into single longitudinal mode blue lasers, and the zero order diffraction is adapted to output the single longitudinal mode blue lasers; the imaging spectrometer is suitable for monitoring the spectrum and the light intensity of the single longitudinal mode blue laser in real time based on the positive first-order diffraction; and the interference device is suitable for executing the holographic photoetching process on the experimental sample by using the single longitudinal mode blue laser from the laser emission assembly.

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N9029

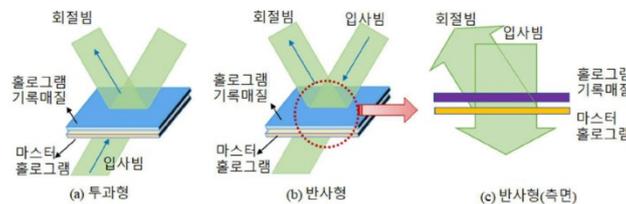
KR102469242

Priority Date: 28/12/2021

GUMI ELECTRONICS & INFORMATION TECHNOLOGY RESEARCH INSTITUTE

A METHOD AND SYSTEM FOR HOLOGRAM REPLICATION USING LINEAR SCANNING OF A REPLICATION BEAM AND ROTATION OF A RECORDING MEDIUM

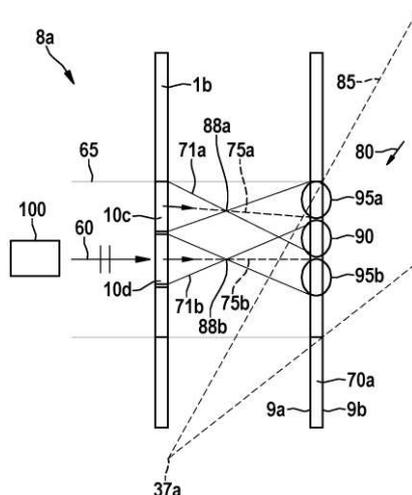
The object of the present invention is to make it possible to enhance the uniformity of the exposure energy and to avoid the influence of direct mechanical vibrations on the recording medium so that a reference beam (duplicate beam) is incident on the recording medium placed on a rotation stage via a mirror, Provided is a method and system for replicating a hologram using linear scanning of a replicated beam and rotation of a recording medium, wherein the replicated beam performs replication of the hologram by repeatedly carrying out the linear scanning of the replicated beam and the rotation of the recording medium N times. In order to achieve the object, a hologram copying method using linear scanning of a copy beam and rotation of a recording medium according to the present invention comprises: A first step of mounting a master hologram and the recording medium on a rotation stage while being closely adhered to each other; a second step of operating a moving stage on which a mirror is mounted, which advances a copy beam emitted from a light source toward the rotation stage; A third step of first scanning the recording medium by the replication beam while the mirror is linearly moved; and a fourth step of, when the mirror moves a scanning distance required by the mirror, stopping the movement stage and closing the optical shutter to block the replication beam.



CLAIM 1. A first step of mounting a master hologram and a recording medium on a rotation stage in a close contact with each other; a second step of operating a moving stage on which a mirror is mounted to advance a duplicate beam emitted from a light source toward the rotation stage while an optical shutter is opened; A fourth step of stopping the moving stage and closing the optical shutter to block the duplicate beam when the mirror moves a scanning distance required; a fifth step of rotating the master hologram and the recording medium by the rotation angle to prepare a second scan when the rotation stage rotates by the rotation angle ; And a sixth step of performing a second scanning by linear scanning of the replication beam and the rotation of the recording medium while the optical shutter is opened and the translation stage is linearly translated.

EXPOSURE DEVICE AND METHOD FOR PRODUCING A SECOND HOLOGRAPHIC OPTICAL ELEMENT

The invention relates to an exposure device (8 a) which comprises a first holographic optical element (1 b), wherein the first holographic optical element (1 b) has at least one first partial region (10 c) and one second partial region (10 d). The first partial region (10 c) comprises at least one first diffraction grating and the second partial region (10 d) comprises at least one second diffraction grating. The exposure device (8 a) also comprises a first photosensitive material (70 a) and a light unit (100) for generating at least first light waves of a first wavelength (65) and/or a second wavelength and for generating at least second light waves (85). The light unit (100) is configured to radiate the generated first light waves (65) onto the first (10 c) and second partial area (10 d) of the first holographic element (1 b). The first photosensitive material (70 a) is arranged relative to the first holographic optical element (1 b) in such a way that, at least in a third partial region (90) of the first photosensitive material (70 a), an overlap of first partial waves (71 a) of the first light waves deflected by means of the first diffraction grating with second partial waves (71 b) deflected by means of the second diffraction grating occurs. In addition, the light unit (100) serves to irradiate the generated second light waves (85) onto the first photosensitive material (70 a) in such a way that, in the at least one third partial region (90) of the first photosensitive material (70 a), interference of the first (71 a) and second partial waves (71 b) with the second light waves (85) occurs, so that a second holographic optical element is produced.



CLAIM 1. Exposure device (8 a, 8 b, 8 c, 8 d), in particular for producing a second holographic optical element (1 a, 1 b, 1 c, 1 f), wherein the exposure device (8 a, 8 b, 8 c, 8 d) comprises: - a first holographic optical element (1 a, 1 b, 1 c, 1 f), wherein the first holographic optical element (1 a, 1 b, 1 c, 1 f) has at least one first partial region (10 a, 10 c, 11 a, 12 a, 13 a, 14 a) and one second partial region (10 b, 10 d, 11 b, 12 b, 13 b, 14 b), wherein the first partial region (10 a, 10 c, 11 a, 12 a, 13 a, 14 a) has at least one first diffraction grating (20 a), and the second partial region (10 b, 10 d, 11 b, 12 b, 13 b, 14 b) has at least one second diffraction grating (20 b), - a first photosensitive material (70 a, 70 b, 70 c, 70 d), in particular a first photosensitive film, - a light unit (100, 101) for generating at least first light waves of a first wavelength (65, 66) and/or a second wavelength (68), and for generating at least second light waves of the first wavelength (84, 85) and/or of the second wavelength (86), wherein the light unit (100, 101) is configured to transmit the generated first light waves (65, 66) to the at least first (10 a, 10 c, 11 a, 12 a, 13 a, 14 a) and second partial region (10 b, 10 d, 11 b, 12 b, 13 b, 14 b) of the first holographic element (1 a, 1 b, 1 c, 1 f), wherein the first photosensitive material (70 a, 70 b, 70 c, 70 d) is arranged relative to the first holographic optical element (1 a, 1 b, 1 c, 1 f) in such a way that it is arranged at least in a third partial region (90, 91, 93 a) of the first photosensitive material (70 a, 70 b, 70 c, 70 b) to form an overlap of first partial waves (71 a, 72 a, 77 a) of the first light waves of the first wavelength and/or of the second wavelength deflected by means of the first diffraction grating (20 a) and second partial waves (71 b, 72 b, 77 a) of the second light waves of the first wavelength and/or of the second wavelength deflected by means of the second diffraction grating (20 b), 78 a) of the first light waves of the first wavelength and/or of the second wavelength, wherein the light unit (100, 101) is designed to irradiate the generated second light waves (84, 85) and/or second wavelength (86) onto the first photosensitive material (70 a, 70 b, 70 c, 70 d) in such a way that, in the at least one third partial region (90, 91, 93 a) of the first photosensitive material (70 a, 70 b, 70 c, 70 d), interference of the first (71 a, 72 a, 77 a) and second partial waves (71 b, 72 b, 78 a) of the first light waves with the second light waves (85) occurs, so that a second holographic optical element is produced.

N9064

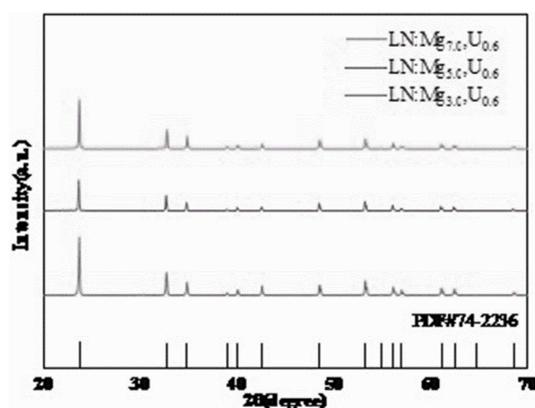
CN115261990

Priority Date: 30/08/2022

SHANGHAI INSTITUTE OF TECHNOLOGY

LITHIUM NIOBATE CRYSTAL WITH HIGH SATURATION DIFFRACTION EFFICIENCY AND PREPARATION METHOD THEREOF

The invention discloses a lithium niobate crystal with high saturation diffraction efficiency, which is characterized in that raw materials are fully mixed and ground, seed crystals are fixed at the bottom of a seed well of a crucible, then all the mixed raw materials are put into a platinum crucible and sealed, the platinum crucible is placed in a crystal growth furnace to grow crystals, the temperature in the furnace is controlled between 1300 °C and 1400 °C, the crystal is grown by a Bridgman-Stockbarg method, the growth speed is 0.2 mm/h to 0.4mm/h, and the doping of Mg ions and U ions greatly improves LiNbO₃ The saturation diffraction efficiency and photorefractive response time of the crystal. Also discloses a preparation method of the lithium niobate crystal. The invention realizes the growth of the lithium niobate single crystal with high saturation diffraction efficiency and quick response, has simple process equipment, can simultaneously grow a plurality of crystals, can greatly improve the production efficiency of the lithium niobate crystal and promote the application of the lithium niobate crystal in the holographic field.



CLAIM 1. A lithium niobate crystal having a high saturation diffraction efficiency, characterized in that the lithium niobate crystal is doped with Mg²⁺ And U⁴⁺ Wherein Mg maintains a valence of +2 and U is in a valence state of +4, +5, +6 and 3 during the crystal growth.

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

N9018

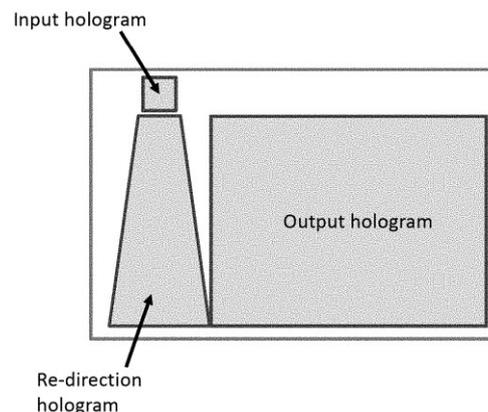
US20220373971

Priority Date: 21/05/2021

EARDG PHOTONICS

WAVEGUIDE GEOMETRY FOR IMPROVED DISPLAY PERFORMANCE

The present invention features new waveguide layouts for input, redirection (expansion), and output holograms that minimize cross talk between colors and allow all three colors to reside in a single waveguide. The use of multiple incoupling holograms that diffract different colors of light in different directions, or along different paths, through a waveguide substrate advantageously provides for a reduction of cross-talk between the colors of a holographic image. In a square-shaped design, red, green, and blue input and output holograms approximately overlay on top of each other. The green redirection hologram is laterally separated from the red and blue redirection holograms. Using this square-shape design, the light beams for the three colors are separated into two paths propagating from input to output holograms.



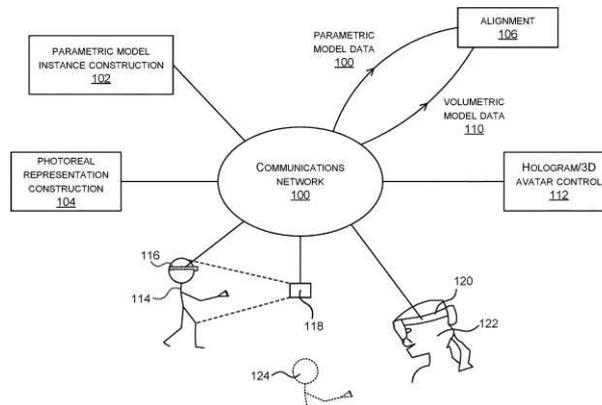
CLAIM 1. An optical waveguide for combining light from real imagery with light from a light engine, said waveguide comprising: a. an optically transparent substrate having top and bottom surfaces; and b. a plurality of optical elements optically coupled with the substrate; the plurality of optical elements comprising: i. a first incoupling optical element configured to incouple a first light beam into the substrate such that the first light beam propagates through the substrate along a first primary beam path; ii. a first outcoupling optical element configured to outcouple the first light beam from the substrate; iii. a first redirection optical element configured to redirect the first light beam such that it propagates through the substrate toward the first outcoupling optical element along a first secondary beam path; iv. a second incoupling optical element configured to incouple a second light beam into the substrate such that the second light beam propagates through the substrate along a second primary beam path; v. a second outcoupling optical element configured to outcouple the second light beam from the substrate; vi. a second redirection optical element configured to redirect the second light beam such that it propagates through the substrate toward the second outcoupling optical element along a second secondary beam path; vii. a third incoupling optical element configured to incouple a third light beam into the substrate such that the third light beam propagates through the substrate along a third primary beam path; viii. a third outcoupling optical element configured to outcouple the third light beam from the substrate; ix. a third redirection optical element configured to redirect the third light beam such that it propagates through the substrate toward the third outcoupling optical element along a third secondary beam path; wherein the first light beam is red, the second light beam is green, and the third light beam is blue, wherein the first, second, and third incoupling optical elements are overlapping, the first, second, and third outcoupling optical elements are overlapping, the first and third redirection optical elements are overlapping, and the second redirection optical element does not overlap with the first and third redirection optical elements, and wherein the first and third primary beam paths are both different from the second primary beam path, and the first and third secondary beam paths are both different from the second secondary beam path.

ALIGNMENT OF 3D REPRESENTATIONS FOR HOLOGRAM/AVATAR CONTROL

In various examples there is an apparatus for aligning three-dimensional, 3D, representations of people. The apparatus comprises at least one processor and a memory storing instructions that, when executed by the at least one processor, perform a method comprising accessing a first 3D representation which is an instance of a parametric model of a person; accessing a second 3D representation which is a photoreal representation of the person; computing an alignment of the first and second 3D representations; and computing and storing a hologram from the aligned first and second 3D representations such that the hologram depicts parts of the person which are observed in only one of the first and second 3D representations; or controlling an avatar representing the person where the avatar depicts parts of the person which are observed in only one of the first and second 3D representations.

ALIGNEMENT DE REPRÉSENTATIONS 3D POUR COMMANDE D'HOLOGRAMME/D'AVATAR

Selon divers exemples, l'invention concerne un appareil destiné à aligner des représentations tridimensionnelles, 3D, de personnes. L'appareil comprend au moins un processeur et une mémoire stockant des instructions qui, lorsqu'elles sont exécutées par le ou les processeurs, mettent en œuvre un procédé comprenant l'accès à une première représentation 3D qui est une instance d'un modèle paramétrique d'une personne ; l'accès à une seconde représentation 3D qui est une représentation photoréaliste de la personne ; le calcul d'un alignement des première et seconde représentations 3D ; et le calcul et le stockage d'un hologramme à partir des première et seconde représentations 3D alignées de telle sorte que l'hologramme représente des parties de la personne qui sont observées dans une seule des première et seconde représentations 3D ; ou la commande d'un avatar représentant la personne, l'avatar représentant des parties de la personne qui sont observées dans une seule des première et seconde représentations 3D.



CLAIM 1. An apparatus for aligning three-dimensional (3D) representations of people, the apparatus comprising: at least one processor; a memory storing instructions that, when executed by the at least one processor, perform a method comprising: accessing a first 3D representation which is an instance of a parametric model of at least a portion of a person, wherein the parametric model is a skeletal model and includes parameters comprising 3D positions of the skeletal model; accessing a second 3D representation which is a photoreal representation of at least a substantial portion of the person represented by the parametric model, wherein the photoreal representation is a volumetric model comprising a plurality of voxels, each voxel representing a region of real world space; computing an alignment of the first and second 3D representations; and computing and storing a hologram from the aligned first and second 3D representations such that the hologram depicts parts of the person which are observed in only one of the first and second 3D representations.

N9020

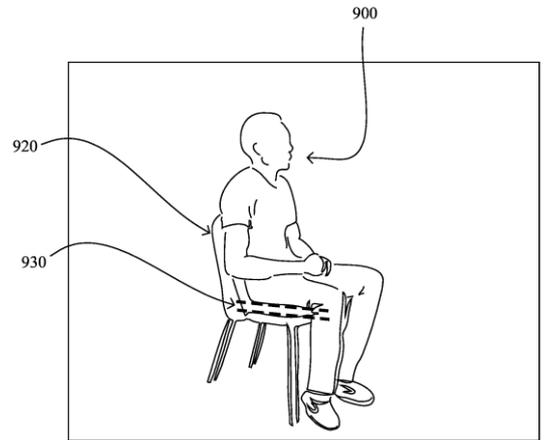
US20220373795

Priority Date: 18/05/2021

CISCO TECHNOLOGY

REAL-TIME ADAPTATION OF HOLOGRAPHIC IMAGING BASED ON A PHYSICAL ENVIRONMENT USING A REASONING ENGINE

In one embodiment, a device transmits data characterizing a holographic image to a physical environment. A visible rendering of the holographic image is created in the physical environment. The device uses a reasoning engine to make an inference regarding a state of the physical environment based on sensor data captured in the physical environment indicative of one or more real-time characteristics of the physical environment. In response to the inference, the device adjusts the holographic image. Then, the device transmits data characterizing the adjusted holographic image to the physical environment, and a visible rendering of the adjusted holographic image is created in the physical environment.



CLAIM 1. A method comprising: transmitting, by a device, data characterizing a holographic image to a physical environment, wherein a visible rendering of the holographic image is created in the physical environment; using, by the device, a reasoning engine to make an inference regarding a state of the physical environment based on sensor data captured in the physical environment indicative of one or more real-time characteristics of the physical environment; adjusting, by the device, the holographic image responsive to the inference regarding the state of the physical environment; and transmitting, by the device and to the physical environment, data characterizing the holographic image adjusted by the device, wherein a visible rendering of the holographic image adjusted by the device is created in the physical environment.

N9021

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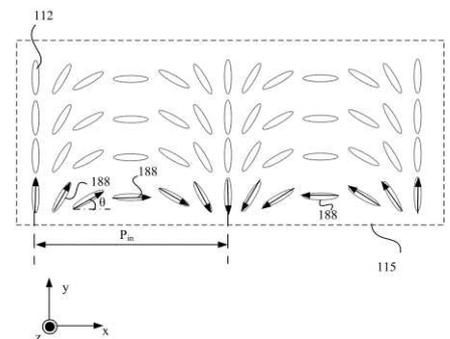
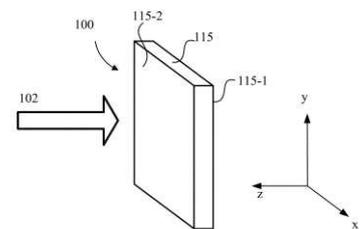
Priority Date: 17/05/2021

META PLATFORMS TECHNOLOGIES

APOCHROMATIC LIQUID CRYSTAL POLARIZATION HOLOGRAM DEVICE

A device is provided. The device includes a first polarization hologram element having a first operating wavelength band and configured to selectively backwardly diffract or transmit a first light associated with the first operating wavelength band based on a polarization of the first light. The device also includes a second polarization hologram element having a second operating wavelength band and stacked with the first polarization hologram. A thickness of the first polarization hologram element is configured based on a signal-to-noise ratio between a diffraction efficiency of the first polarization hologram element for the first light and a diffraction efficiency of the first polarization hologram element for a second light associated with the second operating wavelength band being greater than a predetermined value.

CLAIM 1. A device, comprising: a first polarization hologram element having a first operating wavelength band and configured to selectively backwardly diffract or transmit a first light associated with the first operating wavelength band based on a polarization of the first light; and a second polarization hologram element having a second operating wavelength band and stacked with the first polarization hologram, wherein a thickness of the first polarization hologram element is configured based on a signal-to-noise ratio between a diffraction efficiency of the first polarization hologram element for the first light and a diffraction efficiency of the first polarization hologram element for a second light associated with the second operating wavelength band being greater than a predetermined value.



N9022

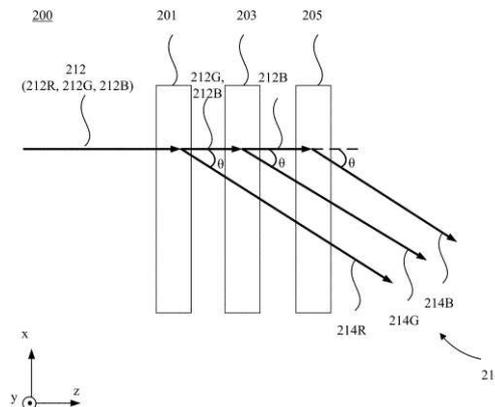
US20220365264

Priority Date: 17/05/2021

FACEBOOK TECHNOLOGIES

APOCHROMATIC LIQUID CRYSTAL POLARIZATION HOLOGRAM DEVICE

A device is provided. The device includes a first polarization hologram element configured to operate as a half-wave plate for a first light having a first wavelength, and as a full-wave plate for a second light having a second wavelength. The device also includes a second polarization hologram element stacked with the first polarization hologram, and configured to operate as the half-wave plate for the second light and as the full-wave plate for the first light. The first polarization hologram element is configured to forwardly diffract or transmit the first light depending on a handedness of the first light. The second polarization hologram element is configured to forwardly diffract or transmit the second light depending on a handedness of the second light.



CLAIM 1. A device, comprising: a first polarization hologram element configured to operate as a half-wave plate for a first light having a first wavelength, and as a full-wave plate for a second light having a second wavelength; and a second polarization hologram element stacked with the first polarization hologram, and configured to operate as the half-wave plate for the second light and as the full-wave plate for the first light, wherein the first polarization hologram element is configured to forwardly diffract or transmit the first light depending on a handedness of the first light, and wherein the second polarization hologram element is configured to forwardly diffract or transmit the second light depending on a handedness of the second light.

N9023

US20220358617

Priority Date: 22/06/2022

META PLATFORMS TECHNOLOGIES

DEPTH ENCODING AT AN EDGE SYSTEM TO SUPPORT HOLOGRAM DISPLAY

Implementations augment images with depth information to support hologram display. An edge system can receive, from a source system, images of a user. For example, the images can be two-dimensional images captured by multiple cameras at different perspectives (e.g., stereoscopic images), or single perspective images. The edge system can estimate depth information using the images, for example by processing the images using an engine and one or more machine learning models, and generate depth encoded images. The edge system can then transmit the depth encoded images to a target system, which can ultimately display a hologram of the user using the depth encoded images. Accordingly, implementations can offload, from end-user devices (e.g., the source system and/or target system), hologram workloads to an edge system loaded with an engine and machine learning model(s).

CLAIM 1. A method for encoding images with depth information at an edge system to support hologram display, the method comprising: receiving, at an edge system from a source system, images of a user over a real-time communication (RTC) channel, wherein latency for the communication over the RTC channel between the edge system and the source system is between 10 ms and 50 ms, and wherein the images are: a) captured at the source system using a plurality of cameras; and b) encoded at the source system prior to transmission to the edge system; processing, at the edge system, the received images using an ordered pipeline to estimate depth information for the images and generate depth encoded images, wherein the ordered pipeline comprise a pre-processing portion, an inference portion, and post-processing portion; and transmitting, from the edge system to a target system, the depth encoded images over a real-time communication channel, wherein the depth encoded images are used at the target system to displayed a hologram of the user.

N9024

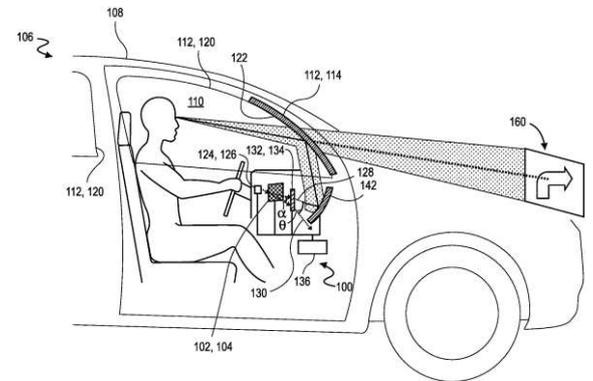
US20220357574

Priority Date: 06/05/2021

GM GLOBAL TECHNOLOGY OPERATIONS

HOLOGRAPHIC DISPLAY SYSTEM WITH CONJUGATE IMAGE REMOVAL FOR A MOTOR VEHICLE

A holographic display system for a motor vehicle includes a coherent light source for generating a beam of coherent light and a spatial light modulator (SLM) having a two-dimensional pixel array, which is encoded with a hologram for modulating a phase of the coherent light. The SLM generates a first diffracted beam associated with a main image and a second diffracted beam associated with a conjugate image, where the first and second diffracted beams are angularly spaced from one another by a first angle. The system further includes an optical component for angularly spacing the first and second diffracted beams from one another by a second angle that is larger than the first angle. The system further includes a display surface receiving the first diffracted beam from the optical component to display the main image, with the display surface being free of the second diffracted beam.



N9025

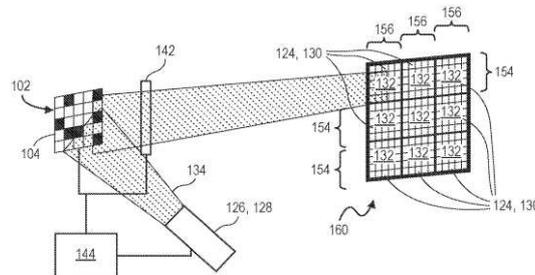
US11506892

Priority Date: 03/05/2021

GM GLOBAL TECHNOLOGY OPERATIONS

HOLOGRAPHIC DISPLAY SYSTEM FOR A MOTOR VEHICLE

A holographic display system for a motor vehicle includes a light source for generating a beam of coherent light and a spatial light modulator (SLM) having a two-dimensional pixel array. The two-dimensional pixel array modulates the beam of coherent light for generating a plurality of subframes, with each subframe being associated with one of a plurality of partial fields of view. The system further includes a scanner for directing the subframes onto associated sections of a display surface. The system further includes a computer having a memory including instructions, such that a processor is programmed to control the two-dimensional pixel array of the SLM for generating the subframes. The processor is further programmed to control the scanner for directing the subframes onto associated sections of the display surface and displaying a reconstructed image within a full field of view, which includes each of the partial fields of view.



CLAIM 1. A holographic display system for a motor vehicle, the holographic display system comprising: a light source for generating a beam of coherent light; a spatial light modulator (SLM) comprising a two-dimensional pixel array having an SLM resolution, and the two-dimensional pixel array is encoded with holograms for diffracting the coherent light and modulating the beam of coherent light to generate a plurality of subframes, with each of the subframes being associated with one of a plurality of partial fields of view; a display surface comprising a plurality of sections; a computer comprising: a processor coupled to the light source and the SLM; and a memory including instructions such that the processor is programmed to control at least the two-dimensional pixel array of the SLM to generate the subframes for displaying a reconstructed image within a full field of view, where the full field of view includes each of the partial fields of views; and a scanner for directing the subframes onto an associated one of the sections of the display surface; wherein the processor is coupled to the SLM and controls the scanner to direct the subframes onto an associated one of the sections of the display surface for displaying the reconstructed image within the full field of view, where the full field of view includes each of the partial fields of view; and wherein the processor is programmed to control at least one of the scanner and the SLM to direct the subframes onto the sections, with the sections being arranged in a plurality of rows and a plurality of columns on the display surface.

N9026

US11487400

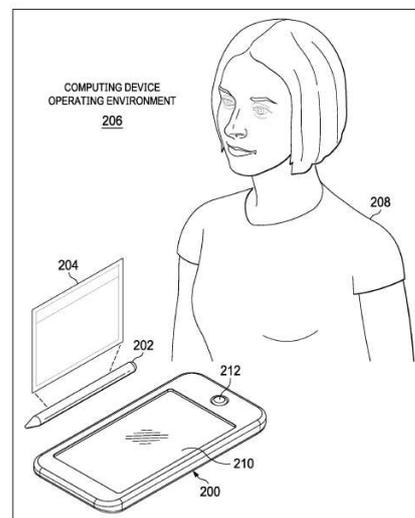
IBM

Priority Date: 13/08/2021

AGGREGATED MULTIDIMENSIONAL USER INTERFACE DISPLAY WITH ELECTRONIC PEN FOR HOLOGRAPHIC PROJECTION

A computer-implemented method, system, and computer program product for generating an aggregated user interface display. The aggregated user interface display includes a physical display of a computing device and a projected display from an electronic pen. Operator interactions with the aggregated user interface display are saved as historical information. The historical information is used to determine a configuration for the aggregated user interface display. The computing device and the electronic pen are controlled to implement the configuration for the aggregated user interface display.

CLAIM 1. A computer-implemented method of generating an aggregated user interface display, comprising: receiving operator interactions with the aggregated user interface display, wherein the aggregated user interface display comprises a physical display of a computing device and a projected display from an electronic pen; saving the operator interactions as historical information; using the historical information to determine a configuration for the aggregated user interface display; and controlling the computing device and the electronic pen to implement the configuration for the aggregated user interface display, and further comprising at least one of: receiving sensor information from the electronic pen, determining a grip pattern for an operator holding the electronic pen from the sensor information, and saving the grip pattern as the historical information; receiving sensor information from the computing device and the electronic pen, determining relative positions of the computing device and the electronic pen from the sensor information, and saving the relative positions as the historical information; or receiving content information from the computing device, determining types of the content information, and saving the operator interactions in context of the types of the content information as the historical information.



N9028

KR20220145225

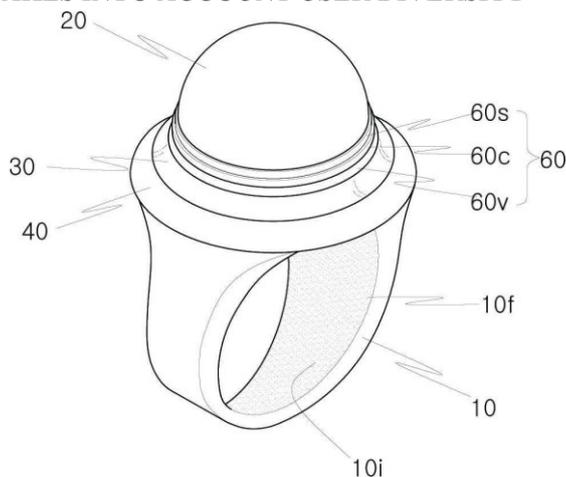
KIM, HYUNG JIN

Priority Date: 21/04/2021

A CUSTOMIZING PARTICLE-LIKE HOLOGRAM HALF THAT TAKES INTO ACCOUNT USER DIVERSITY

The present invention relates to a customized grain-type hologram ring which can not be tedious even when used for a long period of time according to enabling the projection of various colors or images according to the sensitivity of a user. In particular, it is possible to cause a particle-like hologram to be displayed to obtain an expensive jewel-like effect by visually transforming or changing in the form of various jewelry, and to provide an inexpensive value compared to an expensive jewel, as well as to transform or change to natural products such as butterflies or flowers depending on the environment. The present invention relates to a customized particle-type hologram ring in which a user variety of which a color and a sharpness shape of a particle-type hologram to be expressed can be variously modified.

CLAIM 1. In a ring paper to be worn on a finger, the ring paper includes: A ring-shaped body 10 formed with a finger input port 10f into which a finger is inserted; a transparent projection body 20 installed on one side of the ring-shaped body; a three-dimensional image projection body 30 installed inside the ring-shaped body of the projection body and irradiating a three-dimensional image; a memory 40 storing a three-dimensional image to be projected onto the three-dimensional image; a battery 50 supplying power; and a three-dimensional hologram control unit 60.



N9031

KR102464162

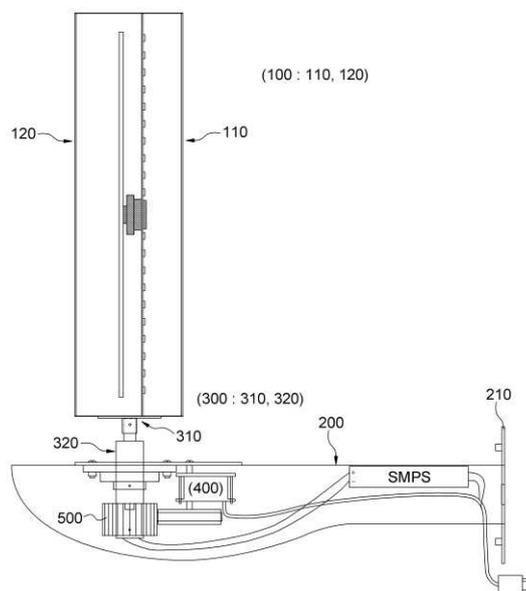
HOLOVISION

Priority Date: 03/08/2022

A DOUBLE-SIDED INTEGRATED SIGN APPARATUS FOR PLANAR ADVERTISING AND HOLOGRAPHIC ADVERTISING

The present invention relates to a double-sided integrated sign apparatus which allows portions representing planar advertisements and portions representing stereoscopic advertisements to be placed on opposite sides, which allows planar advertisements and holographic advertisements to be implemented as a compartment section in one sign apparatus, and to this end, a double-sided integrated advertisement light emitting member on which the planar advertisements and holographic advertisements are mounted is a technique for passing on a predetermined support base member. In particular, the present invention relates to a technology for slimming a thickness of a support base member through a double-sided integrated advertisement light emitting member while mounting a component for setting a display direction of the double-sided integrated advertisement light emitting member on the support base member. According to the present invention, the planar advertisement and the holographic advertisement are implemented on both surfaces facing each other, and the driving motor member and the control member are provided, so that the viewer positioned at one location may observe the planar advertisement and the holographic advertisement alternately.

CLAIM 1. A double-sided integrated advertisement light emitting member 100 having a planar advertisement member 110 provided on one side and a hologram advertisement member 120 provided on the other side integrally formed thereon; a support base member 200 for supporting the double-sided integrated advertisement light emitting member with being arranged below the double-sided integrated advertisement light emitting member; a joint member 300 for integrally connecting and fixing the double-sided integrated advertisement light emitting member to the support base member A drive motor member installed inside the support base member and rotating an external rotating body; a gear member disposed inside the support base member close to the drive motor member and disposed to be rotated in place by being supplied with rotational force from the drive motor member; and a control member controlling an on / off operation of the drive motor member, wherein the planar advertising member includes: A two-way cylindrical housing A support plate member 112 for partitioning both directions of the housing member; a plate-shaped flat panel member 113 having a printing pattern formed in one direction of opening of the housing member; a flat light emitting member 114 arranged in one direction of the support plate member where the flat panel member is positioned to emit light toward the flat panel member Wherein the hologram advertisement member (120) comprises: A hologram image light emitting member (121) such that a plurality of luminous bodies are arranged in a line form to be spaced apart from the support plate member on the inside of the housing member opposite to the planar luminous member with respect to the support plate member and to realize a hologram by being rotated in place and to keep a rotation plane parallel to the support plate member A rotating member (122) disposed at a central portion of the support plate member in a state of being connected to the holographic image emitting member and rotating the holographic image emitting member by the relative rotation And a joint member (300), wherein a part of the joint member (300) is formed to support a lower portion of the double-sided integrated advertisement light emitting member so as to correspond to a lower surface shape of the double-sided integrated advertisement light emitting member, and the other part of the body is formed to protrude downward in a rod shape A rotational power transmission member disposed in a vertical direction on the support base member corresponding to a vertical upper portion of the gear member and connected to the rotational support member to transmit a rotational force of the gear member to the rotational support member And a double-sided integrated sign emitting member for planar advertising and hologram advertising, wherein the double-sided integrated sign emitting member is rotatable with respect to the supporting base member in conjunction with an on / off operation of the driving motor member.



N9034

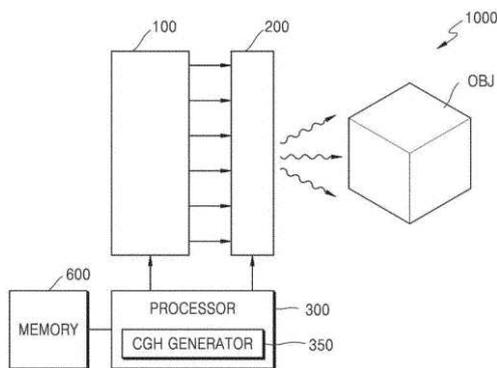
EP4086709

Priority Date: 04/05/2021

SAMSUNG ELECTRONICS

CGH GENERATOR AND DISPLAY APPARATUS INCLUDING THE SAME

A holographic display apparatus includes: a light source; a spatial light modulator configured to modulate light from the light source according to an image to be displayed on an object plane; and a processor configured to generate a computer generated hologram (CGH) in which a phase value of hologram data to be displayed on a reference plane of the spatial light modulator is 0, the processor being configured to apply a light modulation signal based on the CGH to the spatial light modulator.



CLAIM 1. A holographic display apparatus comprising: a light source; a spatial light modulator configured to modulate light from the light source according to an image to be displayed on an object plane; and a processor configured to generate a computer generated hologram (CGH) in which a phase value of hologram data to be displayed on a reference plane of the spatial light modulator is 0, the processor being configured to apply a light modulation signal based on the CGH to the spatial light modulator.

N9035

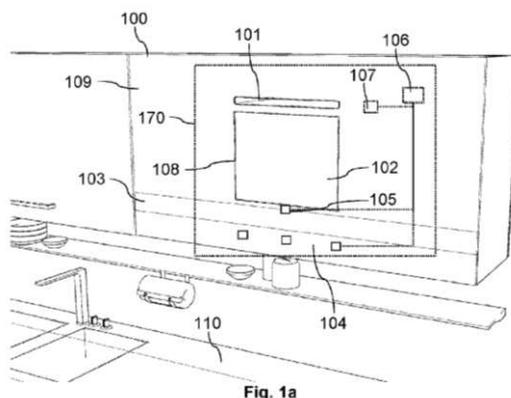
EP4082392

Priority Date: 29/04/2021

BSH HAUSGERAETE

CABINET WITH A HOLOGRAPHIC SYSTEM

A cabinet (100) configured to be attached to and/or to be placed against a wall of a room, notably a kitchen, is described. The cabinet (100) comprises a slot (101) for receiving a handheld electronic device (150) having a display (151). Furthermore, the cabinet (100) comprises a hologram plate (120) which is configured to generate a hologram (160) within a projection area (108), based on an image (301) which is rendered by the display (151) of the electronic device (150).



CLAIM 1. A cabinet (100) configured to be attached to and/or to be placed against a wall of a room; wherein the cabinet (100) comprises - a slot (101) for receiving a handheld electronic device (150) having a display (151); and - a hologram plate (120) which is configured to generate a hologram (160) within a projection area (108), based on an image (301) which is rendered by the display (151) of the electronic device (150).

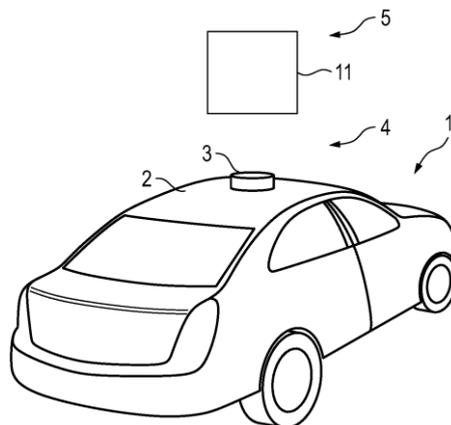
N9037

DE10202111744
Priority Date: 06/05/2021

PORSCHE

METHOD AND APPARATUS FOR DISPLAYING A THREE-DIMENSIONAL HOLOGRAM

The invention relates to a method for displaying a three-dimensional hologram (5) above a motor vehicle (1). In order to functionally improve the operation of a motor vehicle (1), the three-dimensional hologram (5) is used to represent at least one communication function between the motor vehicle (1) or a Person located in the motor vehicle (1) and at least one Person in the surroundings of the motor vehicle (1).



CLAIM 1. Method for displaying a three-dimensional hologram (5) above a motor vehicle (1), characterized in that Characterized in that the three-dimensional hologram (5) is used to represent at least one communication function between the motor vehicle (1) or a Person located in the motor vehicle (1) and at least one Person in an environment of the motor vehicle (1).

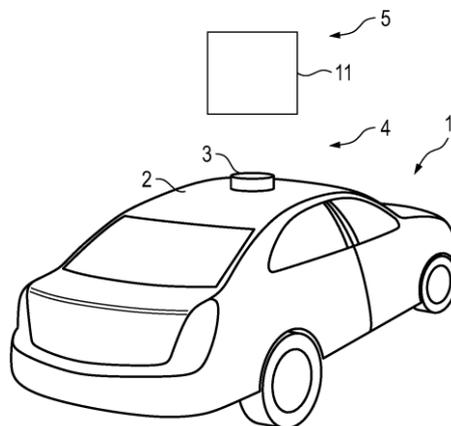
N9038

DE10202111743
Priority Date: 06/05/2021

PORSCHE

METHOD AND APPARATUS FOR DISPLAYING A THREE-DIMENSIONAL HOLOGRAM

The invention relates to a method for displaying a three-dimensional hologram (5) above a motor vehicle (1). The aim of the invention is to functionally improve the operation of a motor vehicle (1). to this end, the three-dimensional hologram (5) is used to represent at least one design function on the motor vehicle (1).



CLAIM 1. Method for displaying a three-dimensional hologram (5) above a motor vehicle (1), characterized in that Characterized in that the three-dimensional hologram (5) is used to represent at least one design function on the motor vehicle (1).

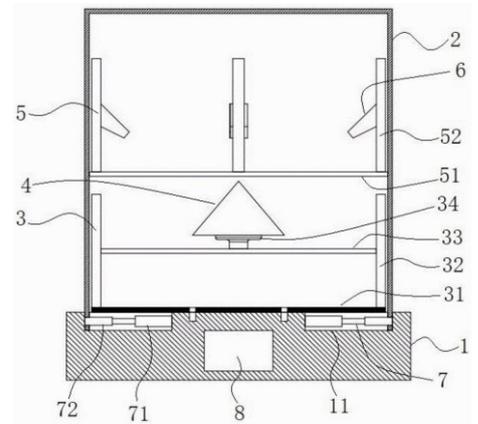
N9039

CN217847405U
Priority Date: 19/11/2021

SUQIAN COLLEGE

HOLOGRAPHIC PROJECTION DISPLAY SYSTEM

The utility model discloses a holographic projection display system, which comprises a base and an outer cover; the pyramid projection screen is characterized in that a pyramid projection screen is arranged on the base through a projection screen lifting frame, a projector is arranged in the outer cover through a projector lifting frame, the outer cover is arranged on the base and covers the projection screen lifting frame and the pyramid projection screen, the projector is located obliquely above the pyramid projection screen, and the lifting action of the pyramid projection screen and the lifting action of the projector are kept in the same direction and synchronous. The utility model provides a pair of holographic projection display system realizes dynamic holographic projection show through the synchronous lift of pyramid projection screen and projector, improves the bandwagon effect greatly, is suitable for the scale and promotes.



CLAIM 1. A holographic projection display system, comprising: comprises a base (1) and an outer cover (2); the pyramid projection screen is characterized in that a pyramid projection screen (4) is arranged on the base (1) through a projection screen lifting frame (3), a projector (6) is arranged in the outer cover (2) through a projector lifting frame (5), the outer cover (2) is arranged on the base (1) in a covering mode and provided with the projection screen lifting frame (3) and the pyramid projection screen (4), the projector (6) is located above the pyramid projection screen (4) in an inclined mode, and the lifting action of the pyramid projection screen (4) and the lifting action of the projector (6) are kept in the same direction and are synchronous.

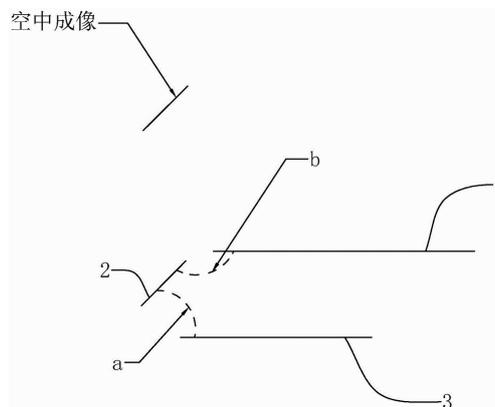
N9040

CN217846898U
Priority Date: 25/07/2022

YESAR ELECTRONIC TECHNOLOGY

HOLOGRAPHIC AERIAL IMAGING STRUCTURE AND EQUIPMENT

The application discloses holographic aerial imaging structure and equipment, relates to the field of holographic imaging, and comprises a holographic optical lens and a display screen. The display screen is provided with a first reflection unit towards one side for releasing light, and the first reflection unit is used for reflecting the light of the display screen and reflecting the light to the holographic optical lens. This application can reduce the required height of whole product on the basis of the position of the aerial formation of image of increasing, and then reduces the whole volume of product, and the display screen is difficult for receiving external light source's interference simultaneously, has reduced the influence of environment to the display screen.



CLAIM 1. A holographic aerial imaging structure comprises a holographic optical lens (1) and a display screen (2); the method is characterized in that: the display screen (2) is provided with first reflection unit towards the one side that is used for letting light, first reflection unit is used for the light of reflection display screen (2) and reflects to holographic optical lens (1) department.

N9041

CN217821478U

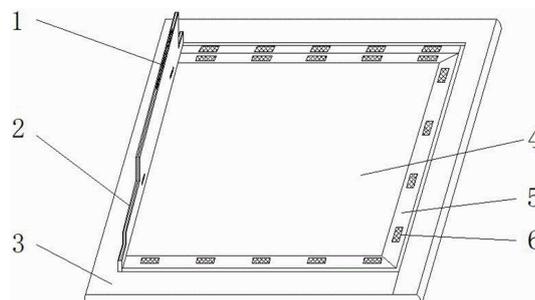
Priority Date: 28/07/2022

SUZHOU SANREN NETWORK TECHNOLOGY

TRANSPARENT SCREEN CASE SIDE PLATE WITH HOLOGRAPHIC PROJECTION

The utility model discloses a take holographic projection's transparent screen machine case curb plate, including the quick-witted case board, the embedded glass substrate of installing in center department of quick-witted case board, the quick-witted case board passes through buckle fixedly connected with lamp area mounting panel with glass substrate's seam crossing, the upper surface of lamp area mounting panel bonds through chemical glue has the luminescent light area, one side of the upper surface of quick-witted case board is provided with the guard plate, fixedly connected with PCB control panel in the middle gap of guard plate, the utility model discloses utilize integrative fixed lamp area mounting panel and luminescent light area cooperation, directly glue two perpendicular distribution's lamp area on the quick-witted case board, utilize the light of horizontal vertical direction to carry out the projection formation of image, whole light filling effect is better, makes the projection effect of quick-witted case curb plate better to the structure installation is simple, can make things convenient for the maintenance to change.

CLAIM 1. The utility model provides a take holographic projection's transparent screen machine case curb plate, includes quick-witted case board (3), its characterized in that, the center department of quick-witted case board (3) embeds installs glass substrate (4), the seam crossing of quick-witted case board (3) and glass substrate (4) is through buckle fixedly connected with lamp area mounting panel (5), the upper surface of lamp area mounting panel (5) bonds through chemical glue has luminescent light area (6), one side of the upper surface of quick-witted case board (3) is provided with guard plate (2), fixedly connected with PCB control panel (1) in the middle gap of guard plate (2).



N9043

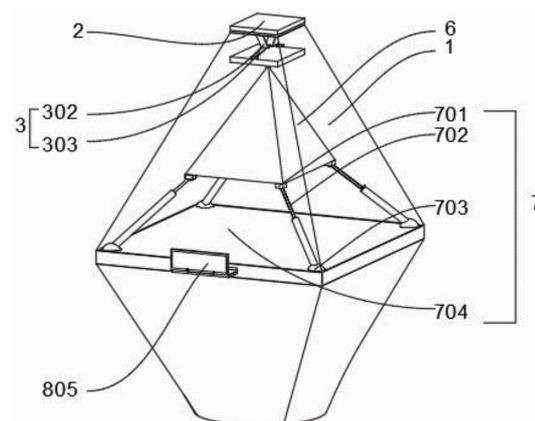
CN217816010U

Priority Date: 12/07/2022

SHENZHEN SHOWIND CULTURAL CREATIVE

HOLOGRAPHIC PROJECTION DISPLAY CABINET WITH ADJUSTING MECHANISM FOR DIGITAL EXHIBITION HALL

The utility model provides a holographic projection show cupboard is used in digital exhibition room with adjustment mechanism, including the show cupboard, the roof is installed to the one end of show cupboard, one side of roof is provided with elevating system, elevating system's one end is provided with moving mechanism, moving mechanism's internally mounted has the projecting apparatus, the one end fixedly connected with prism of projecting apparatus, the one end of prism is provided with adjustment mechanism, one side of adjustment mechanism is provided with slide mechanism. Control hydraulic pressure guide arm through the touch-sensitive screen and stretch out and draw back, can drive the prism simultaneously and produce the displacement, and the projecting apparatus passes through vertical pulley and slides on vertical slide bar when the prism displacement to remove on horizontal slide bar through horizontal pulley, so that adjust the position of projecting apparatus, when the high production of projecting apparatus changes at last, the projecting apparatus makes the projecting apparatus can carry out altitude mixture control through the rotation of second folding piece and first folding piece through the pivot.



CLAIM 1. The utility model provides a holographic projection show cupboard is used in digit exhibition room with adjustment mechanism, includes show cupboard (1), its characterized in that: roof (2) are installed to the one end of show cupboard (1), one side of roof (2) is provided with elevating system (3), the one end of elevating system (3) is provided with moving mechanism (4), the internally mounted of moving mechanism (4) has projecting apparatus (5), the one end fixedly connected with prism (6) of projecting apparatus (5), the one end of prism (6) is provided with adjustment mechanism (7), one side of adjustment mechanism (7) is provided with slide mechanism (8).

N9044

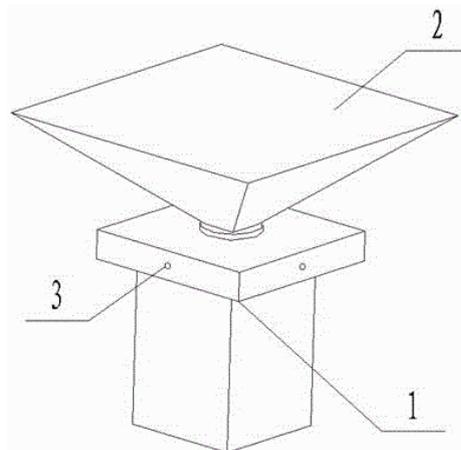
CN217767196U

LI MUZI

Priority Date: 09/06/2022

INTERACTIVE HOLOGRAPHIC CABINET

The utility model relates to the technical field of multimedia, in particular to an interactive holographic cabinet, which comprises a controller, a cabinet body, holographic glass and projection equipment; the cabinet body is provided with a through hole, the bottom of the holographic glass is arranged above the cabinet body and is opposite to the through hole, and the projection equipment is arranged in the cabinet body and is matched with the bottom of the holographic glass; the holographic glass is an inverted quadrangular frustum pyramid, four pieces of electrified glass are arranged around the holographic glass, and the controller controls the four pieces of electrified glass to supply power to enable the electrified glass to be in a transparent or opaque state; the utility model discloses an adopt circular telegram glass for holographic glass can realize directional printing opacity, for example the people observes in one of them direction, and the controller can control the glass in the face of the direction of this observation to be in transparent state, and three of other directions then are in opaque state, makes the show of holographic cabinet be in the best state, avoids external light to influence projection equipment's light, promotion visual effect that can be great.



CLAIM 1. An interactive holographic cabinet is characterized by comprising a controller, a cabinet body, holographic glass and projection equipment; the cabinet body is provided with a through hole, the bottom of the holographic glass is arranged above the cabinet body and is opposite to the through hole, and the projection equipment is arranged in the cabinet body and is matched with the bottom of the holographic glass; the holographic glass is an inverted quadrangular frustum pyramid, four pieces of electrified glass are arranged around the holographic glass, and the controller controls the four pieces of electrified glass to be powered on so that the electrified glass is in a transparent or opaque state.

N9045

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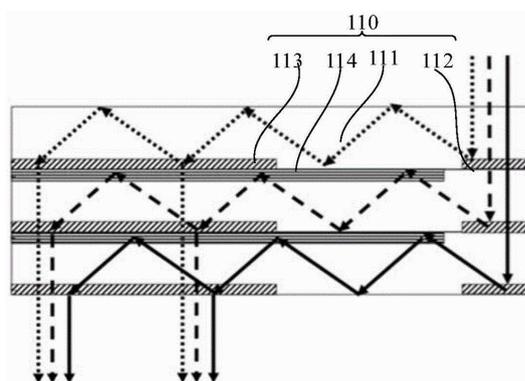
HANGZHOU GUANGLI TECHNOLOGY

Priority Date: 15/08/2022

VOLUME HOLOGRAPHIC OPTICAL WAVEGUIDE AND AUGMENTED REALITY DISPLAY DEVICE

The application discloses volume holographic optical waveguide and augmented reality display device relates to optical display technical field, and the volume holographic optical waveguide of this application, including a plurality of waveguide units that range upon range of laminating setting, the waveguide unit includes the waveguide basement and imbeds at waveguide basement with the same one side the grating of incoupling and the coupling grating, be equipped with the total reflection grating so that the coupling grating laminating of total reflection grating and adjacent waveguide unit with the relative one side of grating of incoupling and coupling grating on the waveguide basement. The volume holographic optical waveguide and the augmented reality display device can reduce Fresnel loss when light beams are coupled out of the waveguide, improve coupled image brightness and increase multilayer waveguide strength.

CLAIM 1. The volume holographic optical waveguide is characterized by comprising a plurality of waveguide units (110) which are laminated and attached, wherein each waveguide unit (110) comprises a waveguide substrate (111), and an incoupling grating (112) and an outcoupling grating (113) which are embedded in the same side of the waveguide substrate (111), and a total reflection grating (114) is embedded on one side, opposite to the incoupling grating (112) and the outcoupling grating (113), of the waveguide substrate (111), so that the total reflection grating (114) is attached to the outcoupling grating (113) of the adjacent waveguide unit (110).



N9046

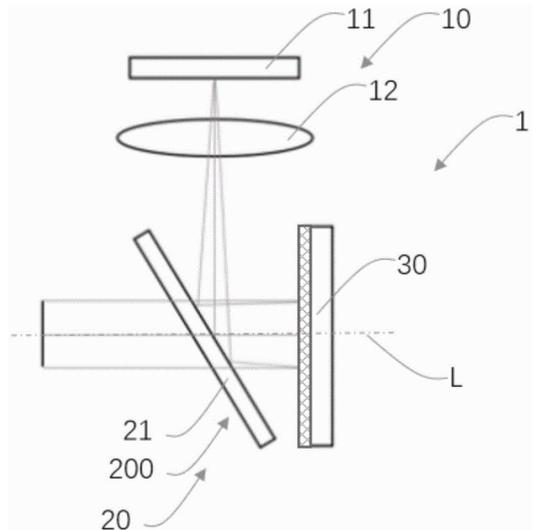
CN217718285U
Priority Date: 29/07/2022

SUNNY OPTICAL ZHEJIANG RESEARCH INSTITUTE

APPARATUS FOR MANUFACTURING HOLOGRAPHIC OPTICAL ELEMENT AND NEAR-TO-EYE DISPLAY DEVICE

The utility model relates to a device and near-to-eye display device for making holographic optical element, it can avoid the image to reveal, protects user's use privacy when improving actual transmittance. The near-eye display device includes: an image projector for projecting image light; a light splitting element disposed on a projection side of the image projector for reflecting a portion of the light and transmitting another portion of the light; a holographic optical element disposed at a reflection side of the light splitting element, the light splitting element for reflecting the image light from the image projector to be incident to the holographic optical element with a predetermined spatial angle distribution, the holographic optical element for redirecting the image light incident with the predetermined spatial angle distribution to propagate to the light splitting element and transmitting the light incident with other spatial angle distributions.

CLAIM 1. A near-eye display device, comprising: an image projector for projecting image light; a light splitting element disposed on a projection side of the image projector for reflecting a portion of the light and transmitting another portion of the light; a hologram optical element disposed at a reflection side of the light splitting element, the light splitting element configured to reflect the image light from the image projector to be incident to the hologram optical element with a preset spatial angle distribution, the hologram optical element configured to redirect the image light incident with the preset spatial angle distribution to propagate to the light splitting element and transmit light incident with other spatial angle distributions.



N9047

CN115373782
Priority Date: 01/08/2022

4U TECHNOLOGY

THREE-DIMENSIONAL HOLOGRAPHIC DISPLAY METHOD AND DEVICE BASED ON POLYGON

The invention discloses a three-dimensional holographic display method and a three-dimensional holographic display device based on polygons. Wherein, the method comprises the following steps: segmenting a three-dimensional image to be displayed into a plurality of two-dimensional slice images, and acquiring a local atlas of each two-dimensional slice image in a local coordinate system; converting the local atlas into a global coordinate system for holographic display, and performing holographic calculation to obtain a corresponding global atlas; and superposing the corresponding global atlas of each two-dimensional slice image to obtain a hologram of a spatial domain so as to perform three-dimensional dynamic holographic display. The invention solves the technical problems of more resource consumption and slower calculation speed of holographic calculation in the related technology.

CLAIM 1. A method of three-dimensional dynamic holographic display, comprising: segmenting a three-dimensional image to be displayed into a plurality of two-dimensional slice images, and acquiring a local atlas of each two-dimensional slice image in a local coordinate system; converting the local atlas into a global coordinate system for holographic display, and performing holographic calculation to obtain a corresponding global atlas; and superposing the corresponding global atlas of each two-dimensional slice image to obtain a hologram of a spatial domain so as to perform three-dimensional dynamic holographic display.

N9053

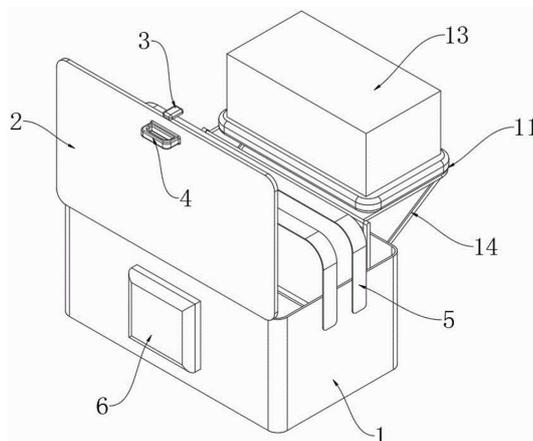
CN115343933

Priority Date: 17/08/2022

XINJIANG PRODUCTION & CONSTRUCTION CORPS TWELFTH DIVISION MIDDLE SCHOOL

PORTABLE FULL-VIEW HOLOGRAPHIC PROJECTION DISPLAY INSTRUMENT

The invention provides a portable full-view holographic projection display instrument, which belongs to the technical field of holographic projectors and comprises a storage box assembly, wherein holographic projection equipment is connected in the storage box assembly through a folding mechanism, the folding mechanism comprises two bases, the two bases are connected in the storage box assembly, a first connecting shaft is rotatably connected between the two bases, two connecting rods are fixed on the first connecting shaft, and a second connecting shaft is fixed between the two connecting rods.



CLAIM 1. The utility model provides a portable full visual angle holographic projection show appearance which characterized in that: including storing the box subassembly, be connected with holographic projection equipment through folding mechanism in the storage box subassembly, folding mechanism includes two bases (7), two base (7) are all connected in storing the box subassembly, two it is connected with first even axle (8) to rotate between base (7), be fixed with two connecting rods (9) on first axle (8), two be fixed with second even axle (16) between connecting rod (9), the second is connected with carriage (10) even rotating on axle (16), and carriage (10) are connected with holographic projection equipment, be connected with supporting component between carriage (10) and the storage box subassembly, be provided with power supply module in the storage box subassembly.

N9056

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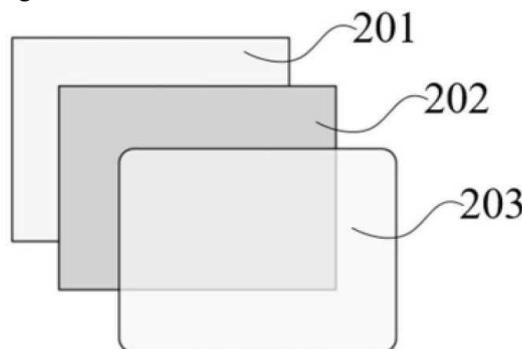
Priority Date: 26/07/2022

UNIVERSITY SHANXI COMMUNICATION

SELF-ADAPTIVE HOLOGRAPHIC FUNCTION SCREEN MODULATION METHOD

The invention provides a self-adaptive holographic function screen modulation method, which comprises the following steps: acquiring intersection point coordinates of each light vector of a real light vector field of the three-dimensional light field display system to be modulated and a viewing plane and a preset holographic function screen plane respectively; acquiring an integral modulation function of the holographic function screen according to intersection point coordinates of each light vector of the real light vector field, the viewing plane and a preset holographic function screen plane; and acquiring the holographic function screen with the integral modulation function as the holographic function screen of the three-dimensional light field display system to be modulated. The invention enables the light reconstruction error of the holographic function screen and the three-dimensional light field display system to be adaptive, can carry out adaptive modulation on the holographic function screen aiming at the uneven light distribution of the three-dimensional light field display system to be modulated, and obviously improves the three-dimensional display quality on the premise of not introducing crosstalk.

CLAIM 1. A self-adaptive holographic functional screen modulation method is characterized by comprising the following steps: acquiring intersection point coordinates of each light vector of a real light vector field of the three-dimensional light field display system to be modulated and a viewing plane and a preset holographic function screen plane respectively; acquiring an integral modulation function of the holographic function screen according to intersection point coordinates of each light vector of the real light vector field, the viewing plane and a preset holographic function screen plane; and acquiring the holographic function screen with the integral modulation function as the holographic function screen of the three-dimensional light field display system to be modulated.



N9057

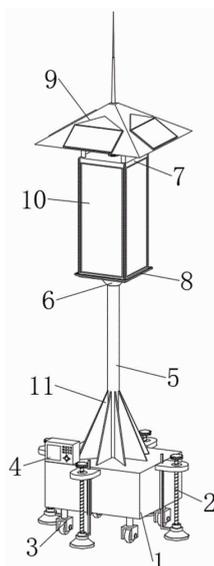
CN115325391

Priority Date: 03/08/2022

SHENZHEN SEEWOR TECHNOLOGY

TRAFFIC INFORMATION EARLY WARNING DISPLAY SCREEN FOR HOLOGRAPHIC INTERSECTION

The invention belongs to the technical field of display screens, and discloses a traffic information early warning display screen for a holographic intersection, which comprises a storage battery box, wherein the middle part of the front end, the middle part of the rear end, the middle part of the left end and the middle part of the right end of the storage battery box are fixedly connected with fixing mechanisms, four corners of the lower end of the storage battery box are fixedly connected with movable wheels, the left side of the front part of the upper end of the storage battery box is fixedly connected with a controller, the middle part of the upper end of the storage battery box is fixedly connected with a support column, the upper part of the outer surface of the support column is fixedly connected with a reinforcing seat in an inserting mode, the reinforcing seat is of an inverted conical structure, and a mounting seat is fixedly connected between the upper end of the reinforcing seat and the upper end of the support column together. According to the traffic information early warning display screen for the holographic intersection, the whole display screen can be used for early warning the traffic information of the holographic intersection, the stability is high, the display screen is convenient to clean, the protection effect is good, the service life is long, and the traffic information early warning display screen is suitable for being widely applied.

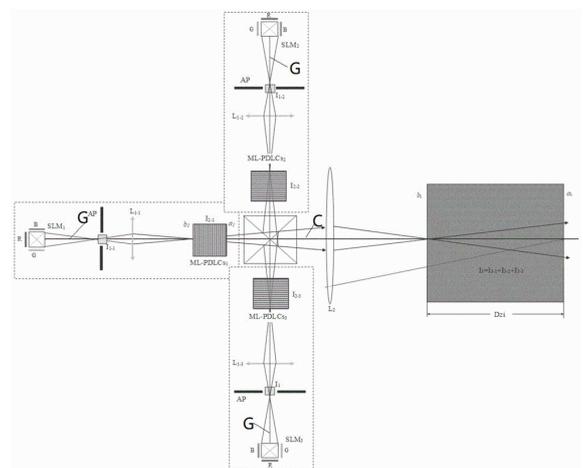


CLAIM 1. The utility model provides a traffic information early warning display screen for holographic crossing, includes electric storage box (1), its characterized in that: the utility model discloses a display screen display device, including accumulator case (1), front end middle part, rear end middle part, left end middle part and the equal fixedly connected with fixed establishment (2) in right-hand member middle part, the equal fixedly connected with in lower extreme four corners of accumulator case (1) removes wheel (3), the anterior left side fixedly connected with controller (4) in upper end of accumulator case (1), upper end middle part fixedly connected with support column (5) of accumulator case (1), the outer surface upper portion of support column (5) alternates fixedly connected with anchor pad (6), and anchor pad (6) set up to the obconic structure, common fixedly connected with mount pad (7) between the upper end of anchor pad (6) and the upper end of support column (5), common fixedly connected with clean mechanism (8) alternate between the upper end middle part of mount pad (7) and the outer surface four corners, common fixedly connected with protection mechanism (9) between the upper end four corners of mount pad (7), front end middle part, rear end middle part, left end middle part and right-hand member middle part of mount pad (7) all are provided with display screen body (10), the outer surface fixedly connected with a plurality of anchor pads (11) sets up to a plurality of anchor pads (11), and sets up as the equal fixedly connected with lower extreme of accumulator case (1) and the equal fixedly connected with lower extreme of accumulator case (11).

HOLOGRAPHIC 3D DISPLAY SYSTEM BASED ON MULTIPLE GROUPS OF SLM-ML-PDLCs

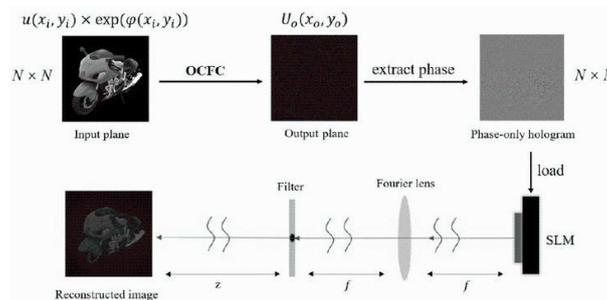
The invention discloses a holographic 3D display system based on multiple groups of SLM-ML-PDLCs, wherein a spatial light modulator SLM and ML-PDLCs are combined into an SLM-ML-PDLCs group, holograms of different layers of an object to be displayed are firstly calculated, then reproduction is carried out through the SLM, ML-PDLCs are placed at the position of a reproduced image, and the reproduced images of different layers correspond to ML-PDLCs film layers one by one. And (3) using the ML-PDLCs as an SLM projection two-dimensional image receiving screen, starting to enable all film layers of the ML-PDLCs to be in a power-on transparent state, and when a certain layer of face image is reproduced, enabling the corresponding film layer to be in a power-off scattering state, and displaying the reproduced image on the film layer. The output images of the multiple groups of SLM-ML-PDLCs can form three-dimensional images with more than 19 layers through the fusion of the beam splitter prism, and the three-dimensional images are not overlapped after the output images of each group of SLM-ML-PDLCs are fused. By controlling the SLM projection frame frequency and the ML-PDLCs film layer electrifying time sequence, different two-dimensional images can be projected to different film layers of the ML-PDLCs for display, and a complete three-dimensional image with continuous depth can be seen.

CLAIM 1. the holographic 3D display system based on the multiple groups of SLM-ML-PDLCs is characterized in that images output by H groups of SLM-ML-PDLCs are fused to the same area holographic display 3D object through a beam splitter prism, and each group of SLM-ML-PDLCs comprises: a set of spatial light modulators, a set of diffusion laminates and a diaphragm; the spatial light modulator receives Fresnel holograms of n layers of two-dimensional images from a computer for creating codes, modulates illumination light emitted by the light source module, sequentially reconstructs reconstruction images of all layers of holograms in a reconstruction light field according to a loading time sequence, and H groups of n layers of two-dimensional images correspond to H multiplied by n layers of equidistant and parallel sections of three-dimensional images of the 3D object which are decomposed layer by layer from a rear end plane to a front end plane of the three-dimensional images one by one; the position of the reconstructed n layers of reproduced images corresponds to the position of the two-dimensional image of the reproduced images in the three-dimensional image, and the size of the reproduced images is consistent with that of the three-dimensional image of the 3D object; the diffusion laminated body consists of M layers of polymer scattering liquid crystal films which are parallel, wherein n is more than or equal to M and less than or equal to 19, the positions of n layers of reproduced images from a rear end plane to a front end plane in a reproduced light field are sequentially superposed with the positions of the n layers of polymer scattering liquid crystal films in the diffusion laminated body one by one, the n layers of polymer scattering liquid crystal films are controlled by a computer, when the reproduced image of the nth layer of hologram is reconstructed, the polymer scattering liquid crystal film superposed with the position of the reproduced image is in a scattering state, the reproduced image is scattered into a three-dimensional image, and the rest polymer scattering liquid crystal films are in a transparent state, so that the reproduced image can penetrate without interference; a diaphragm disposed on an end face of the output window of the diffusion laminated body for blocking the zero-order item and conjugate image of the diffracted light; the response time of the polymer scattering liquid crystal film is T, the frequency frame of the spatial light modulator is at least 1/T Hz, and the pixel interval d of the spatial light modulator slm Satisfies the following formula: $d \leq \frac{\lambda}{2L}$, λ is the wavelength of the illumination light, Z, for reproducing the planar size of the image o The planar size of the diffusion laminate is not less than L for reproducing the distance between the image and the spatial light modulator o The response time refers to the total time of the polymer scattering liquid crystal film from a scattering state when the power is off to a transparent state after the power is on and then from the power off to the scattering state; the distances between the polymer scattering liquid crystal films in the diffusion laminated body in different SLM-ML-PDLCs groups and the spatial light modulator are sequentially different by the thickness of the polymer scattering liquid crystal film with the thickness of lambda, and the lambda is equal to 1/H, so that three-dimensional images scattered by the H groups of ML-PDLCs are not superposed but sequentially different by the thickness of the lambda after being fused by the light splitting prism.



HOLOGRAPHIC DISPLAY METHOD FOR EXPANDING DISTANCE BASED ON OPTICAL CALCULATION

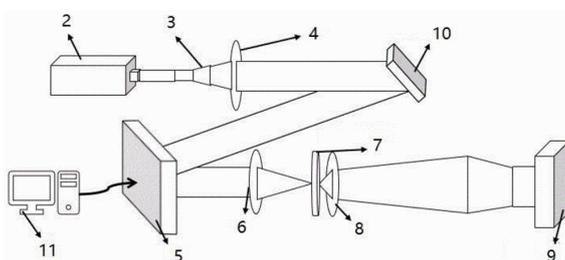
The invention provides an extended distance holographic display method based on optical calculation, which aims at the problems that in the generation process of a calculation hologram of the traditional Fresnel convolution method, the reconstruction quality is sharply reduced due to the increase of the diffraction distance and the calculation speed is low due to three Fourier transforms of convolution operation. The method reduces numerical calculation of Fourier transform in the process of generating the hologram, so that the calculation and generation speed of the hologram can be improved by more than 8 times compared with the calculation and generation speed of the traditional method. In addition, the hologram obtained by the method has a longer diffraction distance when being reproduced, and has the advantage of long-distance display compared with the traditional method. The method of the invention has the advantages of high speed of generating the hologram by calculation, high reproduction quality and great application potential in the current popular true three-dimensional display.



CLAIM 1. An extended distance holographic display method based on optical calculation is characterized by comprising the following steps: (i) Calculating the holographic surface diffraction field distribution based on the Fresnel convolution method of optical calculation: firstly, performing random phase modulation on an object U_0 to obtain a complex amplitude distribution U_1 , which is represented by $U_1 = U_0' \exp(i\phi)$, wherein i is an imaginary unit and ϕ is a random phase distributed among $[0, 2\pi]$, and in particular, if the phases of the random phases are all 0, then no random phase is added, which is a special case of adding a random phase; then, for a diffraction process in which an object plane diffraction field with complex amplitude distribution U_1 passes through a distance z , a holographic surface diffraction field distribution U_2 is calculated using a fresnel convolution method based on optical calculation, the process being denoted as $U_2 = FT(U_1)' FT(hFrz)$, where FT is a fourier transform and $hFrz$ is a point spread function of the diffraction process; (ii) encoding the holographic surface diffraction field distribution as a computed hologram: encoding the obtained holographic surface diffraction field distribution U_2 to obtain a hologram $Holo$ used for loading and displaying on a spatial light modulation device, wherein the process of the hologram $Holo$ is represented as $Holo = Encode(U_2)$, and the $Encode()$ represents an encoding process function of complex amplitude; (iii) reconstruction of the hologram: firstly, loading the obtained hologram $Holo$ on a spatial light modulator positioned at a focal plane on one side of an optical Fourier lens; then, a zero-order optical filter is arranged on the other focal plane of the optical Fourier lens; finally, obtaining high-quality optical reproduction through a diffraction process with a distance z ; the digital analog process of hologram reconstruction is represented as $U_0' = FrT \{ DCF [FT (Holo)], z \}$, where FT represents the optical fourier transform process, DCF represents the zero-order optical filter function, $frT \{ (), z \}$ represents the diffraction process at a distance z ; the method reduces the numerical calculation of Fourier transform in the process of generating the hologram, thereby improving the calculation and generation speed of the hologram; in addition, the hologram obtained by the method has a longer diffraction distance when being reproduced, and has the advantage of long-distance display compared with the traditional method.

LARGE-VISUAL-ANGLE HOLOGRAPHIC THREE-DIMENSIONAL DISPLAY SYSTEM

The invention relates to the technical field of computer-generated holographic three-dimensional display and discloses a large-visual-angle holographic three-dimensional display system which comprises a test bed and a computer module, wherein a laser transmitter is fixedly installed at the upper end of the test bed, a beam expander is fixedly installed on the rear side of the laser transmitter, a collimating lens is fixedly installed on the rear side of the beam expander, a spatial light modulator is fixedly installed on the rear side of the collimating lens, a first Fourier lens is fixedly installed on the rear side of the spatial light modulator, a spatial light filter is fixedly installed on the rear side of the first Fourier lens, and a second Fourier lens is fixedly installed on the rear side of the spatial light filter. And a CCD camera is fixedly arranged at the rear end of the two Fourier lenses. The diffraction light passing through the spatial light modulator passes through the lens and the spatial light filter, so that the reconstruction image can effectively eliminate zero-order light spots and multi-level diffraction, and the imaging quality is improved. The angle of the diffracted light is enlarged through Fourier lenses with different focal lengths, so that the field angle of the reconstructed image is enlarged.



CLAIM 1. A large-visual angle holographic three-dimensional display system comprises a test bed (1) and a computer module, and is characterized in that: test bench (1) upper end fixed mounting has singly to indulge mode laser (2) singly indulge mode laser (2) rear side fixed mounting has beam expander (3), beam expander (3) rear side fixed mounting has collimating lens (4), collimating lens (4) rear side fixed mounting has spatial light modulator (5), spatial light modulator (5) rear side fixed mounting has Fourier lens (6), fourier lens (6) rear end fixed mounting has spatial light filter (7), spatial light filter (7) rear end fixed mounting has Fourier lens two (8). A CCD camera (9) is fixedly installed at the rear end of the second Fourier lens (8); laser passes through beam expander (3), collimating lens (4), spatial light modulator (5) in proper order, then diffraction takes place, and spatial light modulator (5) has loaded the computer hologram in advance through the computer module, and the light after the diffraction passes through Fourier lens one (6), spatial light filter (7), fourier lens two (8) in proper order, realizes the filtration of zero order facula and the expansion of field angle.

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

N9027

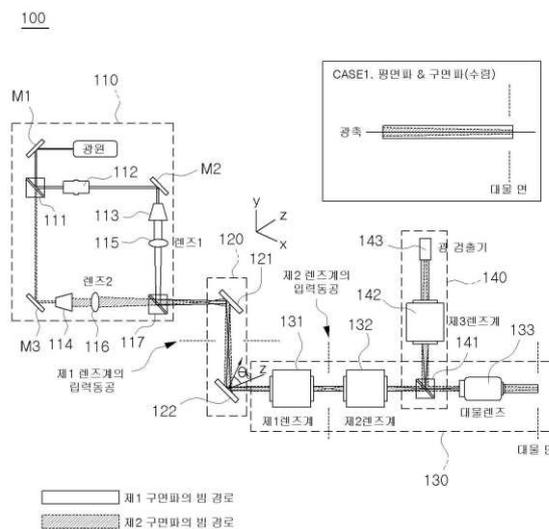
KR20220145584

CUBIXEL

Priority Date: 22/04/2021

A FLYING OVER-BEAM PATTERN SCANNING HOLOGRAM MICROSCOPE APPARATUS USING A SPATIAL MODULATION SCAN

The present invention relates to a flying over-beam scanning hologram microscope using a spatial modulation scan. A scanning beam generating unit configured to modulate a phase of a first beam divided by a light source to convert the phase of the first beam into a first spherical wave through a first lens and to convert a second beam into a second spherical wave through a second lens and to interfere with the first and second spherical waves to form a scan beam, a horizontal scanner and a vertical scanner to control a scanning position of the scan beam with respect to an object, And transmits the incident scan beam to a projection unit by controlling the scan beam in horizontal and vertical directions, wherein at least one of the horizontal and vertical scanners includes a scanning unit including a spatial modulation scanner, a projection unit including a plurality of lens systems and an objective lens and projecting the scan beam transmitted from the scanning unit to an object surface where the object is located, And a focusing unit which detects a beam reflected or fluoresced from the object and passed through the objective lens again, wherein the scanning beam projected on the objective surface has different patterns according to angular focus positions and pyramid angle conditions of the first and second spherical waves focused between a horizontal scanner and a vertical scanner. According to the present invention, a high resolution scanning hologram microscope can be implemented at high speed.



CLAIM 1. A scan beam generation unit configured to modulate a phase of a first beam divided by a light source to convert the first beam into a first spherical wave through a first lens and to convert a second beam into a second spherical wave through a second lens, and to interfere the first and second spherical waves to form a scan beam; A scanning unit including a horizontal scanner and a vertical scanner to control a scanning position of the scan beam with respect to an object, and controlling the incident scan beam in horizontal and vertical directions to transmit the scan beam to a projection unit, wherein at least one of the horizontal and vertical scanner includes a spatial modulation scanner; a projection unit including a plurality of lens systems and an objective lens, and transmitting the scan beam received from the scan unit to an objective surface on which the object is located; And a light collecting unit for detecting a beam reflected or fluoresced from the object and then passed through the objective lens again, wherein the scanning beam projected on the object surface has a different pattern according to angular focus positions and pyramid angle conditions of the first and second spherical waves focused between a horizontal scanner and a vertical scanner.

N9032

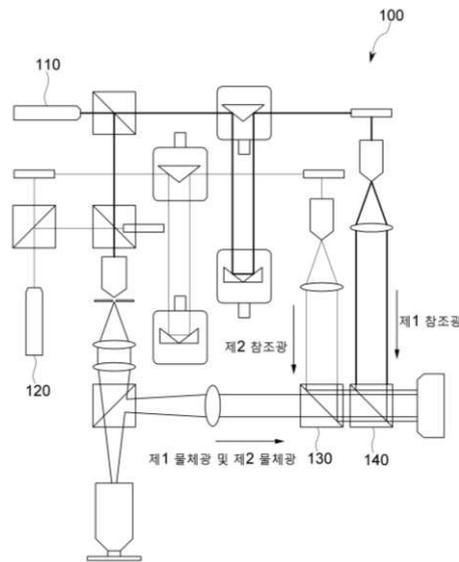
KR102460986

Priority Date: 24/12/2021

HICS

A METHOD AND APPARATUS FOR GENERATING AN INTERFERENCE PATTERN OF A MULTI-LIGHT SOURCE BASED DIGITAL HOLOGRAPHIC MICROSCOPE

The invention relates to a method for generating interference patterns of a digital holographic microscope based on multiple light sources. A method of generating an interference pattern of a multi-light source based digital holographic microscope includes recognizing a first path of a first object light of a first light source and a first reference light incident to a first light splitter of the digital holographic microscope, Recognizing a second path of the second light source and a second reference light incident to a second light splitter of the digital holographic microscope, and changing a number right angle of the first light splitter or the second light splitter based on the recognized first and second paths to intersect a first interference pattern corresponding to the first light source and a second interference pattern corresponding to the second light source at right angles.



CLAIM 1. A method for generating an interference pattern of a multi-light source based digital holographic microscope performed by at least one processor, the method comprising: Recognizing a first object light of a first light source and a first path of a first reference light incident to a first beam splitter of the digital holographic microscope; recognizing a second object light of a second light source and a second path of a second reference light incident to a second beam splitter of the digital holographic microscope; Changing a vertical angle of the first optical splitter and the second optical splitter based on the recognized first and second paths to cause a first interference pattern corresponding to the first light source and a second interference pattern corresponding to the second light source to intersect with each other by changing paths of the first reference light and the second reference light; Transforming into a spatial frequency domain by performing a Fast Fourier transform (FFT) on the first interference pattern and the second interference pattern; separating a first interference pattern and a second interference pattern formed to be orthogonal to the transformed spatial frequency domain; performing filtering on the separated first interference pattern and the separated second interference pattern; performing an inverse fast Fourier transform on the filtered first interference pattern and the filtered second interference pattern and recovering the filtered first interference pattern and the filtered second interference pattern into a spatial domain; Normalizing a brightness of spatial domains of the first object light and the second object light and spatial domains of the first reference light and the second reference light; And obtaining phase information of a first hologram corresponding to the first interference pattern and phase information of a second hologram corresponding to the reconstructed second interference pattern by using the reconstructed first interference pattern and the second interference pattern.

N9054

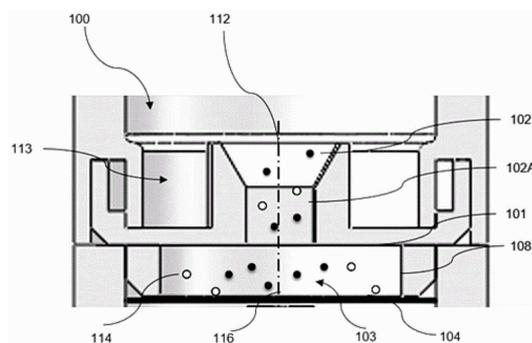
CN115331221

Priority Date: 29/07/2022

JIANGXI SHINETECH OPTICAL

FINE PARTICLE ANALYSIS METHOD AND SYSTEM BASED ON DIGITAL HOLOGRAPHIC IMAGING TECHNOLOGY

The invention relates to the technical field of digital holographic imaging, in particular to a fine particle analysis method and a system based on digital holographic imaging technology, wherein the system comprises the following components: the sampler comprises an accelerating nozzle, and a transparent viscous sampling plate is arranged at the outlet of the accelerating nozzle; a light source is arranged at the inlet of the accelerating nozzle, and a micro pump is arranged at the inlet of the accelerating nozzle; the image module comprises an image sensor, the image sensor is arranged near the viscous sampling plate and is arranged in an array, and the image sensor is used for collecting a holographic image of the particles; the image sensor is connected with a processor, and the processor is used for analyzing the holographic image and obtaining a particle analysis result. The invention can accurately measure high-concentration particles by adopting a holographic technology, and the image sensor positioned below the viscous sampling plate can shoot a holographic image of the particles on the viscous sampling plate, thereby directly capturing a microscopic image of the particles.



CLAIM 1. A fine particle analyte system based on digital holographic imaging technology, comprising: the sampler comprises an accelerating nozzle, the inner wall of the accelerating nozzle is inwards inclined to an outlet, and a transparent viscous sampling plate is arranged at the outlet of the accelerating nozzle; a light source is arranged at the inlet of the accelerating nozzle, and a micro pump is arranged at the inlet of the accelerating nozzle; an image module comprising an image sensor disposed proximate to the viscous sampling plate, the image sensor arranged in an array, the image sensor configured to collect a holographic image of the particle; the image sensor is connected with a processor, and the processor is used for analyzing the holographic image and obtaining a particle analysis result.

N9059

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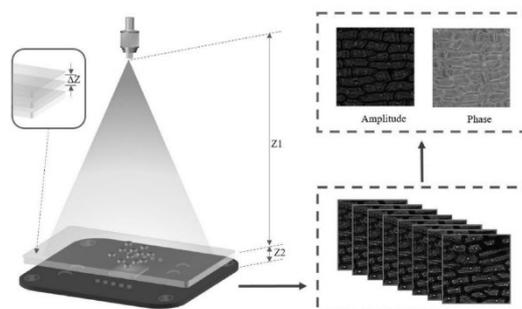
Priority Date: 14/01/2022

ZHEJIANG NORMAL UNIVERSITY

MULTI-HEIGHT LENS-FREE HOLOGRAPHIC MICROSCOPIC IMAGE REGISTRATION METHOD BASED ON FREQUENCY DOMAIN AND SPATIAL DOMAIN COMBINATION

The invention discloses a multi-height lens-free holographic microscopic image registration method based on frequency domain and spatial domain combination. Firstly, a correlation peak value is searched by utilizing a Fourier phase correlation method to carry out rough calibration on a space translation error; then, aiming at the hologram after rough correction, a method for quickly and accurately searching matched characteristic points in an airspace to obtain an accurate scaling factor is provided, an image morphology technology is adopted, a sample is taken as the characteristic points, and the sample does not need to be marked; and after the image scaling calibration is completed, performing accurate translation calibration by using a Fourier phase correlation method again. Compared with the existing registration algorithm, the invention can register and align the multi-height lensless holographic micrographs more accurately and at higher speed.

CLAIM 1. A multi-height lens-free holographic microscopic image registration method based on frequency domain and spatial domain combination is characterized by comprising the following steps: s1, obtaining multi-frame lensless holographic microscopic images with different heights, searching a related peak value by using a Fourier phase correlation method, and primarily correcting spatial translation errors of the holographic images with different heights; s2, searching matched feature points by using a method based on image morphology, and carrying out scaling error correction on the preliminarily corrected holographic image; and S3, performing translation error correction on the holographic image subjected to the scaling error correction by using the Fourier phase correlation method again, and realizing accurate matching of the original holographic image.



N9055

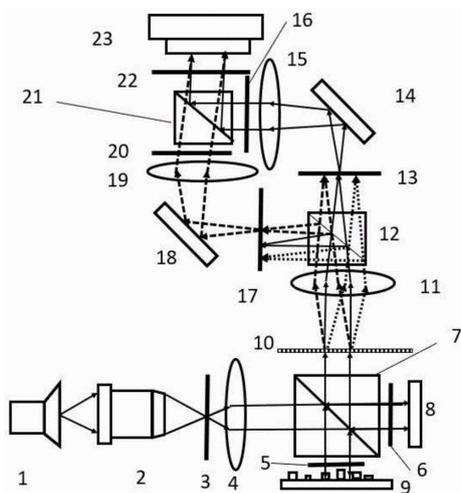
CN115327876

Priority Date: 02/08/2022

SHANGHAI UNIVERSITY

PARTIALLY COHERENT REFLECTION TYPE OFF-AXIS DIGITAL HOLOGRAPHIC MICRO-NANO MEASUREMENT SYSTEM BASED ON LED

The invention discloses a reflective off-axis digital holographic micro-nano measurement system adopting LED partial coherent light, belonging to the technical field of optical micro-measurement. The light source generating and collimating module is used for emitting part of LED light and filtering and collimating the LED light; the polarization measurement module is used for obtaining object light and reference light which are perpendicular to each other and have two different polarization directions; the grating object reference light grating diffraction separation module is used for diffracting the object light and the reference light to obtain diffracted light with different diffraction orders; the spatial polarization filtering module is used for carrying out polarization filtering on the diffracted light to obtain polarized zero-order object light and positive first-order reference light; the polarization interference module is used for interfering the object light and the reference light from the polarization space filtering module; the image acquisition module is used for acquiring the interference fringes to obtain the hologram. The system can well inhibit the influence of coherent noise and the like of the conventional high-coherence light source generated hologram, reduce phase noise, improve the quality of the generated hologram and increase the accuracy of a measurement result.



CLAIM 1. A partial coherent reflection off-axis digital holographic micro-nano measurement system based on an LED is characterized by comprising a light source generation and collimation module, a polarization measurement module, a parameter grating diffraction separation module, a space polarization filtering module, a polarization interference module and an image acquisition module, wherein, the light source generating and collimating module is used for emitting partially coherent LED light and carrying out light filtering and collimation; the polarization measurement module is used for obtaining object light and reference light which are perpendicular to each other and have two different polarization directions; the object reference light grating diffraction separation module is used for diffracting the object light and the reference light from the polarization measurement module to obtain diffracted lights with different diffraction orders; the spatial polarization filtering module is used for carrying out polarization filtering on the diffracted light of different diffraction orders from the object reference light grating diffraction separation module to obtain polarized zero-order object light and positive first-order reference light; the polarization interference module is used for carrying out polarization processing on the object light and the reference light from the space polarization filtering module so as to generate polarization interference on the object light and the reference light in two polarization states which are vertical to each other; the image acquisition module is used for acquiring interference fringes generated by the polarization interference module to obtain a hologram.

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

N9014

WO2022238109

Priority Date: 27/04/2021

CARL ZEISS JENA

OPTICAL SYSTEM FOR FLOATING HOLOGRAMS, COMPRISING A PLURALITY OF SWITCHABLE OPTICAL CHANNELS

An optical system (110) comprises a plurality of optical channels (31, 32). A control unit (901) can switch light sources (111, 111#) of the optical channels (31, 32) separately on and off. In this way, different image motifs (780-1, 780-2) of a hologram (150) can be illuminated by a number of different illumination sources of at least one imaging holographic optical element (130).

SYSTÈME OPTIQUE POUR HOLOGRAMMES FLOTTANTS COMPRENANT UNE PLURALITÉ DE CANAUX OPTIQUES COMMUTABLES

Un système optique (110) comprend plusieurs canaux optiques (31, 32). Une commande (901) peut activer et désactiver séparément des sources lumineuses (111, 111#) des canaux optiques (31, 32). Il est ainsi possible d'éclairer différents motifs d'image (780-1, 780-2) d'un hologramme (150) par éclairage différent d'au moins un élément optique holographique (130) de reproduction d'image.

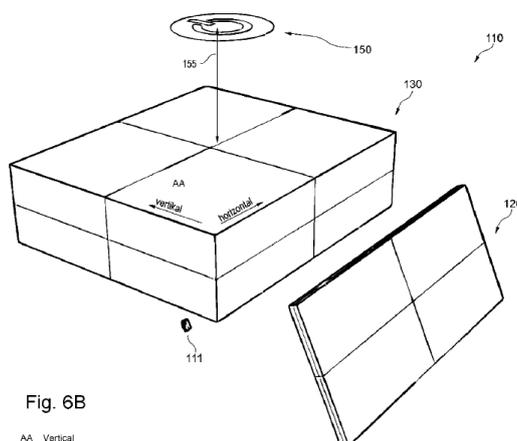


Fig. 6B

AA Vertical

CLAIM 1. An optical system comprising:

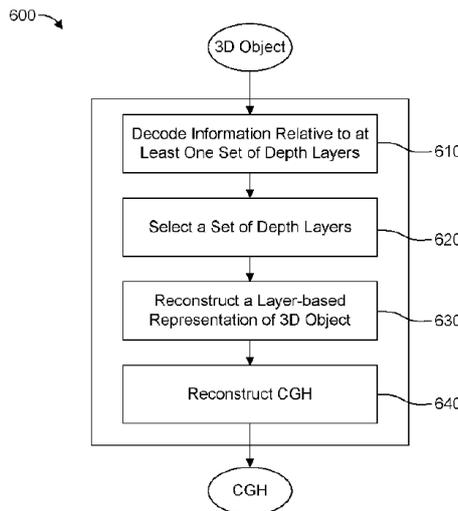
- at least one imaging holographic optical element, HOE (130), configured to generate a floating hologram (150) based on light (90) reconstructed in a volume outside the at least one imaging HOE (130),
- a plurality of optical channels (31) each comprising a light source and an optical path configured to guide the light (90) along the respective optical path towards the at least one imaging HOE (130), and
- a controller (901) configured to individually drive the light sources (111) of the plurality of optical channels (31).

METHODS AND APPARATUSES FOR ENCODING/DECODING A VOLUMETRIC VIDEO, METHODS AND APPARATUS FOR RECONSTRUCTING A COMPUTER GENERATED HOLOGRAM.

Methods and apparatuses for encoding/decoding data content representative of a volumetric video are provided, wherein, the encoding/decoding comprises encoding in/decoding from a bitstream, an indicator specifying whether data content has information representative of at least one set of depth layers, the information representative of a set of depth layers specifying a number of depth layers and a depth value for each of the depth layers for a layer-based representation of the volumetric video. Methods and apparatuses for reconstructing Computer Generated Holograms from a reconstructed layered-based representation of the volumetric video are also provided.

PROCÉDÉS ET APPAREILS POUR CODER/DÉCODER UNE VIDÉO VOLUMÉTRIQUE, PROCÉDÉS ET APPAREIL POUR RECONSTRUIRE UN HOLOGRAMME GÉNÉRÉ PAR ORDINATEUR.

Des procédés et des appareils pour coder/décoder un contenu de données représentatif d'une vidéo volumétrique sont divulgués, le codage/décodage comprenant le codage dans/décodage à partir d'un flux binaire, d'un indicateur spécifiant si un contenu de données comprend des informations représentatives d'au moins un ensemble de couches de profondeur, les informations représentatives d'un ensemble de couches de profondeur spécifiant un nombre de couches de profondeur et une valeur de profondeur pour chacune des couches de profondeur pour une représentation basée sur une couche de la vidéo volumétrique. Des procédés et des appareils pour reconstruire des hologrammes générés par ordinateur à partir d'une représentation basée sur une couche reconstruite de la vidéo volumétrique sont également divulgués.



CLAIM 1. A method, comprising decoding, from a bitstream, data content representative of a volumetric video; decoding, from a bitstream, an indicator specifying whether data content has information representative of at least one set of depth layers, said information representative of a set of depth layers specifying a number of depth layers and a depth value for each of the depth layers for a layer-based representation of the volumetric video.

N9016

WO2022232849

Priority Date: 30/04/2021

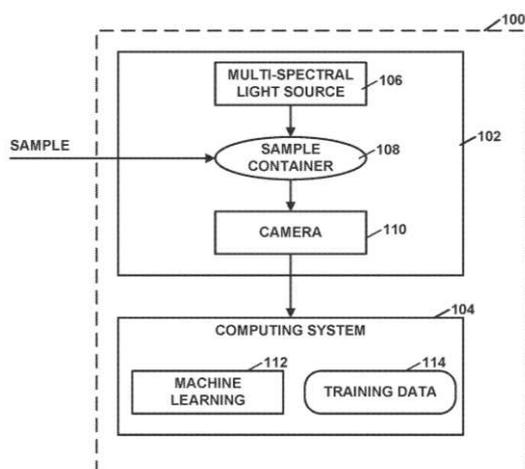
REGENTS OF THE UNIVERSITY OF MINNESOTA

MULTI-SPECTRAL DIGITAL INLINE HOLOGRAPHY FOR BIOLOGICAL PARTICLE CLASSIFICATION

A system and method for characterizing biological particles. A multi-spectral digital inline holographic includes a computing system, a camera and a light source having a coherent multi-spectral beam of light. The light source illuminates a sample having one or more biological particles and the camera captures holograms produced by interference of (i) light from the coherent multi-spectral beam of light that was scattered by the sample with (ii) light from the coherent multi-spectral beam of light that was not scattered, by the sample, the captured holograms including holograms from two or more spectral bands. The computing system applies a machine learning model to the captured holograms to extract features of the biological particles in the sample from the captured holograms.

HOLOGRAPHIE NUMÉRIQUE MULTISPECTRALE EN LIGNE POUR LA CLASSIFICATION DE PARTICULES BIOLOGIQUES

Un système et un procédé de caractérisation de particules biologiques. Une holographie numérique multispectrale en ligne comprend un système informatique, une caméra et une source de lumière ayant un faisceau de lumière multispectral cohérent. Une source de lumière de lumière éclaire un échantillon ayant une ou plusieurs particules biologiques et la caméra capture des hologrammes générés par l'interférence de (i) la lumière provenant du faisceau multispectral cohérent de la lumière qui a été diffusée par l'échantillon avec (ii) la lumière provenant du faisceau multispectral cohérent de la lumière qui n'a pas été diffusée par l'échantillon, les hologrammes capturés comprenant des hologrammes provenant de deux ou plus de deux bandes spectrales. Le système informatique applique un modèle d'apprentissage automatique aux hologrammes capturés pour extraire des caractéristiques des particules biologiques de l'échantillon à partir des hologrammes capturés.



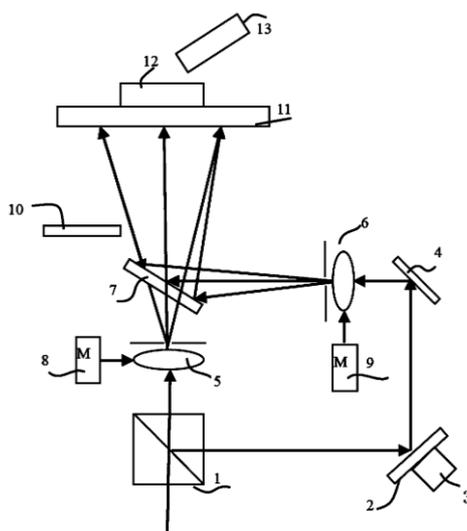
CLAIM 1. A method for characterizing biological particles, the method comprising: illuminating a sample with a coherent multi-spectral beam of light, the sample including one or more biological particles; capturing holograms produced by interference of (i) light from the coherent multi-spectral beam of light that was scattered by the sample with (ii) light from the coherent multi-spectral beam of light that was not scattered, by the sample, the captured holograms including holograms from two or more spectral bands; and applying a machine learning model to the captured holograms to extract features of the biological particles in the sample from the captured holograms.

METHOD AND DEVICE FOR SPLICING AND PROCESSING HOLOGRAPHIC LENS

A method and a device for splicing and processing a holographic lens. The splicing and processing method comprises: exposing a circular sub-grating at the geometric center of a holographic lens substrate (11); adjusting the relative positions of the holographic lens substrate (11) and a real-time interference light field, such that moiré fringes of the circular sub-grating and the real-time interference light field are in a zero fringe state, and inserting parallel flat plates (10) to deflect a light beam so as to expand a diameter of the light beam to obtain a reference fringe, and recording the reference fringe on the basis of a recording device; and exposing a first sub-grating at an edge of the holographic lens substrate (11), and after exposure, rotating the first sub-grating through a preset angle for exposure, and sequentially splicing the other sub-gratings at the edge of the holographic lens substrate (11) to obtain a large-aperture holographic lens. According to the method, the diameter of the light beam is expanded by means of the deflection of the light beam, bent grating lines are spliced by means of exposure and splicing to manufacture the large-aperture holographic lens, and the requirement of high spatial resolution of a large-aperture telephoto system is met.

PROCÉDÉ ET DISPOSITIF D'ÉPISSAGE ET DE TRAITEMENT DE LENTILLE HOLOGRAPHIQUE

L'invention concerne un procédé et un dispositif d'épissage et de traitement d'une lentille holographique. Le procédé d'épissage et de traitement consiste à : exposer un sous-réseau circulaire au centre géométrique d'un substrat de lentille holographique (11); ajuster les positions relatives du substrat de lentille holographique (11) et un champ de lumière d'interférence en temps réel, de telle sorte que des franges de moiré du sous-réseau circulaire et du champ de lumière d'interférence en temps réel sont dans un état de frange zéro, et insérer des plaques plates parallèles (10) pour dévier un faisceau de lumière de façon à étendre un diamètre du faisceau de lumière pour obtenir une frange de référence, et enregistrer la frange de référence sur la base d'un dispositif d'enregistrement; et exposer un premier sous-réseau au niveau d'un bord du substrat de lentille holographique (11), et après l'exposition, faire tourner le premier sous-réseau par un angle prédéfini pour l'exposition, et épisser séquentiellement des autres sous-réseaux au niveau du bord du substrat de lentille holographique (11) pour obtenir une lentille holographique à grande ouverture. Selon le procédé, le diamètre du faisceau de lumière est élargi au moyen de la déviation du faisceau de lumière, des lignes de réseau courbées sont épissées au moyen d'une exposition et d'un épissage pour fabriquer la lentille holographique à grande ouverture, et l'exigence de haute résolution spatiale d'un système de téléobjectif à grande ouverture est satisfaite.



CLAIM 1. A method of splicing a holographic lens comprising: Providing a holographic lens having a first surface and a second surface; S1. Exposing a circular sub-grating at the geometric center of the holographic lens substrate; S2. Adjust the relative position of the holographic lens substrate to the real-time interference optical field such that the moiré patterns of the circular sub-grating and the real-time interference optical field are zero-fringe States. S3. Insert parallel plates to deflect the beam to enlarge the beam aperture, obtain reference fringes and record based on the recording device; S4. Exposure of the holographic lens substrate edge after exposure of the first sub-grating, exposure of the predetermined angle is rotated and the other sub-gratings of the edge of the holographic lens substrate are sequentially spliced to obtain a large aperture holographic lens.

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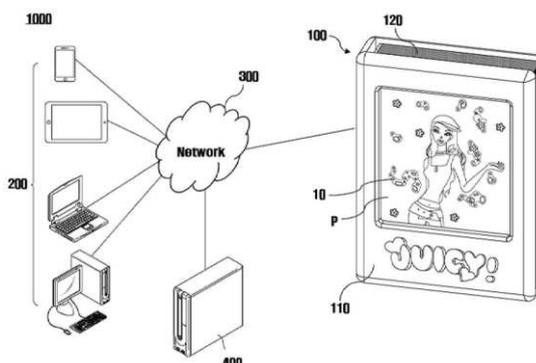
KR102464875

Priority Date: 19/01/2022

SUANCE

A DIARY TO WHICH A HOLOGRAM STICKER IS ATTACHED AND IN WHICH AN INTERNET-OF-THINGS BASED HISTORY IS AUTOMATICALLY RECORDED

A diary to which a hologram sticker is attached and in which an internet-of-things based history is automatically recorded. The diary being attached with a hologram sticker and in which an internet-of-things based history is automatically recorded, the diary comprising: Indicia arranged to be opened or closed; a plurality of pages to which a hologram sticker is attached and into which a photograph is inserted, the pages being interposed between the indicia; And a sensor embedded in the label and configured to detect a hologram sticker and a photograph, wherein the sensor transmits information about the hologram sticker attached to the plurality of pages and information about the inserted photograph to an external server.



CLAIM 1. A diary to which a holographic sticker is attached and in which an internet-of-things based history is automatically recorded, comprising: Indicia arranged to be opened or closed; a plurality of pages interposed between the indicia, to which the holographic sticker is attached and into which a photograph is inserted; and a sensor embedded in the indicia, And transmits information on the date and time of attachment and the weight of the hologram sticker attached to the plurality of pages and the date and time and weight of insertion of the inserted picture to an external server only when the mark is in a horizontally lying position with the ground in a closed state, The external server processes information on the date and time of attachment and the weight of the hologram sticker attached to the plurality of pages and the insertion and time and weight of the inserted picture to generate history data and transmits the history data to a user terminal to display the generated history data, And the history data includes data on whether or not a hologram sticker is attached to each of the plurality of pages, whether or not a date and time of attachment, whether or not a photograph is inserted, and a date and time of insertion.

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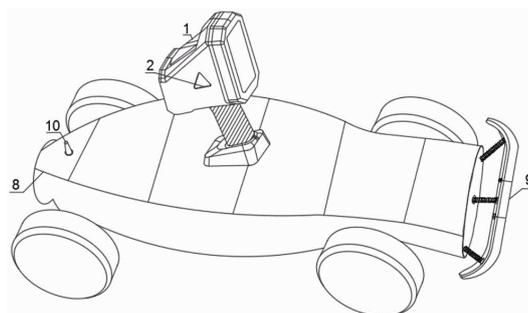
CN217818744U

Priority Date: 29/07/2022

GUANGXI TAIHUA INFORMATION TECHNOLOGY

THREE-DIMENSIONAL HOLOGRAPHIC MAPPING EQUIPMENT OF OUTDOOR SCENE

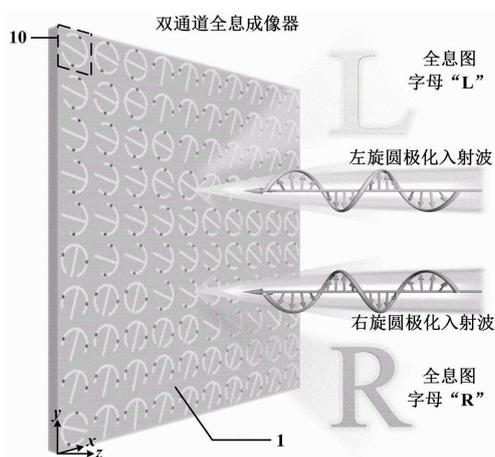
The utility model discloses a real-scene three-dimensional holographic mapping device, which comprises an instrument shell and a control switch, wherein the right side wall of the instrument shell is provided with the control switch, the front end inside the instrument shell is fixedly provided with a transparent protective layer, and the rear end of the transparent protective layer is fixedly connected with a fixed plate; by optimally arranging the rotating mechanism, the mechanism can measure 360 degrees when the live-action three-dimensional holographic mapping equipment performs mapping work on a small carrier loader, and can map a work area more comprehensively so as to obtain the optimal mapping quality; through having set up anticollision institution, this mechanism can guarantee that small-size carrier loader plays the guard action when the in-process bumps that travels, reduces the direct damage that the collision brought small-size carrier loader, ensures that survey and drawing job stabilization progresses.



CLAIM 1. A real-scene three-dimensional holographic mapping device comprises an instrument shell (1) and a control switch (2), wherein the control switch (2) is arranged on the right side wall of the instrument shell (1), a transparent protective layer (3) is fixedly installed at the front end inside the instrument shell (1), and the rear end of the transparent protective layer (3) is fixedly connected with a fixing plate (4); the method is characterized in that: still include rotary mechanism (7) and anticollision institution (9), rotary mechanism (7) and instrument shell (1) bottom adsorb to be connected, rotary mechanism (7) include powerful suction cup (71), connecting block (72), rotary platform (73), bearing (74), column spinner (75), spacing frame (76), motor power (77) and base (78), powerful suction cup (71) bottom and connecting block (72) fixed connection, connecting block (72) and rotary platform (73) top fixed connection, rotary platform (73) lower extreme passes through bearing (74) and rotates with spacing frame (76) top to be connected bearing (74) bottom and spacing frame (76) fixed connection, rotary platform (73) and column spinner (75) top fixed connection, base (78) bottom and small-size carrier loader (8) fixed mounting.

DUAL-CHANNEL HOLOGRAPHIC IMAGER BASED ON ORTHOGONAL CIRCULARLY POLARIZED WAVES AND REGULATION AND CONTROL METHOD THEREOF

The invention discloses a dual-channel holographic imager based on orthogonal circularly polarized amplitude phase regulation and control, and relates to the technical field of electromagnetic materials. It comprises the following steps: a plurality of circularly polarized amplitude-phase regulation units with different structures; the circularly polarized amplitude-phase regulating unit sequentially comprises an umbrella-shaped structure, a dielectric substrate and a metal back plate from top to bottom; the arc radiuses of the left arm and the right arm of the umbrella-shaped structure and the half length of the middle handle are the same, and the arc radians of the left arm and the right arm are the same; left and right resistors with different resistance values are symmetrically embedded in the left and right arms of the resistance adjusting device about the middle handle. The method has the advantages that the parameters of the left arm and the right arm of the umbrella-shaped structure are respectively regulated and controlled by the circular polarization amplitude and phase regulating and controlling unit to realize independent modulation of amplitude and phase information of the levorotatory and dextrorotatory circular polarization incident waves, two independent holograms can be generated under the incidence of the levorotatory and dextrorotatory circular polarization waves in the same frequency band, mutual crosstalk among the holographic images in different channels is greatly reduced, and the fidelity of a plurality of generated holographic images is guaranteed.



CLAIM 1. A dual channel holographic imager based on orthogonal circularly polarized waves, comprising: a plurality of circularly polarized amplitude-phase regulation units (10) with different structures; the circularly polarized amplitude and phase regulating unit (10) sequentially comprises an umbrella-shaped structure (101), a dielectric substrate (102) and a metal back plate (103) from top to bottom; the arc radiuses of a left arm (1011) and a right arm (1012) of the umbrella-shaped structure (101) and the half length of the middle handle (1013) are the same, and the arc radians of the left arm (1011) and the right arm (1012) are the same; left and right resistors with different resistance values are symmetrically embedded in the left arm (1011) and the right arm (1012) of the electric hand tool about the middle handle (1013); when the same-frequency-band mutually orthogonal left-hand circularly polarized wave and right-hand circularly polarized wave are incident, the left-hand circularly polarized wave and the right-hand circularly polarized wave are respectively regulated and controlled by changing the resistance values of the left resistor and the right resistor, the left-hand circularly polarized wave and the right-hand circularly polarized wave are regulated and controlled by rotating the umbrella-shaped structure and changing the radians of two arms of the umbrella-shaped structure, and a plurality of circularly polarized amplitude and phase regulating and controlling units with different structures are distributed and arranged according to the regulated and controlled amplitudes and phases to form the dual-channel holographic imager.

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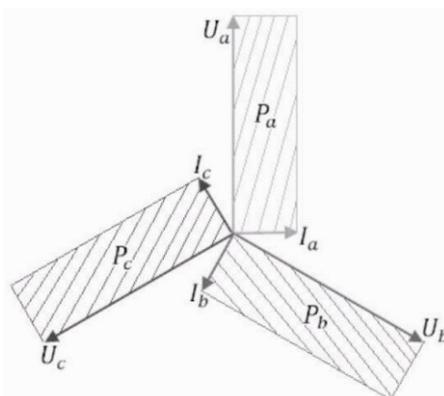
CN115372729

Priority Date: 01/07/2022

JIANGSU ZHIYUAN AUTOMATION TECHNOLOGY

ELECTRIC POWER DIGITAL HOLOGRAM MULTIDIMENSIONAL REPRESENTATION METHOD

The invention discloses a multidimensional representation method of a power digital hologram, which belongs to the technical field of chart visualization methods for power parameters, and aims to solve the problems that all measured values such as current, voltage, power, angle and the like of power data are difficult to show on a page, and the measured values are hard and not vivid enough in a tabulation mode. The multidimensional representation method of the power digital hologram can display power data such as three-phase voltage, three-phase current, three-phase power, voltage angle, current angle, active power and the like by using a three-dimensional model by means of a relevant calculation formula and calculus knowledge, is visual and vivid, is convenient for a user to check and understand, can enable the user to know power conditions more visually by displaying corresponding icons on the power digital hologram in different colors, prompts the user to save power and makes a corresponding power utilization adjustment strategy.



CLAIM 1. A multidimensional representation method of an electric power digital hologram is characterized by comprising the steps of establishing an $n + 1$ -dimensional visual chart, wherein an n section is current power P at a certain moment, t is a horizontal axis time axis, and the average power P of a sinusoidal circuit in one period is established as follows: the average power P for establishing the three-phase sine circuit is as follows: wherein U is a $U_a, U_b, U_c, I_a, I_b, I_c$ The effective values of the voltage and the current of each phase, the phase difference between each phase voltage and each phase current.

N9065

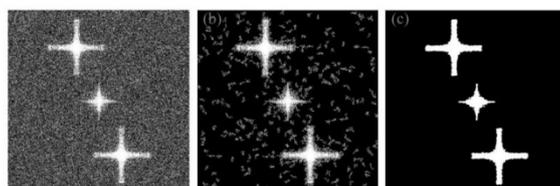
CN115248549

Priority Date: 12/01/2022

ZHEJIANG SCI-TECH UNIVERSITY

DIGITAL HOLOGRAPHIC THREE-DIMENSIONAL RECONSTRUCTION METHOD FOR SCATTERING AND ELIMINATING STRAY FREQUENCY SPECTRUM NOISE

The invention discloses a digital holographic three-dimensional reconstruction method for scattering and eliminating stray frequency spectrum noise. Collecting a holographic interference pattern of an object to be detected, converting the holographic interference pattern into a frequency spectrum pattern, and determining object image frequency spectrum center coordinates through phase information; performing iterative threshold segmentation processing on the spectrogram based on scattering and spurious spectrum noise elimination to obtain a spectrum binary segmentation map; searching and independently extracting an object image frequency spectrum region binary segmentation mask in a foreground region of the frequency spectrum binary segmentation map according to the object image frequency spectrum center coordinate, performing frequency spectrum space filtering on the frequency spectrum map by taking the object image frequency spectrum region binary segmentation mask as a filtering window to obtain an object image frequency spectrum filtering map, and reconstructing a three-dimensional appearance map of the object to be detected through phase unwrapping and distortion compensation operations. The method reduces the number of threshold iteration, accelerates the operation processing speed, can acquire more object frequency spectrum information, and is favorable for realizing high-quality reconstruction of the three-dimensional shape of the object.



CLAIM 1. A digital holographic three-dimensional reconstruction method for scattering and eliminating stray frequency spectrum noise is characterized in that: the method comprises the following steps: collecting holographic interference pattern of object to be measured, and converting the holographic interference pattern into frequency spectrum pattern P_0 Through a spectrogram P_0 Determining the center coordinate (x_1, y_1) of the object image spectrum; Step two: for spectrogram P_0 Obtaining a spectrum binary segmentation graph P_1 by iterative threshold segmentation processing based on scattering and spurious spectrum noise elimination; Step three: according to object image frequency spectrum center coordinate (x_1, y_1) Splitting the graph P_1 at two values of the frequency spectrum Searching and independently extracting object image frequency spectrum region binary segmentation mask P_2 from foreground region; Step four: in object-image spectral regions Binary segmentation mask P_2 As a filter window to the spectrogram P_0 Performing spectral spatial filtering to obtain object image spectral filtering diagram P_3 And finally, reconstructing a three-dimensional topography of the object to be detected through phase unwrapping and distortion compensation operation.

N9066

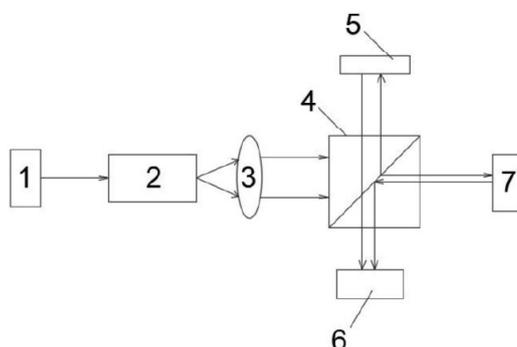
CN115248013

Priority Date: 28/12/2021

ZHEJIANG UNIVERSITY OF SCIENCE & TECHNOLOGY

ANGULAR DISPLACEMENT MEASUREMENT METHOD AND DEVICE BASED ON SINGLE-ANGLE SPECTRUM DIGITAL HOLOGRAPHY

The invention discloses an angular displacement measurement method and device based on single-angle spectrum digital holography, which comprises the following steps: s1, irradiating a measured object through an interference light path to form interference fringes; s2, rotating the measuring object, and repeating the step S1 to obtain new interference fringes; and S3, respectively filtering the two interference fringes to extract phases, superposing phase edge distribution in the x-axis direction on the extracted phases in the y-axis direction, superposing phase edge distribution in the y-axis direction on the extracted phases in the x-axis direction, obtaining a corresponding first-order coefficient through high-order least square fitting, and obtaining a corresponding spatial frequency and an angular spectrum according to the first-order coefficient, thereby solving a spatial vector of the measuring light and obtaining the angular displacement. The invention greatly improves the measurement efficiency of the angular displacement and the measurement accuracy and reliability.



CLAIM 1. The angular displacement measurement method based on the single-angle spectrum digital holography is characterized in that: the method comprises the following steps: s1, irradiating a measuring object before and after rotation through an interference light path to form interference fringes on a recording surface respectively; s2, respectively filtering the two interference fringes to extract phases, superposing phase edge distribution in the x-axis direction on the extracted phases in the y-axis direction, superposing phase edge distribution in the y-axis direction on the extracted phases in the x-axis direction, obtaining a corresponding first order coefficient through high-order least square fitting, and obtaining a corresponding spatial frequency and an angular spectrum according to the first order coefficient, thereby solving a spatial vector of the measuring light and obtaining an angular displacement.

IHMA - NOVEMBER 2022 - 100 ISSUED PATENTS - PAGE 1

HOLOGRAMS - 21 PATENTS

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P35780	EP	4088946	16/11/2022	IDEMIA FRANCE	FR	10/05/2021	FR202100004918	EP4088946 FR3122608	PRODUCTION OF AN IMAGE FROM A HOLOGRAPHIC STRUCTURE	Passport
P35781	EP	4088945	16/11/2022	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	10/05/2021	DE202110002471	EP4088945 DE102021002471 CN115320274	SECURITY ELEMENT WITH VOLUME HOLOGRAM AND ADDITIONAL EFFECTS	OVD
P35782	EP	4086864	09/11/2022	BUNDESDRUCKEREI	DE	30/04/2021	DE202110111189	EP4086864 DE102021111189	METHOD AND DEVICE FOR OPTICALLY VERIFYING A COMPONENT OF AN IDENTITY, VALUE OR SECURITY DOCUMENT	
P35784	EP	4086083	09/11/2022	MUEHLBAUER ID SERVICES	DE	06/05/2021	DE202110111894	EP4086083 DE102021111894	SECURITY DOCUMENT WITH THREAD-LIKE SECURITY ELEMENT AND METHOD AND APPARATUS FOR ITS MANUFACTURING	
P35785	EP	4086076	09/11/2022	BUNDESDRUCKEREI	DE	05/05/2021	DE202110204558	EP4086076 DE102021204558	LAMINATION BODY WITH INTEGRATED HOLOGRAM AND METHOD FOR PRODUCING THE SAME	
P35792	CN	217880644	22/11/2022	ZHONGSHAN GUOAN TORCH TECHNOLOGY DEVELOPMENT	CN	30/06/2022	CN2022001670936	CN217880644U	3D HOLOGRAPHIC ANTI-COUNTERFEIT LABEL	
P35795	CN	217869721	22/11/2022	GUANGZHOU HUADU LIANHUA PACKING MATERIAL	CN	01/03/2022	CN202200044996	CN217869721U	DYNAMICALLY DRIFTING SEAL PAPER	
P35796	CN	217863433	22/11/2022	SHENZHEN KUN HONG TECHNOLOGY	CN	04/07/2022	CN2022001721963	CN217863433U	WATER TRANSFER PRINTING TRANSPARENT FILM	
P35798	CN	217847333	18/11/2022	HUBEI GEDIAN DEVELOPMENT REGION CHENGUANG INDUSTRIAL	CN	14/06/2022	CN2022001486892	CN217847333U	TRANSPARENT LASER HOLOGRAPHIC COMPOSITE ANTI-COUNTERFEITING PATCH	
P35803	CN	217810233	15/11/2022	ANHUI ZIJIANG METALLIZATION ENVIRONMENTAL PROTECTION MATERIAL SHANGHAI ZIJIANG METALLIZATION ENVIRONMENTAL PROTECTION MATERIAL	CN	20/07/2022	CN2022001878123	CN217810233U	ANTI-COUNTERFEITING PACKAGING PAPER WITH MULTI-LAYER HIGH-CONTRAST STAGGERED PATTERNS	
P35810	CN	217778169	11/11/2022	YUNNAN QIAOTONG PACKAGE PRINTING	CN	15/06/2022	CN2022001486106	CN217778169U	HOLOGRAPHIC TRUE COLOR THERMOPRINTING FILM	
P35812	CN	217753334	08/11/2022	ZHEJIANG HONGYE PACKAGING MATERIAL	CN	22/07/2022	CN2022001907780	CN217753334U	HOLOGRAPHIC THERMOPRINTING FOIL WITH GOOD LAMINATING EFFECT	
P35816	CN	217718900	01/11/2022	SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP	CN	22/07/2022	CN2022001917446	CN217718900U	LOCAL VARIABLE HOLOGRAPHIC EFFECT ANTI-COUNTERFEITING MARK	
P35826	CN	115353623	18/11/2022	SUN YAT SEN UNIVERSITY	CN	09/08/2022	CN2022000953216	CN115353623	POLYIMIDE PHOTSENSITIVE MATERIAL AND PREPARATION METHOD AND APPLICATION THEREOF	
P35828	CN	115340833	15/11/2022	GUANGDONG BANGGU CHEMICAL TECHNOLOGY GUANGDONG BANGGU FILM COATING INNOVATION ACADEMY	CN	02/12/2021	CN2021001458109	CN115340833	ENVIRONMENT-FRIENDLY WATER-BASED GUM FOR TIPPING PAPER HOT STAMPING FILM FOR HIGH-SPEED STAMPING AND PREPARATION METHOD THEREOF	
P35829	CN	115340793	15/11/2022	GUANGDONG LASER OPTRONICS TECHNOLOGY GUANGZHOU UNIVERSITY	CN	11/08/2022	CN2022000963089	CN115340793	WATER-BASED EMULSION AND APPLICATION THEREOF IN LASER HOLOGRAPHIC ELECTROCHEMICAL ALUMINUM HOT STAMPING FILM	
P35832	CN	115302882	08/11/2022	SHANDONG TAIBAO PACKAGING PRODUCT	CN	12/07/2022	CN2022000818481	CN115302882	NITROGEN AND FLUORINE CO-DOPED CARBON DOT HOLOGRAPHIC ANTI-COUNTERFEITING ALUMINUM FOIL AND MANUFACTURING METHOD THEREOF	
P35835	CN	115286650	04/11/2022	CHINA THREE GORGES UNIVERSITY	CN	29/07/2022	CN2022000909355	CN115286650	PREPARATION AND APPLICATION OF SEVEN-MEMBERED N, O HETEROCYCLIC COMPOUND	
P35836	CN	115284764	04/11/2022	HUBEI HUAGONG IMAGE TECHNOLOGY DEVELOPMENT	CN	16/08/2022	CN2022000980956	CN115284764	METHOD FOR PREPARING PACKAGE WITH COLOR PRINTING AND HOLOGRAPHIC LASER ANTI-COUNTERFEITING EFFECT AND PRODUCT	
P35837	CN	115284762	04/11/2022	SICHUAN LANJIAN GOLD STAMP	CN	14/09/2022	CN2022001115677	CN115284762	HOLOGRAPHIC POSITIONING SCREEN PRINTING WRINKLE INK METHOD	
P35840	CN	115262282	01/11/2022	ANHUI ZIJIANG METALLIZATION ENVIRONMENTAL PROTECTION MATERIAL SHANGHAI ZIJIANG METALLIZATION ENVIRONMENTAL PROTECTION MATERIAL	CN	20/07/2022	CN2022000853216	CN115262282	METHOD FOR MAKING ANTI-COUNTERFEITING PACKAGING PAPER	

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REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P35732	WO	2022242912	24/11/2022	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	18/05/2021	DE202110002599	WO2022242912 DE102021002599	OPTICALLY VARIABLE REPRESENTATION ELEMENT	
P35735	WO	2022238468	17/11/2022	BASF	EP	12/05/2021	EP2021000173520	WO2022238468	COMPOSITIONS, COMPRISING PLATELET-SHAPED TRANSITION METAL PARTICLES	
P35736	WO	2022238146	17/11/2022	ROLIC TECHNOLOGIES	EP	12/05/2021	EP2021000173600	WO2022238146	METHOD FOR CREATING SURFACE MICROSTRUCTURES	
P35737	WO	2022233908	10/11/2022	MERCK	EP	07/05/2021	EP2021000172901	WO2022233908	REACTIVE MESOGENS	
P35739	WO	2022233451	10/11/2022	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	07/05/2021	DE202110002448	WO2022233451 DE102021002448	MULTILAYER BODY AND PROCESS FOR PRODUCTION THEREOF	
P35740	WO	2022233450	10/11/2022	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	03/05/2021	DE202110002335	WO2022233450	OPTICALLY VARIABLE SECURITY ELEMENT	
P35741	WO	2022233449	10/11/2022	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	06/05/2021	DE202110002416	WO2022233449 DE102021002416	METHOD FOR PRODUCING A SECURITY ELEMENT, AND SECURITY ELEMENT	
P35746	WO	2022228822	03/11/2022	KOENIG & BAUER	DE	28/04/2021	DE202110110864	WO2022228822 DE102021110864	DEVICE FOR ALIGNING MAGNETIC OR MAGNETISABLE PARTICLES, AND MACHINE FOR GENERATING OPTICALLY VARIABLE IMAGE ELEMENTS	
P35747	US	20220363084	17/11/2022	VIAVI SOLUTIONS	US	12/05/2021	US2021017302812	US20220363084	OPTICAL COMPONENT OF A SECURITY ARTICLE	
P35748	US	20220355609	10/11/2022	INNOVIEW	US	28/04/2021	US2021017242444	US20220355609	FABRICATION OF MOIRÉ ON CURVED SURFACES	Microlens
P35750	KR	20220151315	15/11/2022	LENTECH KOREA WIN GLOBAL	KR	06/05/2021	KR2021000058396	KR20220151315	AN OPTICAL SECURITY LABEL FOR ANTI-COUNTERFEIT AND A METHOD OF ADHERING THE SAME	Microlens
P35752	KR	20220147965	04/11/2022	LENTECH KOREA WIN GLOBAL	KR	28/04/2021	KR2021000055143	KR20220147965	AN OPTICAL SECURITY LABEL FOR ANTI-COUNTERFEIT AND A METHOD OF ADHERING THE SAME	Microlens
P35756	KR	102460582	28/10/2022	NBST	KR	18/10/2021	KR2021000138614	KR102460582	ANTI-COUNTERFEITING MEANS FOR IMPROVING VISIBILITY BY USING COMPLEMENTARY COLOR CONTRAST RELATIONSHIP MANUFACTURING METHOD THEREOF AND FORGERY AUTHENTICATION METHOD USING THE SAME	
P35757	KR	102460572	28/10/2022	NBST	KR	28/10/2021	KR2021000145146	KR102460572	ANTI-COUNTERFEITING MEANS FOR IMPROVING VISIBILITY BY USING BRIGHTNESS CONTRAST RELATION MANUFACTURING METHOD THEREOF AND FORGERY AUTHENTICATION METHOD USING THE SAME	
P35764	JP	2022164152	27/10/2022	TOPPAN PRINTING	JP	16/04/2021	JP2021000069462	JP2022164152	DISPLAY	
P35767	JP	7173394	16/11/2022	TOPPAN PRINTING	JP	07/01/2022	JP2022000001431	JP7173394	AN OPTICAL FILM, A COMPOSITION FOR FORMING A COLORED LAYER, A DIPYRROMETHENE COBALT COMPLEX, AND A DISPLAY DEVICE	
P35768	JP	7168051	09/11/2022	TOPPAN PRINTING	JP	30/08/2021	JP2021000139807	JP7168051	A COMPOSITION FOR FORMING A COLORED LAYER, AN OPTICAL FILM, AND A DISPLAY DEVICE	
P35769	JP	7164855	02/11/2022	NATIONAL PRINTING BUREAU	JP	20/10/2021	JP2021000171738	JP7164855	ANTI-COUNTERFEIT PRINTED MATERIALS	Microlens - Passport
P35774	FR	3122513	04/11/2022	GUIGAN	FR	02/05/2021	FR2021000004603	FR3122513	SECURE SIGNIFYING MARKING	
P35775	FR	3122278	28/10/2022	GUIGAN FRANCK	FR	26/04/2021	FR2021000004280	FR3122278	SECURE SIGNIFYING MARKING	
P35778	EP	4091830	23/11/2022	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	18/05/2021	DE202110002600	EP4091830 DE102021002600 CN115366557	VALUABLE DOCUMENT AND METHOD FOR PRODUCING A VALUABLE DOCUMENT	
P35779	EP	4091759	23/11/2022	BOEGLI GRAVURES	EP	19/05/2021	EP2021000174614	EP4091759 WO2022243917	A DEVICE AND A METHOD FOR OPTICAL ENGRAVING OF A DIFFRACTION GRATING ON A WORKPIECE	
P35781	EP	4088945	16/11/2022	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	10/05/2021	DE202110002471	EP4088945 DE102021002471 CN115320274	SECURITY ELEMENT WITH VOLUME HOLOGRAM AND ADDITIONAL EFFECTS	Hologram
P35783	EP	4086084	09/11/2022	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	03/05/2021	DE202110002333	EP4086084 DE102021002333 CN115284770	OPTICALLY VARIABLE SECURITY ELEMENT AND VALUE DOCUMENT COMPRISING THE OPTICALLY VARIABLE SECURITY ELEMENT	

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P35793	CN	217880642	22/11/2022	ZHONGSHAN GUOAN TORCH TECHNOLOGY DEVELOPMENT	CN	30/06/2022	CN2022001670489	CN217880642U	LASER ANTI-COUNTERFEIT LABEL	
P35813	CN	217753275	08/11/2022	ZHEJIANG HONGYE PACKAGING MATERIAL	CN	22/07/2022	CN2022001902445	CN217753275U	HIGH-BARRIER LASER TRANSFER FILM	
P35822	CN	217671890	28/10/2022	SHANGHAI GUANZHONG OPTICAL TECHNOLOGY	CN	14/07/2022	CN2022001811743	CN217671890U	SECURITY ELEMENT	

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N9014	WO	2022238109	17/11/2022	CARL ZEISS JENA	DE	27/04/2021	DE202110110734	WO2022229252 WO2022229257 WO2022238109	OPTICAL SYSTEM FOR FLOATING HOLOGRAMS, COMPRISING A PLURALITY OF SWITCHABLE OPTICAL CHANNELS	
N9015	WO	2022233763	10/11/2022	INTERDIGITAL PATENT HOLDINGS	EP	06/05/2021	EP2021000305588	WO2022233763	METHODS AND APPARATUS FOR ENCODING/DECODING A VOLUMETRIC VIDEO, METHODS AND APPARATUS FOR RECONSTRUCTING A COMPUTER GENERATED HOLOGRAM.	
N9016	WO	2022232849	03/11/2022	REGENTS OF THE UNIVERSITY OF MINNESOTA	US	30/04/2021	US2021063201477	WO2022232849	MULTI-SPECTRAL DIGITAL INLINE HOLOGRAPHY FOR BIOLOGICAL PARTICLE CLASSIFICATION	
N9017	WO	2022227758	03/11/2022	SOOCHOW UNIVERSITY	CN	25/04/2021	CN2021000450575	WO2022227758 CN115248488	METHOD AND DEVICE FOR SPLICING AND PROCESSING HOLOGRAPHIC LENS	
N9018	US	20220373971	24/11/2022	EARDG PHOTONICS	US	21/05/2021	US2021017327519	US20220373971	WAVEGUIDE GEOMETRY FOR IMPROVED DISPLAY PERFORMANCE	
N9019	US	20220373800	24/11/2022	MICROSOFT TECHNOLOGY LICENSING	US	21/05/2021	US2021017327520	US20220373800 WO2022245510	ALIGNMENT OF 3D REPRESENTATIONS FOR HOLOGRAM/AVATAR CONTROL	
N9020	US	20220373795	24/11/2022	CISCO TECHNOLOGY	US	18/05/2021	US2021017323136	US20220373795	REAL-TIME ADAPTATION OF HOLOGRAPHIC IMAGING BASED ON A PHYSICAL ENVIRONMENT USING A REASONING ENGINE	
N9021	US	20220365266	17/11/2022	META PLATFORMS TECHNOLOGIES	US	17/05/2021	US2021063189499	US20220365266 WO2022245614	APOCHROMATIC LIQUID CRYSTAL POLARIZATION HOLOGRAM DEVICE	
N9022	US	20220365264	17/11/2022	FACEBOOK TECHNOLOGIES	US	17/05/2021	US2021017322354	US20220365264 WO2022245679	APOCHROMATIC LIQUID CRYSTAL POLARIZATION HOLOGRAM DEVICE	
N9023	US	20220358617	10/11/2022	META PLATFORMS TECHNOLOGIES	US	22/06/2022	US2022063354378	US20220358617	DEPTH ENCODING AT AN EDGE SYSTEM TO SUPPORT HOLOGRAM DISPLAY	
N9024	US	20220357574	10/11/2022	GM GLOBAL TECHNOLOGY OPERATIONS	US	06/05/2021	US2021017313134	US20220357574 DE102022108956 CN115308904	HOLOGRAPHIC DISPLAY SYSTEM WITH CONJUGATE IMAGE REMOVAL FOR A MOTOR VEHICLE	
N9025	US	11506892	22/11/2022	GM GLOBAL TECHNOLOGY OPERATIONS	US	03/05/2021	US2021017306081	US20220350140 US11506892 DE102022106738 CN115284875	HOLOGRAPHIC DISPLAY SYSTEM FOR A MOTOR VEHICLE	
N9026	US	11487400	01/11/2022	IBM	US	13/08/2021	US2021017445035	US11487400	AGGREGATED MULTIDIMENSIONAL USER INTERFACE DISPLAY WITH ELECTRONIC PEN FOR HOLOGRAPHIC PROJECTION	
N9027	KR	20220145584	31/10/2022	CUBIXEL	KR	22/04/2021	KR2021000052336	KR20220145584	A FLYING OVER-BEAM PATTERN SCANNING HOLOGRAM MICROSCOPE APPARATUS USING A SPATIAL MODULATION SCAN	
N9028	KR	20220145225	28/10/2022	KIM, HYUNG JIN	KR	21/04/2021	KR2021000052015	KR20220145225	A CUSTOMIZING PARTICLE-LIKE HOLOGRAM HALF THAT TAKES INTO ACCOUNT USER DIVERSITY	
N9029	KR	102469242	21/11/2022	GUMI ELECTRONICS & INFORMATION TECHNOLOGY RESEARCH INSTITUTE	KR	28/12/2021	KR2021000189814	KR102469242	A METHOD AND SYSTEM FOR HOLOGRAM REPLICATION USING LINEAR SCANNING OF A REPLICATION BEAM AND ROTATION OF A RECORDING MEDIUM	
N9030	KR	102464875	09/11/2022	SUANCE	KR	19/01/2022	KR20222000007941	KR102464875	A DIARY TO WHICH A HOLOGRAM STICKER IS ATTACHED AND IN WHICH AN INTERNET-OF-THINGS BASED HISTORY IS AUTOMATICALLY RECORDED	
N9031	KR	102464162	09/11/2022	HOLOVISION	KR	03/08/2022	KR20222000097014	KR102464162	A DOUBLE-SIDED INTEGRATED SIGN APPARATUS FOR PLANAR ADVERTISING AND HOLOGRAPHIC ADVERTISING	

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N9032	KR	102460986	01/11/2022	HICS	KR	24/12/2021	KR2021000187111	KR102460986	A METHOD AND APPARATUS FOR GENERATING AN INTERFERENCE PATTERN OF A MULTI-LIGHT SOURCE BASED DIGITAL HOLOGRAPHIC MICROSCOPE	
N9033	JP	2022163605	26/10/2022	KDDI	JP	14/04/2021	JP2021000068626	JP2022163605	COMPUTER COMPOSITE HOLOGRAM GENERATION APPARATUS, METHOD, AND PROGRAM	
N9034	EP	4086709	09/11/2022	SAMSUNG ELECTRONICS	KR	04/05/2021	KR2021000058123	EP4086709 US20220357703 CN115309022 KR20220150762	CGH GENERATOR AND DISPLAY APPARATUS INCLUDING THE SAME	
N9035	EP	4082392	02/11/2022	BSH HAUSGERAETE	EP	29/04/2021	EP2021000171088	EP4082391 EP4082392	CABINET WITH A HOLOGRAPHIC SYSTEM	
N9036	DE	102021204872	17/11/2022	ROBERT BOSCH	DE	12/05/2021	DE202110204872	DE102021204872	EXPOSURE DEVICE AND METHOD FOR PRODUCING A SECOND HOLOGRAPHIC OPTICAL ELEMENT	
N9037	DE	102021111744	10/11/2022	PORSCHE	DE	06/05/2021	DE202110111744	DE102021111744	METHOD AND APPARATUS FOR DISPLAYING A THREE-DIMENSIONAL HOLOGRAM	
N9038	DE	102021111743	10/11/2022	PORSCHE	DE	06/05/2021	DE202110111743	DE102021111743	METHOD AND APPARATUS FOR DISPLAYING A THREE-DIMENSIONAL HOLOGRAM	
N9039	CN	217847405	18/11/2022	SUQIAN COLLEGE	CN	19/11/2021	CN2021002885141	CN217847405U	HOLOGRAPHIC PROJECTION DISPLAY SYSTEM	
N9040	CN	217846898	18/11/2022	YESAR ELECTRONIC TECHNOLOGY	CN	25/07/2022	CN2022001932281	CN217846898U	HOLOGRAPHIC AERIAL IMAGING STRUCTURE AND EQUIPMENT	
N9041	CN	217821478	15/11/2022	SUZHOU SANREN NETWORK TECHNOLOGY	CN	28/07/2022	CN2022001964042	CN217821478U	TRANSPARENT SCREEN CASE SIDE PLATE WITH HOLOGRAPHIC PROJECTION	
N9042	CN	217818744	15/11/2022	GUANGXI TAIHUA INFORMATION TECHNOLOGY	CN	29/07/2022	CN2022001983626	CN217818744U	THREE-DIMENSIONAL HOLOGRAPHIC MAPPING EQUIPMENT OF OUTDOOR SCENE	
N9043	CN	217816010	15/11/2022	SHENZHEN SHOWIND CULTURAL CREATIVE	CN	12/07/2022	CN2022001786500	CN217816010U	HOLOGRAPHIC PROJECTION DISPLAY CABINET WITH ADJUSTING MECHANISM FOR DIGITAL EXHIBITION HALL	
N9044	CN	217767196	08/11/2022	LI MUZI	CN	09/06/2022	CN2022001431294	CN217767196U	INTERACTIVE HOLOGRAPHIC CABINET	
N9045	CN	217766905	08/11/2022	HANGZHOU GUANGLI TECHNOLOGY	CN	15/08/2022	CN2022002143245	CN217766905U	VOLUME HOLOGRAPHIC OPTICAL WAVEGUIDE AND AUGMENTED REALITY DISPLAY DEVICE	
N9046	CN	217718285	01/11/2022	SUNNY OPTICAL ZHEJIANG RESEARCH INSTITUTE	CN	29/07/2022	CN2022001984185	CN217718285U	APPARATUS FOR MANUFACTURING HOLOGRAPHIC OPTICAL ELEMENT AND NEAR-TO-EYE DISPLAY DEVICE	
N9047	CN	115373782	22/11/2022	4U TECHNOLOGY	CN	01/08/2022	CN2022000914330	CN115373782	THREE-DIMENSIONAL HOLOGRAPHIC DISPLAY METHOD AND DEVICE BASED ON POLYGON	
N9048	CN	115373248	22/11/2022	AIR FORCE ENGINEERING UNIVERSITY OF PLA	CN	12/07/2022	CN2022000812756	CN115373248	DUAL-CHANNEL HOLOGRAPHIC IMAGER BASED ON ORTHOGONAL CIRCULARLY POLARIZED WAVES AND REGULATION AND CONTROL METHOD THEREOF	
N9049	CN	115373247	22/11/2022	SICHUAN UNIVERSITY	CN	29/07/2022	CN2022000909291	CN115373247	CONICAL SURFACE HOLOGRAM RAPID GENERATION METHOD BASED ON BIDIRECTIONAL PHASE COMPENSATION	
N9050	CN	115373229	22/11/2022	INSTITUTE OF SEMICONDUCTORS - CHINESE ACADEMY OF SCIENCES	CN	29/08/2022	CN2022001042313	CN115373229	DEVICE FOR REALIZING HOLOGRAPHIC PHOTOETCHING BY USING SEMICONDUCTOR LASER	
N9051	CN	115372729	22/11/2022	JIANGSU ZHIYUAN AUTOMATION TECHNOLOGY	CN	01/07/2022	CN2022000774976	CN115372729	ELECTRIC POWER DIGITAL HOLOGRAM MULTIDIMENSIONAL REPRESENTATION METHOD	
N9052	CN	115348434	15/11/2022	WUYI UNIVERSITY	CN	22/07/2022	CN2022000870936	CN115348434	ULTRAFAST HOLOGRAPHIC IMAGING METHOD, SYSTEM, ELECTRONIC DEVICE AND STORAGE MEDIUM	
N9053	CN	115343933	15/11/2022	XINJIANG PRODUCTION & CONSTRUCTION CORPS TWELFTH DIVISION MIDDLE SCHOOL	CN	17/08/2022	CN2022000984772	CN115343933	PORTABLE FULL-VIEW HOLOGRAPHIC PROJECTION DISPLAY INSTRUMENT	
N9054	CN	115331221	11/11/2022	JIANGXI SHINETECH OPTICAL	CN	29/07/2022	CN2022000909896	CN115331221	FINE PARTICLE ANALYSIS METHOD AND SYSTEM BASED ON DIGITAL HOLOGRAPHIC IMAGING TECHNOLOGY	
N9055	CN	115327876	11/11/2022	SHANGHAI UNIVERSITY	CN	02/08/2022	CN2022000922470	CN115327876	PARTIALLY COHERENT REFLECTION TYPE OFF-AXIS DIGITAL HOLOGRAPHIC MICRO-NANO MEASUREMENT SYSTEM BASED ON LED	

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N9056	CN	115327770	11/11/2022	UNIVERSITY SHANXI COMMUNICATION	CN	26/07/2022	CN2022000886762	CN115327770	SELF-ADAPTIVE HOLOGRAPHIC FUNCTION SCREEN MODULATION METHOD	
N9057	CN	115325391	11/11/2022	SHENZHEN SEEWOR TECHNOLOGY	CN	03/08/2022	CN2022000948307	CN115325391	TRAFFIC INFORMATION EARLY WARNING DISPLAY SCREEN FOR HOLOGRAPHIC INTERSECTION	
N9058	CN	115311517	08/11/2022	CHINESE PEOPLE S LIBERATION GROUND FORCE ARMORED TROOP ACADEMY	CN	10/08/2022	CN2022000953313	CN115311517	RANDOM GRAPH TRAINING SET AND HOLOGRAM GENERATION METHOD AND SYSTEM	
N9059	CN	115311333	08/11/2022	ZHEJIANG NORMAL UNIVERSITY	CN	14/01/2022	CN2022000043923	CN115311333	MULTI-HEIGHT LENS-FREE HOLOGRAPHIC MICROSCOPIC IMAGE REGISTRATION METHOD BASED ON FREQUENCY DOMAIN AND SPATIAL DOMAIN COMBINATION	
N9060	CN	115309023	08/11/2022	HANGZHOU CHENJING PHOTOELECTRIC TECHNOLOGY	CN	05/09/2022	CN2022001080246	CN115309023	HOLOGRAPHIC 3D DISPLAY SYSTEM BASED ON MULTIPLE GROUPS OF SLM-ML-PDLCs	
N9061	CN	115291490	04/11/2022	SICHUAN UNIVERSITY	CN	24/01/2022	CN2022000076577	CN115291490	HOLOGRAPHIC DISPLAY METHOD FOR EXPANDING DISTANCE BASED ON OPTICAL CALCULATION	
N9062	CN	115291489	04/11/2022	HEFEI UNIVERSITY OF TECHNOLOGY	CN	19/07/2022	CN2022000851857	CN115291489	INCOHERENT LIGHT DIGITAL HOLOGRAPHIC IMAGING DEVICE BASED ON DYNAMIC GRATING	
N9063	CN	115268242	01/11/2022	NANCHANG HANGKONG UNIVERSITY	CN	01/08/2022	CN2022000917166	CN115268242	LARGE-VISUAL-ANGLE HOLOGRAPHIC THREE-DIMENSIONAL DISPLAY SYSTEM	
N9064	CN	115261990	01/11/2022	SHANGHAI INSTITUTE OF TECHNOLOGY	CN	30/08/2022	CN2022001057076	CN115261990	LITHIUM NIOBATE CRYSTAL WITH HIGH SATURATION DIFFRACTION EFFICIENCY AND PREPARATION METHOD THEREOF	
N9065	CN	115248549	28/10/2022	ZHEJIANG SCI-TECH UNIVERSITY	CN	12/01/2022	CN2022000032442	CN115248549	DIGITAL HOLOGRAPHIC THREE-DIMENSIONAL RECONSTRUCTION METHOD FOR SCATTERING AND ELIMINATING STRAY FREQUENCY SPECTRUM NOISE	
N9066	CN	115248013	28/10/2022	ZHEJIANG UNIVERSITY OF SCIENCE & TECHNOLOGY	CN	28/12/2021	CN2021001622980	CN115248013	ANGULAR DISPLACEMENT MEASUREMENT METHOD AND DEVICE BASED ON SINGLE-ANGLE SPECTRUM DIGITAL HOLOGRAPHY	