

IHMA PATENT NEWSLETTER

Limited circulation patent news bulletin for the Holography Industry

FEBRUARY 2022 – 102 PATENTS

Published and granted patents

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is exclusively dedicated to IHMA MEMBERS.**

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- IHMA Patent Newsletter covers the requests for worldwide patents (WO, US, EP, FR, GB, DE, JP, CN, KR, RU...).
- Some patents can be indexed in several categories.
- Some old patents are sometimes introduced in the databases if they have not been included in the previous update.
- The full patent information is in the tables at the end of this document (See TABLES WITH REFERENCES).
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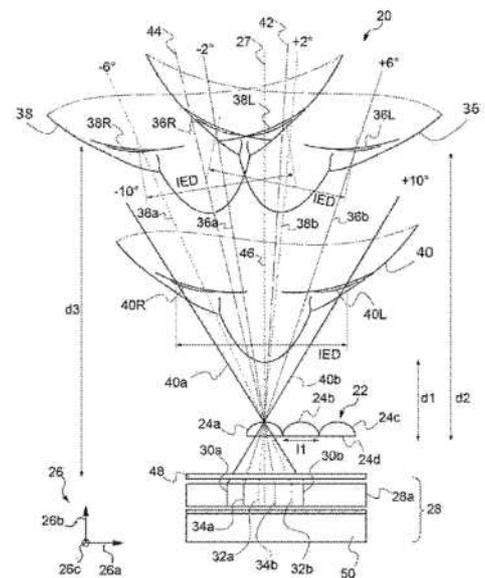
P34566 **SECURITY & OPTICAL EFFECTS' COLUMN PRINTING – CARD – RELIEF – MICROLENS**
FR3112990 **IDEMIA FRANCE**
Inventors: BERTHE BENOÎT
Application Nber / Date: 2020FR-0008049 2020-07-29
Priority Nber / Date / Country: 2020FR-0008049 2020-07-29

SECURITY DEVICE FOR AN IDENTITY DOCUMENT AND IDENTITY DOCUMENT COMPRISING SUCH A SECURITY DEVICE

The invention relates to an identity document security device, said device comprising at least: - a lenticular array, and - an image support arranged in a focal plane of the lenticular array, and said image support comprising: - at least one first pair of stereoscopic color images, configured to be visible through said lenticular array at a first viewing position, and - at least a second pair of black and white stereoscopic images, configured to be visible through said lenticular array at a second viewing position different from the first viewing position.

DISPOSITIF DE SÉCURITÉ POUR UN DOCUMENT D'IDENTITÉ ET DOCUMENT D'IDENTITÉ COMPORTANT UN TEL DISPOSITIF DE SÉCURITÉ

L'invention concerne un dispositif de sécurité de document d'identité, ledit dispositif comportant au moins : - un réseau lenticulaire, et - un support d'image disposé dans un plan focal du réseau lenticulaire, et ledit support d'image comportant : - au moins un premier couple d'images stéréoscopiques en couleur, configurées pour être visible à travers ledit réseau lenticulaire à une première position d'observation, et - au moins un deuxième couple d'images stéréoscopiques en noir et blanc, configurée pour être visible à travers ledit réseau lenticulaire à une deuxième position d'observation différente de la première position d'observation.



CLAIM 1. Identity document security device (20), said device comprising at least: - a lenticular array (22), and - an image support (28) arranged in a focal plane of the lenticular array (22), and said image support (28) comprising: - at least a first pair of stereoscopic color images (30 a, 30 b), configured to be visible through said lens array (22) at a first viewing position (40), and - at least one second pair of black and white stereoscopic images (32 a, 32 b), configured to be visible through said lens array (22) at a second viewing position (36) different from the first viewing position (40).

No equivalent

Status: Pending

Research Report:

RÉPUBLIQUE FRANÇAISE

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 INSTITUT NATIONAL DE LA PROPRIÉTÉ INDUSTRIELLE

RAPPORT DE RECHERCHE PRÉLIMINAIRE
 établi sur la base des dernières revendications déposées avant le commencement de la recherche

N° d'enregistrement national
 FA 884934
 FR 2008049

DOCUMENTS CONSIDÉRÉS COMME PERTINENTS		Revendication(s) concernée(s)	Classement attribué à l'invention par l'INPI
Catégorie	Citation du document avec indication, en cas de besoin, des parties pertinentes		
A	WO 2017/081447 A1 (DE LA RUE INT LTD [GB]) 18 mai 2017 (2017-05-18) * page 15, ligne 11 - ligne 21 *	1-13	B42D25/30 B42D25/324

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

P34526

PRINTING – BRAND PROTECTION

WO202220615

Priority Date: 22/07/2020

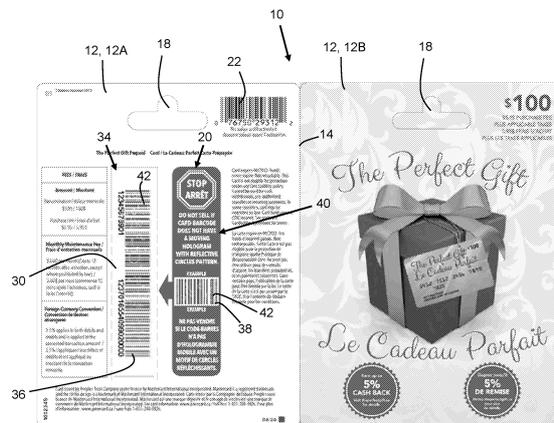
MULTI PACKAGING SOLUTIONS

COUNTERFEIT PREVENTATIVE BARCODES

Packaging comprising: (a) a prepaid card at least partially enclosed within the packaging, the prepaid card including a barcode at least partially visible through a cutout in the packaging; and (b) a reference barcode located on the packaging, wherein the reference barcode is compared to the barcode of the prepaid card to ensure the reference barcode has the same or similar design to that of the barcode of the prepaid card to identify counterfeit or tampered with packaging.

CODES À BARRES ANTI-CONTREFAÇON

La présente invention concerne un emballage comprenant : (a) une carte prépayée enfermée au moins partiellement à l'intérieur de l'emballage, la carte prépayée comprenant un code à barres au moins partiellement visible à travers une découpe dans l'emballage; et (b) un code à barres de référence situé sur l'emballage, le code à barres de référence étant comparé au code à barres de la carte prépayée pour garantir que le code à barres de référence a la même conception ou une conception similaire à celle du code à barres de la carte prépayée afin d'identifier un emballage contrefait ou falsifié.



CLAIM 1. Packaging comprising:

- (a) a prepaid card at least partially enclosed within the packaging, the prepaid card including a barcode at least partially visible through a cutout in the packaging; and
- (b) a reference barcode located on the packaging, wherein the reference barcode is compared to the barcode of the prepaid card to ensure the reference barcode has the same or similar design to that of the barcode of the prepaid card to identify counterfeit or tampered with packaging.

P34551

PRINTING – CARD – INFRARED

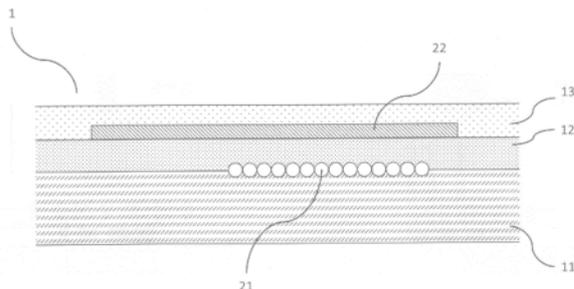
JP2022021626

Priority Date: 22/07/2020

TOPPAN PRINTING

ANTI-COUNTERFEITING MEDIA

TOPIC: To provide a highly secure anti-counterfeiting medium that can record variable information as a latent image inside a layer containing polycarbonate resin as a main component by laser engraving by incorporating retroreflective technology in a medium containing polycarbonate resin as a main component, and makes it difficult to alter the variable information by physical means such as scraping from the outside. INVENTION: a laminate comprising: a core layer whose main component is a polycarbonate resin, a laser coloring layer whose main component is a polycarbonate resin, and an overlay layer whose main component is a polycarbonate resin, laminated in this order; and a retroreflective layer provided in a partial region between the core layer and the laser coloring layer, A concealing layer that shields visible light and transmits infrared laser light is provided in a partial region between the laser coloring layer and the overlay layer.



CLAIM 1. A core layer whose main component is at least a polycarbonate resin, a laser coloring layer whose main component is a polycarbonate resin, and an overlay layer whose main component is a polycarbonate resin are layered in this order; A retroreflective layer between the core layer and the laser coloring layer in a partial region; A concealing layer blocking visible light and transmitting infrared laser light between the laser coloring layer and the overlay layer in a partial region.

P34552

PASSPORT

JP2022020806

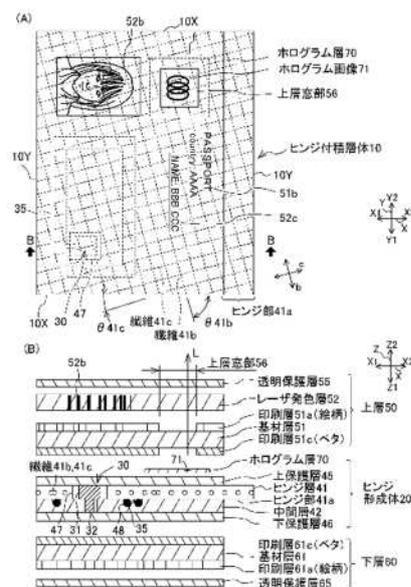
Priority Date: 17/11/2021

DAI NIPPON PRINTING

HINGE FORMING BODY, HINGE-FORMING BODY ARRANGED SHEET, HINGE-FORMING BODY ARRANGED SHEET, HINGE

TOPIC: To provide a hinge forming body, a laminate with hinges, a laminate with hinges, a laminate with hinges, and a brochure with improved quality of appearance. INVENTION: a hinge forming body 20 includes a plurality of resin sheet layers and a hinge layer 41 that includes fibers 41 b, 41 c and includes a hinge portion 41 a that can be fastened into a passport 1, In a state where the surface of the hinge forming body 20 is viewed from the normal direction, an angle formed by the fiber 41 b, 41 c and a side 10X, 10 Y forming an edge portion of the hinge forming body 20 is not a right angle.

CLAIM 1. A laminate, comprising: a plurality of laminated resin sheet layers; and A hinge layer comprising a hinge portion capable of being fastened into a brochure, A shape of a surface of the hinge forming body when viewed from a normal direction is a rectangle or a square, and a lower protective layer, an intermediate layer, the hinge layer, and an upper protective layer are layered in this order from a lower side to an upper side, The electronic component according to claim 1, wherein the intermediate layer has an antenna-embedded groove, and The hinge layer includes a plurality of fibers spaced apart from each other and arranged so as to extend along the same direction in the rectangle or the square; and An angle formed by a direction in which the fiber extends and an edge forming side that forms an edge of the hinge forming body is not a right angle; The hinge forming body according to claim 1.



P34553

LABEL – RELIEF

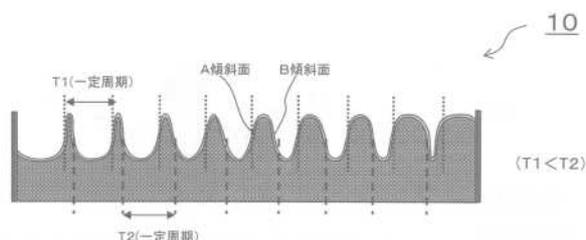
JP2022019238

TOPPAN PRINTING

Priority Date: 17/07/2020

COLOR SHIFTING DEVICE

TOPIC: To provide a color shift device that exhibits special optical effects in which colors change between a forward view and a reverse view, the color shift device being capable of instantly viewing the color change between the forward view and the reverse view even when viewing conditions such as a viewing angle change somewhat. INVENTION: a color shifting device including at least a relief structure forming layer and a reflective layer formed on a surface of a corrugated structure of the relief structure forming layer, whereinThe color shifting device includes a recessing and protruding structure extending in a first direction parallel to a display surface of the color shifting device and arranged in a second direction perpendicular to the first direction; andThe recessing and protruding structure includes a wave-like reflecting surface including one inclined surface A inclined surface and the other inclined surface B of the opposing inclined surfaces, andThe A inclined surface and the B inclined surface are alternately arranged in the second direction, andWherein the array of the inclined surfaces A is periodic, and the array of the inclined surfaces B is aperiodic.



CLAIM 1. A color shifting device consisting of at least a relief-structure forming layer and a reflective layer formed on a corrugated surface of the relief-structure forming layer; The color shifting device includes a recessing and protruding structure extending in a first direction parallel to a display surface of the color shifting device and arranged in a second direction perpendicular to the first direction; and The recessing and protruding structure includes a wave-like reflecting surface including one inclined surface A inclined surface and the other inclined surface B of the opposing inclined surfaces, and The A inclined surface and the B inclined surface are alternately arranged in the second direction, and The array of the inclined faces A is periodic, and the array of the inclined faces B is non-periodic.

P34554

DAI NIPPON PRINTING

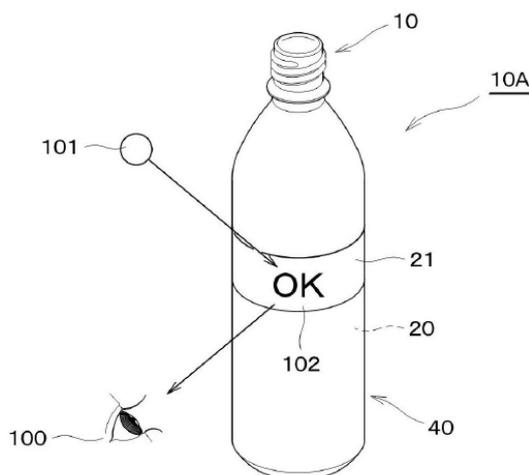
JP2022018850

Priority Date: 16/07/2020

BLOW MOLD, METAL PLATE, METHOD FOR PRODUCING COMPOSITE CONTAINER, AND COMPOSITE CONTAINER

TOPIC: To provide a blow mold, a metal plate, a method for manufacturing a composite container, and a composite container by which the appearance of the container can be improved and the design properties can be improved. INVENTION: a blow mold 50 includes a mold body 52 and a metal plate 60 attached to the mold body 52 and having a surface shape for forming a recessing and protruding structure 21 on an outer surface of a container 10 A.

CLAIM 1. A blow mold for making a container, comprising: A mold body; A metal plate attached to the mold body and having a surface shape for forming a recessing and protruding structure on an outer surface of the container.



P34590

PRINTING – BRAND PROTECTION

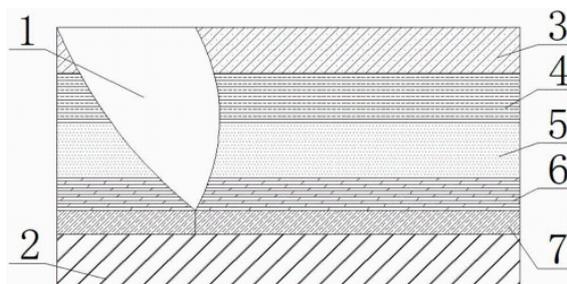
CN215795679U

Priority Date: 30/08/2021

ANHUI JIUSHUN PHOTOELECTRIC TECHNOLOGY

CAT EYE PRINTED PACKAGE WITH HOLOGRAPHIC ANTI-COUNTERFEITING IMAGE

The utility model discloses a cat eye printing package with holographic anti-counterfeiting image, which comprises a paper base layer, a lower anti-counterfeiting information layer, an adhesive layer, a holographic pattern layer and a finger-buckle notch, wherein anti-counterfeiting two-dimensional code information is printed on the lower anti-counterfeiting information layer, the adhesive layer is opaque water-based adhesive, can cover the anti-fake information of printing on the anti-fake information layer, it has holographic pattern to go up holographic pattern layer printing, the third dimension and the bandwagon effect of packing article have been increased, the bottom surface of degree of depth until the adhesive linkage that cuts into of finger lock incision 1, personnel can detain the finger lock incision with the finger, the layer body on the anti-fake information layer will be down uncovered and torn, the anti-fake information of printing can be shown on the anti-fake information layer down, personnel can carry out anti-fake inquiry according to information, the packing article is when combining holographic pattern layer anti-fake, the anti-fake information layer carries out double-deck anti-fake down has still been used, make the packing article anti-fake effect better.



CLAIM 1. A cat-eye printed package with a holographic security image, comprising a paper substrate (2), characterized in that: the upper strata of paper base layer (2) is provided with down anti-fake information layer (7), the top coating of anti-fake information layer (7) has adhesive linkage (6) down, the upper end of adhesive linkage (6) covers has last holographic pattern layer (5), the upper end of going up holographic pattern layer (5) is provided with cat eye layer (4), the upper end of cat eye layer (4) is provided with hydrophobic rete (3), finger-lock incision (1) has been seted up to the top of anti-fake information layer (7) down.

P34596

PRINTING – LABEL – RFID

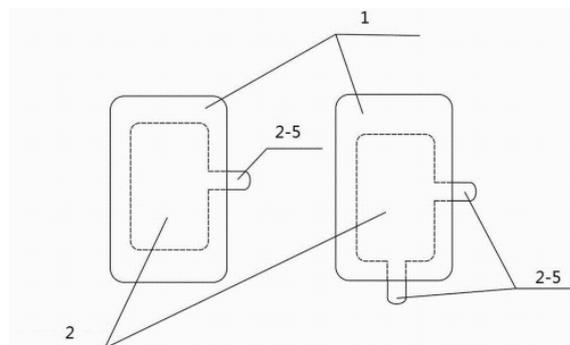
CN215769781U

Priority Date: 23/09/2021

SHANGHAI TECHSUN RFID TECHNOLOGY | SHANGHAI TIANCHEN MICRO NANO TECHNOLOGY

RFID SEALS LABEL

The utility model provides an RFID (radio frequency identification) sealing label, which comprises a label and an RFID label, wherein: the surface label comprises a first base material layer and a first bonding layer, wherein the first bonding layer is the lowermost layer of the surface label; the first adhesive layer is adhered to the RFID label, so that the RFID label is positioned below the surface label; the RFID tag is provided with one or more sliders which extend out of the face label. The RFID sealing label provided by the utility model has the advantages of easy opening and transfer prevention, convenience in use and good anti-counterfeiting effect.



CLAIM 1. An RFID closure tag, comprising a face label and an RFID tag, wherein: the surface label comprises a first base material layer and a first bonding layer, wherein the first bonding layer is the lowermost layer of the surface label; the first adhesive layer is adhered to the RFID label, so that the RFID label is positioned below the surface label; the RFID tag is provided with one or more sliders which extend out of the face label.

P34599

PRINTING – LABEL

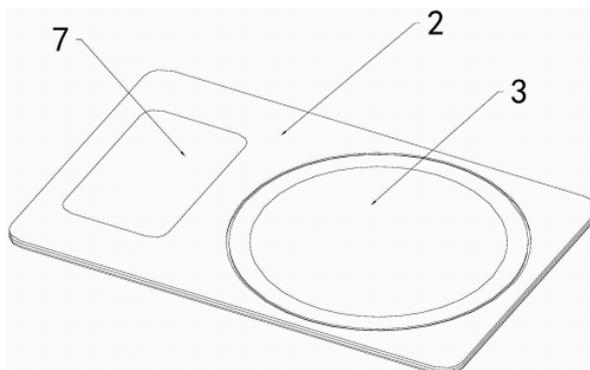
CN215730521U

Priority Date: 18/08/2021

WUXI XUDA ANTI COUNTERFEITING TECHNOLOGY

LASER HOLOGRAPHIC VARIABLE DIGITAL ANTI-COUNTERFEITING LABEL

The utility model discloses a laser holographic variable digital anti-counterfeiting label, and relates to the field of anti-counterfeiting labels. Including laminating base paper, colored printing layer and laser printing layer, the laminating of colored printing layer is on laminating base paper, the lower terminal surface on laser printing layer is provided with the column spinner, be provided with the swivelling chute on the colored printing layer, the setting of laser printing layer is on colored printing layer and the column spinner passes the column spinner, but utilize the holographic digital editing of laser to print on the laser printing layer to make the holographic anti-counterfeiting technique of laser and digital anti-counterfeiting technique combine together. The authenticity of the product is judged by observing the anti-counterfeiting information on the laser printing layer, and a user can change the position of the laser printing layer irradiated by light rays by rotating the laser printing layer, and at the moment, the user judges the authenticity of the product by observing the refracted light rays on the laser printing layer.



CLAIM 1. A laser holographic variable digital anti-counterfeiting label is characterized in that: including laminating base paper (1), colored printing layer (2) and laser printing layer (3), colored printing layer (2) laminating is on laminating base paper (1), the lower terminal surface on laser printing layer (3) is provided with column spinner (4), be provided with on colored printing layer (2) swivelling chute (5), laser printing layer (3) set up on colored printing layer (2) and column spinner (4) pass swivelling chute (5), but utilize the holographic digital editing of laser to print on laser printing layer (3) to make the holographic anti-fake technique of laser and digital anti-fake technique combine together.

P34600

PRINTING – CARD – RELIEF – MICROLENS

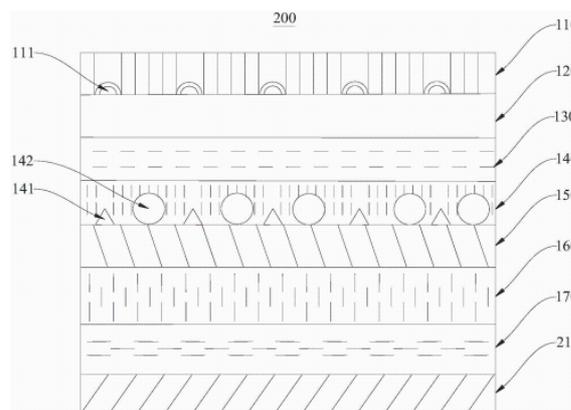
CN215730514U

Priority Date: 13/07/2021

WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT

TRANSPARENT ANTI-COUNTERFEITING FILM AND ANTI-COUNTERFEITING CERTIFICATE CARD

The embodiment of the application provides a transparent anti-counterfeiting film and an anti-counterfeiting certificate card, and relates to the field of anti-counterfeiting printing. The transparent anti-counterfeiting film comprises a wear-resistant layer, a base film layer, an imaging layer, a dielectric layer, an anti-ultraviolet layer and an adhesive layer which are sequentially stacked, wherein holographic patterns are arranged on the surface, close to the dielectric layer, of the imaging layer, the wear-resistant layer is made of UV resin, and a micro-lens array is arranged on the surface, close to the base film layer, of the imaging layer. The anti-counterfeiting certificate card comprises a card and the transparent anti-counterfeiting film. The transparent anti-counterfeiting film in the embodiment of the application is not easy to wear and can resist ultraviolet rays, and the speed of losing key information of the anti-counterfeiting card due to yellowing and aging can be reduced by sticking the transparent anti-counterfeiting film on the anti-counterfeiting card.



CLAIM 1. The utility model provides a transparent anti-counterfeiting film, its characterized in that, it is including wearing layer, base membrane layer, imaging layer, dielectric layer, anti ultraviolet layer and the glue film that the stromatolite set up in proper order, the imaging layer is close to the surface of dielectric layer is provided with holographic pattern, the material of wearing layer is the UV resin, and is close to the surface of base membrane layer is provided with the microlens array.

P34602

BRAND PROTECTION

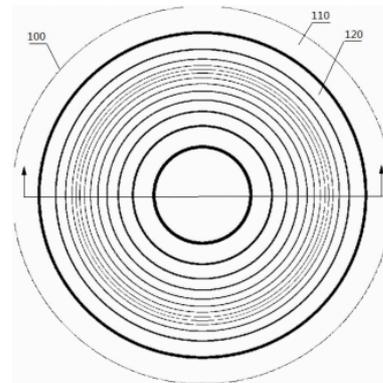
CN215728921U

Priority Date: 28/05/2021

WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT

ANTI-COUNTERFEITING HOLOGRAPHIC PLATE AND ANTI-COUNTERFEITING HOLOGRAPHIC FILM

The embodiment of the application provides an anti-counterfeiting holographic plate and an anti-counterfeiting holographic film, and relates to the technical field of holographic anti-counterfeiting packages. The anti-counterfeiting holographic plate comprises a plate body, wherein a plurality of grating units which are concentric circles are engraved on the same surface of the plate body, all the grating units are in a sawtooth shape along the section of the concentric circles in the diameter direction, the surface, close to the circle center, of each grating unit is an inclined surface which inclines outwards, the heights of all the grating units are the same, and all the grating units are arranged in a mode that the width is gradually reduced to the minimum from the circle center outwards and then gradually increased from the minimum. The anti-counterfeiting holographic plate and the anti-counterfeiting holographic film have simple structures, and can show the depth effect of the concave surface, thereby improving the anti-counterfeiting effect.



P34610

PRINTING – BRAND PROTECTION

CN215620811U

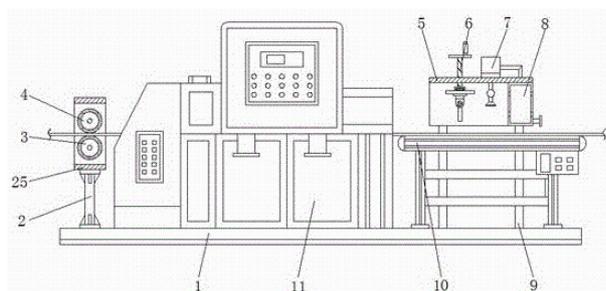
Priority Date: 16/06/2021

KUNMING XIAOSONG PLATE MAKING & PRINTING

HOLOGRAPHIC ANTI-FAKE PRINTING SYSTEM OF PACKING CARTON

The utility model discloses a holographic anti-counterfeiting printing system for a packaging box, which comprises a base, wherein the middle end of the top of the base is fixedly connected with printing equipment, the left side of the top of the base is fixedly connected with a fixed rod, the top of the fixed rod is fixedly connected with a cleaning frame, the front surface of the inner wall of the cleaning frame is respectively and movably connected with a driving brush roller and a driven brush roller through bearings, the right side of the top of the base is respectively and fixedly connected with a conveying belt and a connecting rod, the top of the connecting rod is fixedly connected with a connecting frame, the left side of the top of the connecting frame is provided with a threaded rod in a penetrating mode, and the bottom of the threaded rod is movably connected with a fixed plate. The utility model discloses possess the efficient advantage, solved the holographic anti-fake printing system of current packing carton and at the in-process that uses, be not convenient for carry out the deashing to the material before the printing, influence the printing quality of printing system easily, be not convenient for dry the material after the printing, reduced the problem of printing system printing efficiency.

CLAIM 1. The utility model provides a holographic anti-fake printing system of packing carton, includes base (1), its characterized in that: the printing device is characterized in that a printing device (11) is fixedly connected to the middle end of the top of the base (1), a fixing rod (2) is fixedly connected to the left side of the top of the base (1), a cleaning frame (25) is fixedly connected to the top of the fixing rod (2), the front of the inner wall of the cleaning frame (25) is respectively and movably connected with a driving brush roller (4) and a driven brush roller (3) through bearings, a conveying belt (10) and a connecting rod (9) are respectively and fixedly connected to the right side of the top of the base (1), a connecting frame (5) is fixedly connected to the top of the connecting rod (9), a threaded rod (6) penetrates through the left side of the top of the connecting frame (5), a fixing plate (13) is movably connected to the bottom of the threaded rod (6), a drying lamp (12) is fixedly connected to the bottom of the fixing plate (13), and a fan (7) is fixedly connected to the right side of the top of the connecting frame (5), the air inlet end intercommunication of fan (7) has air-supply line (15), the bottom intercommunication of air-supply line (15) has air inlet nozzle (17), right side fixedly connected with drying cabinet (8) at connection frame (5) inner wall top, the top and the first otter board of the equal fixedly connected with in bottom (22) of drying cabinet (8) inner chamber, one side fixedly connected with second otter board (23) that first otter board (22) are relative, the bottom intercommunication on drying cabinet (8) right side has exhaust pipe (24).



P34612

BRAND PROTECTION

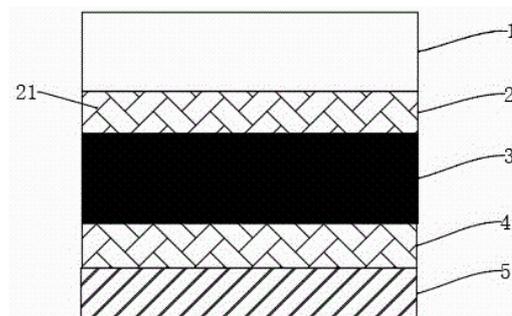
CN215592982U

Priority Date: 20/08/2021

ANYANG HUAQIANG PACKAGING INDUSTRY

HIGH-BARRIER DRUG BAG COMPOSITE FILM

The utility model discloses a high-barrier drug package composite film which sequentially comprises an anti-counterfeiting protective layer, a first adhesive layer, an aluminum foil base layer, a second adhesive layer and a hot melting layer from top to bottom, wherein the anti-counterfeiting protective layer is a laser holographic anti-counterfeiting BOPP film, the hot melting layer is an EVOH hot melting adhesive film, and the first adhesive layer and the second adhesive layer are both chitin fiber-doped modified polyurethane adhesive layers. The composite film has excellent external water vapor oxygen high barrier property, stronger tear resistance and anti-counterfeiting effect, and excellent comprehensive performance when used for medicine packaging.



CLAIM 1. A high-barrier medicine package composite film is characterized in that: from the top down includes anti-fake protective layer, first adhesive linkage, aluminium foil base member layer, second adhesive linkage, hot melt layer in proper order, anti-fake protective layer is the holographic anti-fake BOPP membrane of laser, the hot melt layer is EVOH hot melt adhesive linkage, first adhesive linkage and second adhesive linkage are chitin fibre doped's modified polyurethane adhesive linkage.

P34616

BRAND PROTECTION – LABEL – RELIEF – MICROLENS

CN114035255

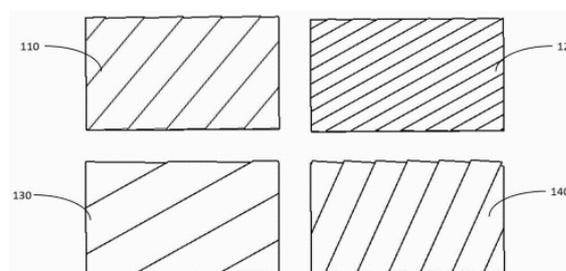
Priority Date: 29/11/2021

WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT

HOLOGRAPHIC GRATING FILM, MANUFACTURING METHOD THEREOF AND ANTI-COUNTERFEITING MEDIUM

According to the holographic grating film and the manufacturing method and the anti-counterfeiting medium thereof, the grating information layer is composed of a plurality of grating arrays of Fresnel lenses, and all square lattices in the grating information layer are divided into a plurality of same rectangular lattice arrays; enabling each dot matrix in all the rectangular dot matrix arrays to correspond to the circle center of each Fresnel lens one to one, namely forming a combined model of the Fresnel lenses so as to generate the anti-counterfeiting grating, enabling the image formed by the holographic grating film to move along an unfixed path, and enabling the image position and the moving path to change along with the change of the light source position; meanwhile, the point depth of field imaging effect of one or more images can be realized by adjusting the focal length of the Fresnel lens, and the imaged image does not move along a fixed path, is difficult to imitate, and has strong aesthetic feeling and extremely high anti-counterfeiting function.

CLAIM 1. The utility model provides a holographic grating film, includes from last to the stratum basale, from type layer, grating information layer, dielectric layer and the glue film of layering arrangement down in proper order, its characterized in that, grating information layer comprises a plurality of fresnel lens's grating array, specifically includes: the grating information layer comprises a plurality of square lattices, and all the square lattices in the grating information layer are divided into a plurality of same rectangular lattice arrays; the number of the lattices in the rectangular lattice array is the same as that of the Fresnel lenses; the circle center of each Fresnel lens is arranged according to the point location array of the image to be displayed; each circle center is respectively in one-to-one correspondence with each dot matrix in the rectangular dot matrix array according to presetting, and a grating of each Fresnel lens is respectively arranged in each corresponding dot matrix; and all the gratings in all the rectangular lattice arrays jointly form the grating array.



P34618

LUMINESCENCE – LIQUID CRYSTALS – RECORDING & MEMORY

CN114031713

Priority Date: 15/11/2021

HUAZHONG UNIVERSITY OF SCIENCE & TECHNOLOGY

DIARYLETHENE-BASED MULTIPLE IMAGE STORAGE MATERIAL, AND PREPARATION AND APPLICATION THEREOF

The invention belongs to the technical field of functional materials, and particularly relates to a diarylethene-based multiple image storage material, and preparation and application thereof. The multiple image storage material is obtained by carrying out selective photoreaction on 0.5-10 parts by weight of diarylethene fluorescent molecules, 1-50 parts by weight of liquid crystal and/or nano particles, 0.1-5 parts by weight of photoinitiator and 1-70 parts by weight of photopolymerization monomer; at the same spatial position of the multi-image storage material, a macroscopic holographic pattern or an isomer pattern of diarylethene fluorescent molecules can be presented under sunlight, and a fluorescent pattern can be presented under ultraviolet light, so that organic unification of dominant anti-counterfeiting and recessive anti-counterfeiting is realized, and the anti-counterfeiting performance is effectively improved.



CLAIM 1. A multiple image storage material based on diarylethene is characterized in that the multiple image storage material is obtained by carrying out selective photoreaction on 0.5-10 parts by weight of diarylethene fluorescent molecules, 1-50 parts by weight of liquid crystals and/or nanoparticles, 0.1-5 parts by weight of photoinitiator and 1-70 parts by weight of photopolymerization monomer; at the same spatial position of the multi-image storage material, a macroscopic holographic pattern or an isomer pattern of diarylethene fluorescent molecules can be presented under sunlight, and a fluorescent pattern can be presented under ultraviolet light.

P34619

PRINTING – LABEL

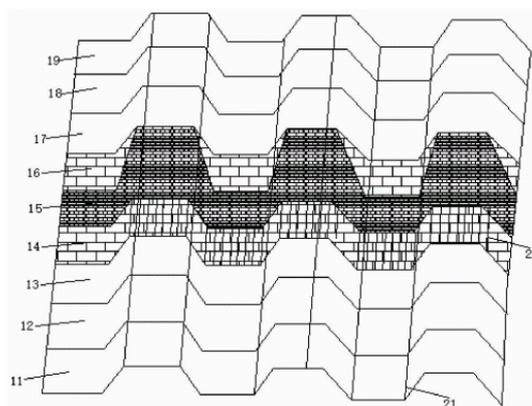
CN114023183

Priority Date: 08/12/2021

GAO LIFENG

ANTI-COUNTERFEIT LABEL

The invention discloses an anti-counterfeit label, which sequentially comprises a silicon paper layer, a colored non-drying glue layer, a release layer, a first paper base material layer, a multicolor hollow laser holographic safety line, a lithographic printing layer and a carving gravure overprinting layer from inside to outside; the multicolor hollow laser holographic safety line is characterized in that a fiber strip is arranged in the first paper base material layer, and skylight wiring or flat-tiling hot stamping is adopted on the surface of the first paper base material layer. According to the anti-counterfeiting label, the fiber strip is arranged in the first paper base material layer, so that the first paper base material layer has good anti-counterfeiting performance and is convenient to observe by naked eyes, the first paper base material layer also has excellent water resistance, friction resistance and folding resistance, and in addition, due to the arrangement of the multi-color hollow laser holographic safety line, the lithographic printing layer and the engraved intaglio overprinting layer, the anti-counterfeiting label can judge the authenticity of the label by naked eyes without the help of instruments and equipment, so that the phenomenon that counterfeit goods are abused is avoided.



CLAIM 1. An anti-counterfeiting label is characterized by comprising a silicon paper layer (11), a colored non-setting adhesive layer (12), a release layer (13), a first paper base material layer (14), a multicolor hollow laser holographic safety line (15), a lithographic printing layer (17) and an engraved intaglio overprint layer (18) from inside to outside in sequence; the multi-color hollow-out laser holographic safety line is characterized in that a fiber strip (20) is arranged in the first paper base material layer (14), and the multi-color hollow-out laser holographic safety line (15) is arranged on the surface of the first paper base material layer (14) in a skylight-opening wiring mode or a flat-laying hot stamping mode.

P34623

PRINTING – LABEL

CN114015374

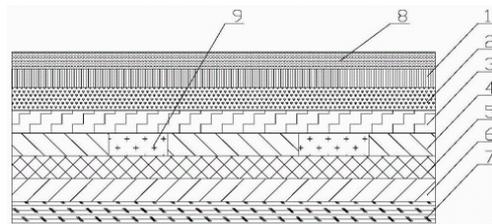
Priority Date: 13/12/2021

SHANDONG TAIBAO PACKAGING PRODUCT

HIDDEN HOLLOW-OUT ALUMINIZED PATTERN HOLOGRAPHIC ANTI-COUNTERFEITING ADHESIVE TAPE AND MANUFACTURING METHOD THEREOF

The invention relates to a hidden hollow aluminized pattern holographic anti-counterfeiting adhesive tape and a manufacturing method thereof, and the adhesive tape is characterized in that the adhesive tape sequentially comprises the following components from top to bottom: the anti-counterfeiting printing ink comprises a release layer, a base film layer, an imprinting coating, a holographic information layer, a first aluminum plating layer, an aluminum layer connection coating, a second aluminum plating layer and an adhesive layer, wherein the first aluminum plating layer is a hollowed aluminum plating anti-counterfeiting pattern layer, and a shielding layer is arranged at the hollowed part of the first aluminum plating layer. The manufacturing method is characterized by comprising the following steps: coating a release agent on the back surface of the base film layer to serve as a release layer, coating an impression coating on the front surface of the base film layer, and drying; imprinting a holographic information pattern on the imprinting coating to form a holographic information layer; printing a hollowed-out shielding layer on the holographic information layer, and then aluminizing to form a first aluminized layer; 6) coating an aluminum layer connection coating on the first aluminum layer in a full-page manner, and drying; 7) and fully aluminizing the aluminum layer connection coating to form a second aluminized layer, and coating glue on the second aluminized layer to form a glue layer. The invention has the advantages of good anti-counterfeiting performance, stable quality and convenient identification.

CLAIM 1. The hidden hollow aluminized pattern holographic anti-counterfeiting adhesive tape is characterized by sequentially comprising the following components from top to bottom: the anti-counterfeiting printing ink comprises a release layer, a base film layer, an imprinting coating, a holographic information layer, a first aluminum plating layer, an aluminum layer connection coating, a second aluminum plating layer and an adhesive layer, wherein the first aluminum plating layer is a hollowed aluminum plating anti-counterfeiting pattern layer, and a shielding layer is arranged at the hollowed part of the first aluminum plating layer.



P34624

PRINTING

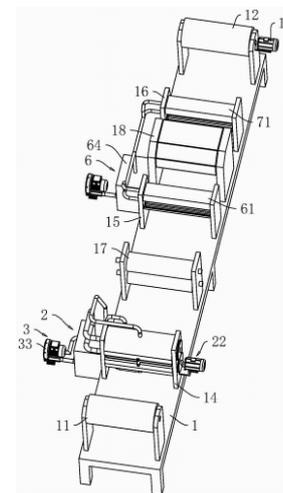
CN113997687

Priority Date: 29/10/2021

CHONGQING ZUMEI PACKAGING PRINTING

HOLOGRAPHIC ANTI-COUNTERFEITING PRINTING EQUIPMENT AND PRINTING METHOD

The application relates to holographic anti-counterfeiting printing equipment and a printing method, which relate to the technical field of anti-counterfeiting printing equipment and comprise a rack and a cleaning device, wherein the cleaning device comprises: the two cleaning rollers are rotatably arranged on the rack; the driving mechanism is arranged on the rack and is used for driving the cleaning roller to rotate; the air exhaust mechanism is arranged on the rack and is communicated with the through hole; the cleaning mechanism is arranged on the rack and used for cleaning the cleaning roller. According to the cleaning device, the air exhaust mechanism is started to enable dust on the printing stock to be absorbed through the through hole, then the driving mechanism is started to drive the cleaning roller to rotate, and the cleaning mechanism cleans the cleaning roller, so that the probability that the through hole is blocked by the dust is reduced, the dust removing effect on the printing stock is improved, and the printing quality of the printing stock is improved; and the speed of air passing through the through hole is accelerated, the probability of increasing the air exhaust power of the air exhaust mechanism is reduced, and the energy loss is reduced.



CLAIM 1. The utility model provides a holographic anti-fake lithography apparatus, includes frame (1), sets gradually feed arrangement, cleaning device (2), coating unit, drying device (6), ink printing machine (18) and discharging device on frame (1), its characterized in that: the cleaning device (2) comprises: the cleaning device comprises two cleaning rollers (21), wherein the two cleaning rollers (21) are rotatably arranged on a rack (1) and printing materials pass through the two cleaning rollers (21), a plurality of through holes (213) are uniformly formed in the two cleaning rollers (21) and rotate to drive the printing materials to move; the driving mechanism (22) is arranged on the rack (1) and is used for driving the two cleaning rollers (21) to rotate reversely; the air exhaust mechanism (3) is arranged on the rack (1) and communicated with the through hole (213); the cleaning mechanism (4) is arranged on the rack (1) and used for cleaning dust on the cleaning roller (21).

Click on the title to return to table of contents

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

P34510

BANKNOTE – THREAD – WINDOW

WO202233653

GIESECKE & DEVRIENT CURRENCY TECHNOLOGY

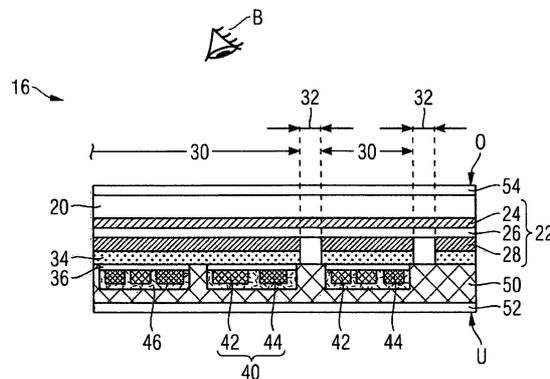
Priority Date: 14/08/2020

ELONGATE SECURITY ELEMENT AND METHOD FOR PRODUCING AN ELONGATE SECURITY ELEMENT

The invention relates to an elongate, optically variable security element (16) for securing valuable objects, having a flat, translucent carrier film (2); a colour-shifting thin-film element (22) on the carrier film (20), said element having, in the following order starting from the carrier film (20): an absorber layer (24), a spacer layer (26) and a segmented reflector layer (28), the segmented reflector layer having covering regions (30) without cut-outs, and cut-outs (32) in the form of negative marks; and a machine-readable multiple magnetic coding (40), which is formed from two or more different magnetic materials (42, 44), which are each arranged in the covering regions (30) of the reflector layer (28).

ÉLÉMENT DE SÉCURITÉ ALLONGÉ ET PROCÉDÉ DE PRODUCTION D'UN ÉLÉMENT DE SÉCURITÉ ALLONGÉ

L'invention concerne un élément de sécurité allongé optiquement variable (16) pour protéger des objets de valeur, comprenant un film support translucide plat (2); un élément film mince à décalage de couleur (22) sur le film support (20), ledit élément présentant, dans l'ordre suivant, à partir du film support (20) : une couche absorbante (24), une couche d'espacement (26) et une couche de réflecteur segmentée (28), la couche de réflecteur segmentée ayant des régions de recouvrement (30) sans découpes, et des découpes (32) sous la forme de marques négatives; et un codage magnétique multiple lisible par machine (40), qui est formé à partir d'au moins deux matériaux magnétiques différents (42, 44), qui sont chacun disposés dans les régions de recouvrement (30) de la couche de réflecteur (28).



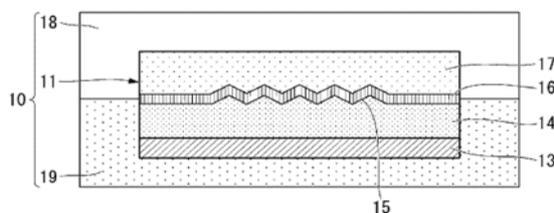
CLAIM 1. An elongated, optically variable security element for securing valuable objects, having a planar, translucent carrier film, a color-shifting thin-film element on the carrier film, which element, starting from the carrier film, has an absorber layer, a spacer layer and a segmented reflector layer in this order, the segmented reflector layer having coverage areas without gaps and gaps in the form of negative indicia, and a machine-readable multiple magnetic coding formed of two or more different magnetic materials respectively disposed in the coverage areas of the reflector layer.

LAMINATE, CARD, CARD MANUFACTURING METHOD, CARD PRODUCTION METHOD, INFORMATION RECORDING SHEET FOR CARD, AND CARD USING SAME

A laminate of the present invention comprising: a transfer foil configured with at least a patch substrate, a relief forming layer, a reflecting layer, and an adhesive layer being laminated in said order in the thickness direction thereof; a protective sheet provided on a first side in the thickness direction of the transfer foil; and an information recording sheet provided on a second side of the transfer foil, which is the opposite side from the protective sheet, in the thickness direction.

STRATIFIÉ, CARTE, PROCÉDÉ DE FABRICATION DE CARTE, PROCÉDÉ DE PRODUCTION DE CARTE, FEUILLE D'IMPRESSION D'INFORMATIONS POUR CARTE ET CARTE L'UTILISANT

Un stratifié de la présente invention comprend : une feuille de transfert conçue avec au moins un substrat de timbre, une couche de formation de relief, une couche réfléchissante, et une couche adhésive stratifiées dans cet ordre dans le sens de l'épaisseur de celui-ci ; une feuille de protection disposée sur un premier côté dans la direction de l'épaisseur de la feuille de transfert ; et une feuille d'impression d'informations disposée sur un second côté de la feuille de transfert, qui est le côté opposé à la feuille de protection, dans la direction de l'épaisseur.



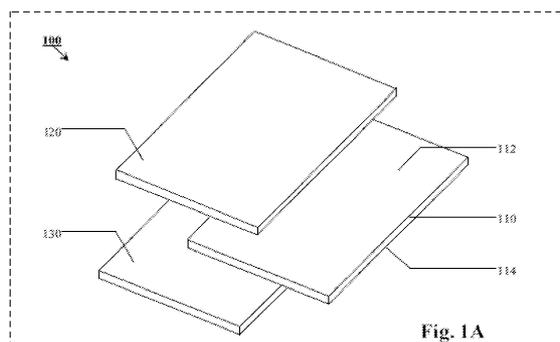
CLAIM 1. A transfer foil including at least a patch base, a relief-forming layer, a reflective layer, and an adhesive layer layered in that order along a thickness direction; a protective sheet provided on a first side of the transfer foil in the thickness direction; an information recording sheet provided on a second side of the transfer foil, the second side being an opposite side of the protective sheet in the thickness direction; Wherein the relief-formation layer has a relief structure having a concave-convex shape with concavities and convexities formed on at least a portion of a first surface that is in contact with the reflective layer, a second surface of the reflective layer that is in contact with the first surface is formed in a shape corresponding to the concave-convex shape of the relief structure, and the relief-formation layer includes: a thermoplastic resin; The relief structure is formed from any one of a thermosetting resin and an ultraviolet curable resin, or a combination of a plurality of the thermosetting resin and the ultraviolet curable resin, and when viewed from the thickness direction, the relief structure includes a plurality of island regions and sea regions to be formed into a predetermined pattern on the first surface, and the island regions of the relief-forming layer have a hydroxyl group, The laminate comprising any one or a combination of a rough surface and a functional group containing a carboxyl group and a carbonyl group, wherein the sea region does not have the functional group or the rough surface, a content of the functional group is less than that of the island region, or a degree and area of the rough surface are less than those of the island region.

DUAL-COLOR SHIFT SECURITY FILM

The present invention provides a security film (100) with dual color shift characteristics, the security film (100) comprising a substrate layer (110) having a first substrate surface (112) and a second substrate surface (114), a first liquid crystal layer (120), including a first liquid crystalline material, disposed above the first substrate surface (112), and a second liquid crystal layer (130), including a second liquid crystalline material, disposed above the second substrate surface (114). The first liquid crystal layer (120) and the second liquid crystal layer (130) are adapted to exhibit dual color shifts, on rotation and/or translation of the security film (100). Also, a method (200) for manufacturing the security film (100) has also been provided.

FILM DE SÉCURITÉ À DOUBLE DÉCALAGE DE COULEURS

La présente invention concerne un film de sécurité (100) doté de caractéristiques de double décalage de couleurs, le film de sécurité (100) comprenant une couche de substrat (110) présentant une première surface (112) de substrat et une seconde surface (114) de substrat, une première couche de cristaux liquides (120), comprenant un premier matériau de cristaux liquides, disposé au-dessus de la première surface (112) de substrat, et une seconde couche de cristaux liquides (130), comprenant un second matériau de cristaux liquides, disposé au-dessus de la seconde surface (114) de substrat. La première couche de cristaux liquides (120) et la seconde couche de cristaux liquides (130) sont conçues pour présenter des doubles décalages de couleurs, après la rotation et/ou la translation du film de sécurité (100). La présente invention concerne également un procédé (200) de fabrication du film de sécurité (100).



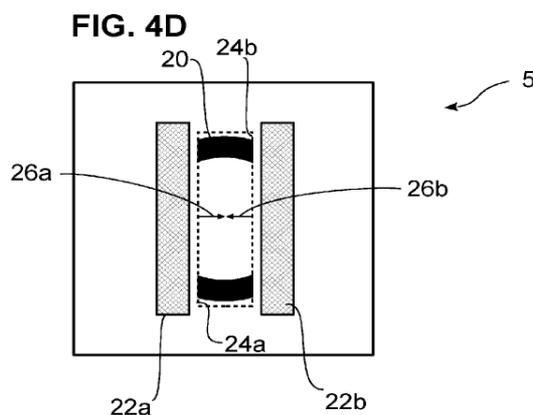
CLAIM 1. A security film (100) with dual color shift characteristics, the security film (100) comprising: a substrate layer (110) having a first substrate surface (112) and a second substrate surface (114); a first liquid crystal layer (120), including a first liquid crystalline material, disposed above the first substrate surface (112); and a second liquid crystal layer (130), including a second liquid crystalline material, disposed above the second substrate surface (114), wherein the first liquid crystal layer (120) and the second liquid crystal layer (130) are adapted to exhibit dual color shifts to prevent counterfeiting, on rotation and/or translation of the security film (100).

SECURITY FEATURE HAVING TILT-DEPENDENT MOTIF DEPICTION

The invention relates to a planar security feature (3) which changes appearance when it is tilted over a tilt angle range (11). The security feature comprises microelements (15,16) which present a main motif (20) and an additional motif (22).

CARACTÉRISTIQUE DE SÉCURITÉ AYANT UNE REPRÉSENTATION DE MOTIF DÉPENDANT DE L'INCLINAISON

L'invention concerne une caractéristique de sécurité plane (3) qui change d'aspect lorsqu'elle est inclinée sur une plage d'angle d'inclinaison (11). La caractéristique de sécurité comprend des microéléments (15, 16) qui présentent un motif principal (20) et un motif supplémentaire (22).



CLAIM 1. Flat security feature (3) that changes its appearance when tilted over a tilting angle range (11) and that has a structure that presents a main motif (20) and an additional motif (22), the structure having micro-elements (15,16) which present the main motif (20) and the additional motif (22), the micro-elements (15) presenting the main motif (20) in such a way that it is visible in a surface area (25) at a specific starting tilt position (8) and when changing the tilted position (12) towards a certain final tilted position (10) within the tilting angle range (11), the size of the surface area (25) in which the main subject (20) is visible, with increasing changing of the tilted position (12) decreases, and wherein the micro-elements (16) present the additional motif (22) in such a way that it moves towards the main motif (20) when the tilted position (12) changes towards the final tilted position (10), characterized in that the micro-elements (16) at least two parts (22a, 22b) of the additional motif (22) are presented in such a way that the parts (22a, 22b) of the additional motif (22) move in different directions (26; 26a, 26b) to move onto the main motif (20), and the micro-elements (15) present the main motif (20) in such a way that at least two sections (24a, 24b) of an edge (24) of the surface area (25) along the different directions (26; 26a, 26b) before the movement of the additional motif (22) towards the main motif (20).

P34539

PRINTING

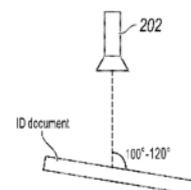
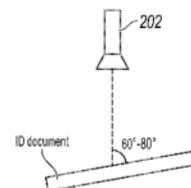
US20220028057

Priority Date: 23/06/2021

ALIPAY LABS SINGAPORE PTE

AUTHENTICATION METHOD AND SYSTEM

Disclosed are computer-implemented methods, non-transitory computer-readable media, and systems for authentication. One computer-implemented method includes obtaining a first image, where the first image is an image of an identification (ID) document captured when the ID document is tilted at a first angle relative to a projected light source. A second image is obtained, where the second image is an image of the ID document captured when the ID document is tilted at a second angle relative to the projected light source. The ID document is authenticated based on identification of a first illuminated region and a second illuminated region, where the first illuminated region is associated with the first image and the second illuminated region is associated with the second image, and a comparison between a first position of the first illuminated region and a second position of the second illuminated region.



CLAIM 1. A computer-implemented method for authentication, comprising: obtaining a first image, wherein the first image is an image of an identification (ID) document captured when the ID document is tilted at a first angle relative to a light source while a light from the light source is projected on the ID document; obtaining a second image, wherein the second image is another image of the ID document captured when the ID document is tilted at a second angle relative to the light source while the light from the light source is projected on the ID document; and authenticating the ID document based on performing operations comprising: identifying a first illuminated region of the first image and a second illuminated region of the second image, wherein the first illuminated region is brighter than a remaining area of the first image other than the first illuminated region, and the second illuminated region is brighter than a remaining area of the second image other than the second illuminated region and comparing a first position of the first illuminated region and a second position of the second illuminated region to determine whether the first position and the second position are a same position in the ID document, wherein the first position is a center point of the first illuminated region and the second position is a center point of the second illuminated region.

P34540

CARD – LUMINESCENCE

US11250304

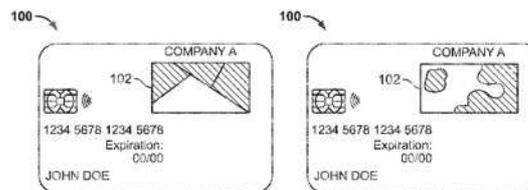
Priority Date: 23/07/2020

BANK OF AMERICA

PAYMENT CARD WITH LIGHT-BASED SIGNATURE

Systems, methods and apparatus are provided for light-based authentication of a payment card. The payment card may include a randomized mix of materials. The materials may include transparent or translucent materials. A light source may shine light on a surface of the payment card. Light passing through the card may generate a light pattern that is unique to the payment card. The light pattern may be captured and compared to a reference light pattern to authenticate the payment card. In some embodiments, photodetectors may detect light patterns generated through interactions with the card materials.

CLAIM 1. A system for light-based authentication of a payment card, the system comprising: a payment card comprising a randomized mix of materials; a light source configured to emit light in a predetermined range of wavelengths; an image capture device configured to: capture a light pattern, the light pattern appearing when light from the light source passes through the payment card; and convert the captured light pattern to a digital image; and a processor in communication with the image capture device, the processor configured to: compare the digital image of the captured light pattern to a digital image of a reference light pattern; and authenticate the payment card when the digital image of the captured light pattern matches the digital image of the reference light pattern, the match comprising a percentage match that is greater than a predetermined threshold; wherein: the randomized mix of materials comprises one or more randomly selected materials from a first set of materials comprising opaque materials and one or more randomly selected materials from a second set of materials comprising translucent materials; and the payment card further comprises a plurality of predefined spaces extending through a front card surface and a rear card surface, the spaces filled with the randomized mix of materials; and wherein: the payment card further comprises a diffraction grating configured to split the light from the light source into individual wavelengths; the image capture device comprises a photosensor positioned to detect a diffracted wavelength, the photosensor position determined based on an angle of incidence and a predetermined wavelength; and the processor is further configured to authenticate the payment card when the diffracted wavelength corresponds to the predetermined wavelength.



P34541

PRINTING – LABEL – LUMINESCENCE – THERMOCHROMISM

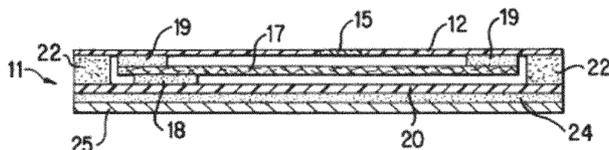
US11241902

TEMPTIME

Priority Date: 17/09/2020

ENVIRONMENTAL HISTORY MONITOR WITH POSITIONAL DISPLACEMENT AND SECURITY FEATURES

Environmental monitors for monitoring a predetermined environmental exposure, for example, an historical heat exposure such as a cumulative ambient heat exposure and/or a peak ambient heat exposure may include an environmental indicator material and a security material. The environmental monitor may be configured to attach to a host product for monitoring the predetermined environmental exposure of the host product, and additionally serve as an anti-counterfeiting indicator.



CLAIM 1. A historical temperature exposure monitor comprising: a substrate; an optically readable, thermally sensitive indicator element supported by the substrate, the indicator element further comprising an indicator material configured to physically move in response to a predetermined temperature exposure; and a security material supported by the substrate and further comprising a luminescent material configured to give a bright appearance of a predetermined color when exposed to specific light wavelengths, wherein the bright appearance of the predetermined color is undetectable to a naked eye, and wherein the indicator element is inactive below a base temperature and being thermally responsive at or above an activation temperature to record irreversibly with respect to time cumulative ambient temperature exposure above the activation temperature, the activation temperature being equal to or greater than the base temperature.

P34547

PRINTING – LUMINESCENCE – THERMOCHROMISM – TAMPER EVIDENCE

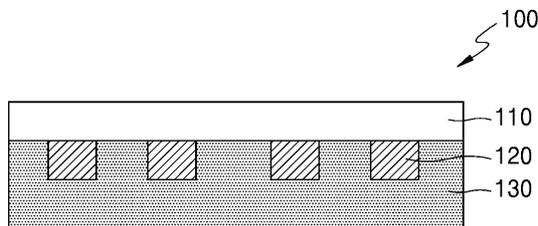
KR20220006934

NANO BRICK

Priority Date: 09/07/2020

FALSE MODULATION PREVENTION DEVICE AND METHOD FOR MANUFACTURING THE SAME

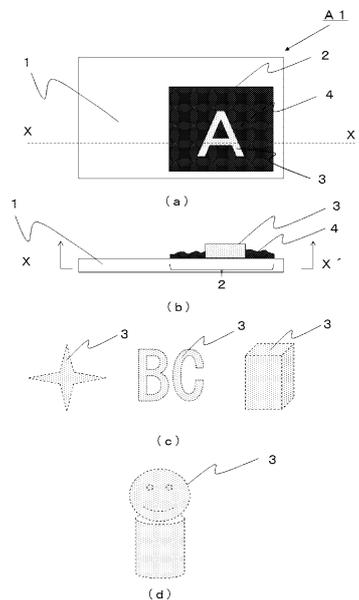
Disclosed are an apparatus for preventing false modulation and a method of manufacturing the same. The tamper evident apparatus includes a first color variable layer including an ink that changes from a first color to a second color when at least one of an optically-variable angle, a temperature, and a light source is changed from a first condition to a second condition, and a second color variable layer including an ink that exhibits the same color as or similar to the first color variable layer under the first condition and exhibits a color different from the first color variable layer under the second condition.



CLAIM 1. A color changing device comprising: a first color changing layer including an ink that changes from a first color to a second color when at least one of an optically-variable angle, a temperature, and a light source is changed from a first condition to a second condition; a second color changing layer that exhibits the same color as or similar to the first color changing layer under the first condition, A second color variable layer formed of an ink exhibiting a color different from that of the first variable layer under the second condition; and a substrate on which the first color variable layer and the second color variable layer are printed.

PRINTED MATERIAL IDENTIFICATION METHOD

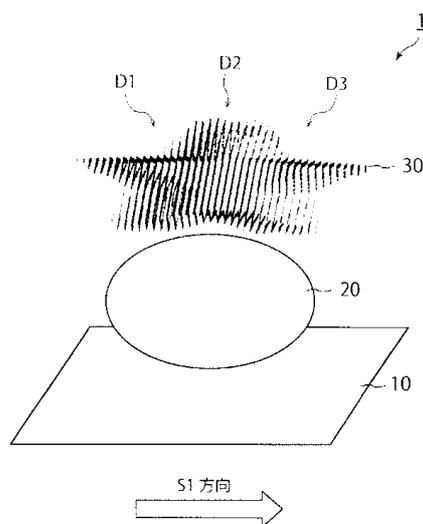
TOPIC: In the present invention, in order to identify the authenticity of a printed material with high security, a plurality of inks are required to impart information to special elements contained in the inks and elements. INVENTION: The present invention is a method for identifying a printed material provided with an information imparting unit that represents information formed by using ink that cures by irradiating a part of a permeable substrate with light of a predetermined wavelength and by varying irradiation timings of the light of the predetermined wavelength, and a concealing part disposed around the information imparting unit, the method including the steps of: Or focusing on the concealing part, scanning with light of the same or different wavelength as the light of the predetermined wavelength, acquiring reflected light and converting the reflected light into planar image information, superimposing a plurality of planar image information to form one piece of composite image information, and reading the information imparting part based on the difference in the surface shapes of the information imparting part and the concealing part.



CLAIM 1. A method for identifying a printed material provided with a printed pattern part including an information imparting part indicating information formed by varying irradiation timings of light of a predetermined wavelength using ink having photopolymerization characteristics that cures when irradiated with light of the predetermined wavelength on at least a portion of a base material of a porous material having permeability, and a concealing part disposed in a periphery of the information imparting part, the method comprising the steps of: Scanning with light of the same or different wavelength as the light of the predetermined wavelength by focusing on the information imparting unit and/or the concealing unit; and Acquires reflected light from the information imparting unit and/or the concealing unit and converts the reflected light into planar image information; and Superimposing a plurality of pieces of image information of the plane to form a single piece of composite image information; and Using the composite image information to distinguish the information imparting part from the printed pattern part based on a difference in surface shapes of the information imparting part and the concealing part, and reading the information.

LATENT IMAGE PRINTED MATERIAL

TOPIC: To provide a latent image printed material with improved visibility. **INVENTION:** The base material includes a semicylindrical streak group having optical characteristics of at least one of a light-dark flip-flop property and a color flip-flop property, and a latent image group having a color different from that of the semicylindrical streak group under specularly reflected light. The latent image group includes a first latent image, a second latent image,..., and an nth latent image formed by arranging a plurality of first latent image elements, a second latent image element,.., and an nth latent image element (n is a natural number equal to or greater than 2) obtained by dividing a base image in that order, and the first latent image, the second latent image,.., and the nth latent image have different densities.



CLAIM 1. A display device, comprising: a semicylindrical streaking group including a plurality of semicylindrical streaking lines arranged at a fixed pitch, the semicylindrical streaking lines having at least one optical characteristic of light/dark flip-flop properties and color flip-flop properties; and a plurality of semicylindrical streaking lines arranged in a portion of the semicylindrical streaking group, the plurality of semicylindrical streaking lines having at least one optical characteristic of light/dark flip-flop properties and color flip-flop properties, the plurality of semicylindrical streaking lines being arranged at a fixed pitch, A latent image printed material comprising a latent image group having a color different from a color of the semicylindrical streak group under specularly reflected light, wherein a latent image is visually recognized by changing when an observation angle with respect to the base material is changed under specularly reflected light, The latent image group comprises a first latent image, a second latent image,..., and an nth latent image formed by arranging a plurality of first latent image elements, a plurality of second latent image elements,.., and an nth latent image element (n is a natural number equal to or greater than 2) obtained by dividing a base image in that order at the fixed pitch, The first latent image, the second latent image,.., and the nth latent image have different densities.

P34566

PATENT OF THE MONTH
PRINTING – CARD – RELIEF – MICROLENS

FR3112990

IDEMIA FRANCE

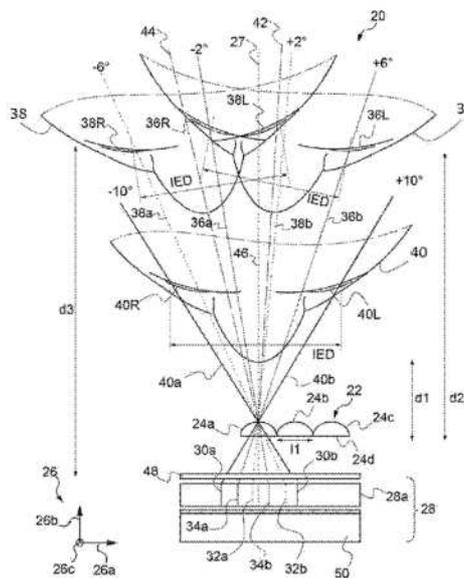
Priority Date: 29/07/2020

SECURITY DEVICE FOR AN IDENTITY DOCUMENT AND IDENTITY DOCUMENT COMPRISING SUCH A SECURITY DEVICE

The invention relates to an identity document security device, said device comprising at least: - a lenticular array, and - an image support arranged in a focal plane of the lenticular array, and said image support comprising: - at least one first pair of stereoscopic color images, configured to be visible through said lenticular array at a first viewing position, and - at least a second pair of black and white stereoscopic images, configured to be visible through said lenticular array at a second viewing position different from the first viewing position.

DISPOSITIF DE SÉCURITÉ POUR UN DOCUMENT D'IDENTITÉ ET DOCUMENT D'IDENTITÉ COMPORTANT UN TEL DISPOSITIF DE SÉCURITÉ

L'invention concerne un dispositif de sécurité de document d'identité, ledit dispositif comportant au moins : - un réseau lenticulaire, et - un support d'image disposé dans un plan focal du réseau lenticulaire, et ledit support d'image comportant : - au moins un premier couple d'images stéréoscopiques en couleur, configurées pour être visible à travers ledit réseau lenticulaire à une première position d'observation, et - au moins un deuxième couple d'images stéréoscopiques en noir et blanc, configurée pour être visible à travers ledit réseau lenticulaire à une deuxième position d'observation différente de la première position d'observation.



CLAIM 1. Identity document security device (20), said device comprising at least: - a lenticular array (22), and - an image support (28) arranged in a focal plane of the lenticular array (22), and said image support (28) comprising: - at least a first pair of stereoscopic color images (30 a, 30 b), configured to be visible through said lens array (22) at a first viewing position (40), and - at least one second pair of black and white stereoscopic images (32 a, 32 b), configured to be visible through said lens array (22) at a second viewing position (36) different from the first viewing position (40).

P34567

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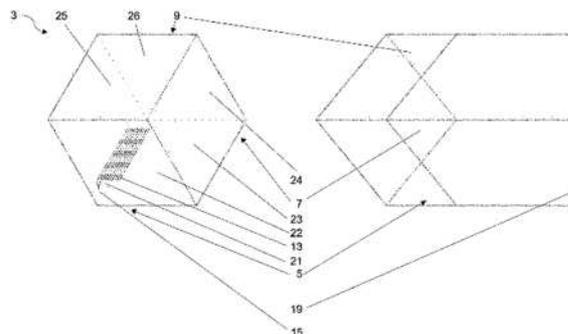
IMOS GUBELA

Priority Date: 14/08/2020

RETROREFLECTIVE ELEMENT HAVING A SECURITY ELEMENT

A retroreflective element, for example a retroreflector or a retroreflective film, includes a regular arrangement of multiple reflective triples, each having three side surfaces that form an angle between 88° and 92°, preferably between 89° 50' and 90° 10' relative to one another, and particularly preferably stand perpendicularly on one another. At least one selected triple in the arrangement has a security element having at least one diffractive structure on at least one first side surface. A modulation depth of the security element is selected in such a manner that the security element cannot be perceived when the retroreflective element is illuminated at an illumination angle <10°.

CLAIM 1. A retroreflective element comprising a regular arrangement of multiple reflective triples, each triple having first, second, and third side surfaces that form an angle between 88 and 92 relative to one another; wherein at least a first selected triple in the arrangement has a first security element having at least one diffractive structure on the first side surface of the first selected triple; and wherein the first security element has a modulation depth selected so that the first security element is imperceptible when the retroreflective element is illuminated at an illumination angle <10.



FLAT SECURITY ELEMENT WITH OPTICAL SECURITY FEATURES

The invention relates to a starting material for a value document (1), comprising a security element (2) in the form of a strip for use as security threads in value documents (1), such as banknotes. The security element (2) has a first degree of reflection for visible light on a first surface. In order to make the security threads in the bridge region of the value document (1) less readily detectable under incident light, a first surface of the security element (2) is provided with a cover layer (11) in at least one first longitudinal section, said cover layer having a second degree of reflection which is greater than the first degree of reflection of the first surface, while the first surface is not provided with such a cover layer (11) in at least one second longitudinal section, and at least one first longitudinal section of the security element (2) which is not provided with a cover layer (11) is covered by a section of the starting material at least in some regions while at least a second longitudinal section of the security element (2) which is not provided with a cover layer (11) is not covered by a section of the starting material or such a second longitudinal section is only covered by another section of the starting material with a smaller thickness than the section of the starting material which covers at least one first longitudinal section of the security element provided with a cover layer (11).

ÉLÉMENT DE SÉCURITÉ PLAT AYANT DES CARACTÉRISTIQUES DE SÉCURITÉ OPTIQUES

L'invention concerne un matériau de base conçu pour un document de valeur (1), comprenant un élément de sécurité (2) se présentant sous la forme d'une bande, conçu pour être utilisé comme fil de sécurité dans des documents de valeur (1), tels que des billets de banque, l'élément de sécurité (2) présentant sur une première surface une première réflectance pour la lumière visible. L'objectif de cette invention est de faire en sorte que le fil de sécurité soit beaucoup moins détectable dans la zone de pont du document de valeur (1) à la lumière incidente. À cet effet, une première surface de l'élément de sécurité (2) comporte, dans au moins une première partie longitudinale, une couche de recouvrement (11) présentant une deuxième réflectance qui est supérieure à la première réflectance de la première surface, alors que la première surface n'est pas pourvue d'une telle couche de recouvrement (11) au moins dans une deuxième partie longitudinale. De plus, au moins une première partie longitudinale de l'élément de sécurité (2) qui est pourvue d'une couche de recouvrement (11) est recouverte au moins par endroits par une partie du matériau de base, alors qu'au moins une deuxième partie longitudinale de l'élément de sécurité (2) qui n'est pas pourvue d'une couche de recouvrement (11), n'est pas recouverte par une partie du matériau de base ou une telle deuxième partie longitudinale est recouverte uniquement par une partie supplémentaire du matériau de base présentant une épaisseur inférieure à la partie du matériau de base qui recouvre au moins une première partie longitudinale de l'élément de sécurité pourvue d'une couche de recouvrement (11).

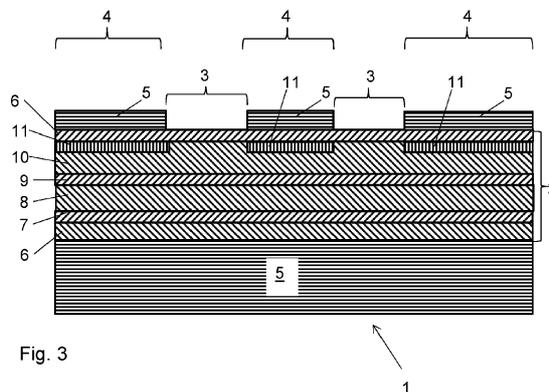
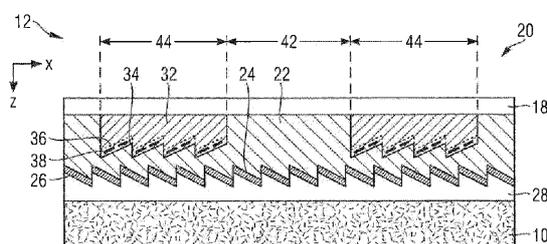


Fig. 3

CLAIM 1. A security element (2) in the form of a strip for use as a security thread in value documents (1), such as banknotes, wherein the security element (2) has a first degree of reflection for visible light on a first surface, characterized in that the first surface of the security element (2) is provided in at least one first longitudinal portion with a cover layer (11) which has a second reflectance for visible light which is greater than the first reflectance of the first surface, while the first surface is not provided in at least one second longitudinal portion with such a cover layer (11).

OPTICALLY VARIABLE SECURITY ELEMENT

The invention relates to an optically variable security element for securing valuable objects, the surface extension of which defines a z-axis perpendicular thereto, comprising a reflective surface area which exhibits at least two appearance images that can be recognized from different viewing directions. The reflective surface area contains a first relief structure (24) and a second relief structure (34) which are arranged in different height steps in the z direction so as to at least partially overlap one another. The first relief structure (24) is provided with a reflection-increasing layer (26) and the second relief structure (34) comprises a reflection-increasing layer (36). The second relief structure (34) is provided only in partial areas (44) of the reflective surface area and/ or the second relief structure (34) comprises the reflection-increasing layer (36) so that the surface area comprises the partial areas (44) with reflective second relief structure (34, 36) and free areas (42) without reflective second relief structure (34, 36). The reflection-increasing layer (36) of the second relief structure (34) is formed by floated or sunken pigments.



CLAIM 1. An optically variable security element for securing objects of value, the areal extent of which defines a z-axis perpendicular thereto, having a reflective areal region that exhibits at least two appearance images recognizable from different viewing directions,- the reflective surface region contains a first relief structure (24) and a second relief structure (34) which are arranged in different height steps at least partially overlapping one another in the z direction, - the first relief structure (24) is provided with a reflection-increasing layer (26), and - the second relief structure (34) has a reflection-increasing layer (36), - wherein the second relief structure (34) is provided only in partial regions (44) of the reflective surface region and/or the second relief structure (34) has the reflection-increasing layer (36), so that the surface region has the partial regions (44) with reflective second relief structure (34, 36) and free regions (42) without reflective second relief structure (34, 36), characterized in that the reflection-increasing layer (36) of the second relief structure (34) is formed by floated or sunken pigments.

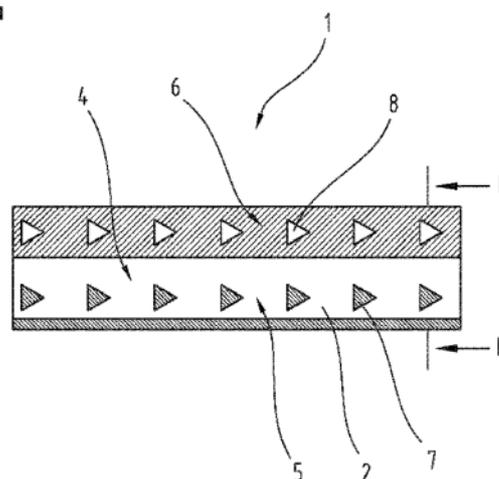
SECURITY ELEMENT FOR A VALUABLE DOCUMENT

The invention relates to a security element (1) for a value document, a security paper and the like, wherein the security element (1) has at least one carrier film (2), which is at least partially covered by at least one coating (3) visible in reflection, wherein the security element (1) has at least one longitudinal strip (4) at least partially omitted from the at least one coating (3), wherein the longitudinal strip (4) separates a first and a second thread-forming zone (5, 6), wherein the first and the second thread-forming zone (5, 6) are each at least partially covered with the at least one coating (3), wherein the thread-forming zones (5, 6) comprise motifs (7, 8, 9, 10), wherein the motifs (7, 8, 9, 10) preferably comprise characters, in particular alphanumeric characters and/or icons and/or geometric figures and/or symbols and/or sports and/or landscapes and/or buildings and/or animals and/or objects and/or persons, wherein the motifs (7, 8) are formed as positive motifs (7) and negative motifs (8), and/or in that a first motif (9) of the first zone (5) and a second motif (10) of the second zone (6) form a pair (11), wherein a distance (a) between the first motif (9) and the second motif (10) of the pair (11) is not constant if this pair (11) consisting of the first motif (9) and the second motif (10) repeats along the first zone (5) and the second zone (6), or in that it has no repeating pair of first and second motifs (10, 11).

ÉLÉMENT DE SÉCURITÉ POUR UN TITRE DE VALEUR

L'invention concerne un élément de sécurité (1) pour un document de valeur, un papier de sécurité et similaire, l'élément de sécurité (1) présentant au moins un film de support (2) qui est au moins partiellement recouvert par au moins un revêtement (3) visible en réflexion, l'élément de sécurité (1) présentant au moins une bande longitudinale (4) qui est laissée au moins partiellement découverte par ledit revêtement (3), la bande longitudinale (4) séparant une première et une seconde zone de formation de fil (5, 6), les première et seconde zones de formation de fil (5, 6) étant chacune au moins partiellement recouvertes par ledit revêtement (3), les zones de formation de fil (5, 6) présentant des motifs (7, 8, 9, 10), les motifs (7, 8, 9, 10) représentant de préférence des signes, en particulier des signes alphanumériques et/ou des icônes et/ou des figures géométriques et/ou des symboles et/ou des portraits et/ou des paysages et/ou des bâtiments et/ou des animaux et/ou des objets et/ou des personnes, les motifs (7, 8) étant formés comme motifs positifs (7) et motifs négatifs (8), et/ou un premier motif (9) de la première zone (5) et un second motif (10) de la seconde zone (6) formant une paire (11), une distance (a) entre le premier motif (9) et le second motif (10) de la paire (11) n'étant pas constante si cette paire (11) constituée du premier motif (9) et du second motif (10) se répète le long de la première zone (5) et de la seconde zone (6), ou l'élément de sécurité n'ayant pas une paire répétée de premier et second motifs (10, 11).

CLAIM 1. A security element (1, 1 a) for a value document, a security paper and the like, wherein the security element (1) has at least one carrier film (2) which is at least partially covered by at least one coating (3) visible in reflection, wherein the security element (1) has at least one longitudinal strip (4) which is at least partially left free by the at least one coating (3), wherein the longitudinal strip (4, 4 a, 4 b, 4 c) has a first and a second thread-forming zone (5, 6), wherein the first and the second thread-forming zone (5, 6) are each at least partially covered with the at least one coating (3), wherein the thread-forming zones (5, 6) have motifs (7, 8, 9, 10), wherein the motifs (7, 8, 9, 10) Preferably represent characters, in particular alphanumeric characters and/or icons and/or geometric figures and/or symbols and/or sports and/or landscapes and/or buildings and/or animals and/or objects and/or persons, characterized in that the motifs (7, 8) are formed as positive motifs (7) or as positive motifs (7) and negative motifs (8), and/or in that a first motif (7, 9) of the first zone (5) and a second motif (8, 10) of the second zone (6) form a pair (11), wherein a distance (a) between the first motif (7, 9) and the second motif (8, 10) Of the pair (11) is not constant if this pair (11) consisting of the first motif (7, 9) and the second motif (8, 10) is repeated along the first zone (5) and the second zone (6), or in that it does not have a repeating pair of first and second motifs (7, 8, 9, 10).



Of the pair (11) is not constant if this pair (11) consisting of the first motif (7, 9) and the second motif (8, 10) is repeated along the first zone (5) and the second zone (6), or in that it does not have a repeating pair of first and second motifs (7, 8, 9, 10).

P34579

PRINTING

DE102020210113

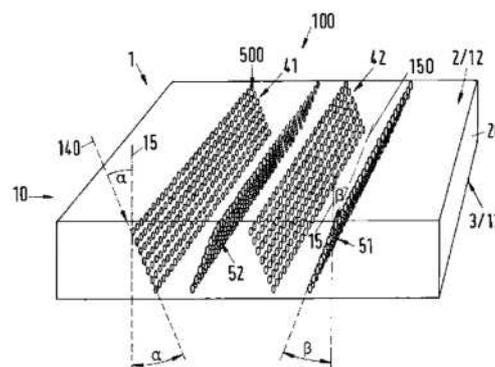
Priority Date: 10/08/2020

BUNDESDRUCKEREI

SECURITY DOCUMENT WITH VIEWING DIRECTION-DEPENDENT SECURITY FEATURE

The invention relates to a security document with a viewing direction-dependent security feature, wherein the security document (10) has a document body (1) with a transparent volume region (20) extending at least as far as an outer surface (12), in which the document body (1) is formed from a transparent material, in the interior of which localized laser-induced material changes (500) are formed, wherein the laser-induced material changes (500) are formed at different distances with respect to the outer surface (12) in the transparent volume region (20). The invention also relates to a method for producing such a security document.

CLAIM 1. A security document (10) with a viewing direction-dependent security feature, wherein the security document (10) has a document body (1) with a transparent volume region (20) extending at least as far as an outer surface (12), in which the document body (1) is formed from a transparent material, laser-induced material changes (500) located in the interior of which are formed, wherein the laser-induced material changes (500) are formed at different distances in relation to the outer surface (12) in the transparent volume region (20), characterized in that In that at least a plurality of the laser-induced material changes (500) span a planar or semi-planar flat planar structure (41), wherein the flat planar structure (41) is planar if it can be regarded as a physical configuration of a part of a mathematical non-curved plane, and the flat plane structure (41) is semi-planar if it can be regarded as a physical configuration of a part of a mathematical plane which does not have a curvature along a spatial direction of the Euclidean space at any point of the mathematical plane, and wherein at least one marked viewing direction (140) corresponds to the one planar or semi-planar flat planar structure (41), wherein the at least one marked viewing direction (140) is defined relative to the document body (1), and of the one flat planar structure (41), at least in one section, only one planar structure thickness can be detected when viewed from the excellent viewing direction of the document body (1) through the outer surface (12).



P34585

LABEL – TAMPER EVIDENCE

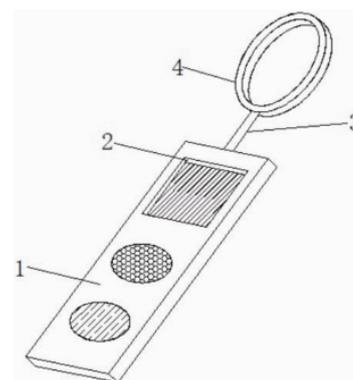
CN215814808U

Priority Date: 31/08/2021

SHENZHEN XINGCHANGMING PRINTING PRODUCT

ANTI-COUNTERFEIT LABEL NOT EASY TO BE DAMAGED

The utility model discloses an anti-counterfeit label difficult to damage, which comprises a label main body and a clamping ring, wherein the surface of the label main body is provided with an electroplating groove, electroplating electronic information is arranged in the electroplating groove, a protective film is arranged in the label main body, one end of the protective film is provided with a first anti-counterfeit layer, the other end of the first anti-counterfeit layer is provided with a first adhesive layer, the other end of the first adhesive layer is provided with a second anti-counterfeit layer, a non-dry glue layer is arranged in the label main body, an annular body is arranged in the clamping ring, one end of the annular body is provided with a clamping groove, a clamping hole is arranged in the clamping groove, the other end of the annular body is provided with a joint, a connecting rod is arranged in the joint, the clamping groove and the joint which are arranged in the clamping ring are utilized to be clamped with the clamping hole in the clamping groove through the connecting rod in the joint, the device can be fixed at any position, so that the device has more installation modes, and the safety of the anti-counterfeiting label is also improved.



CLAIM 1. The utility model provides a difficult destroyed antifalsification label which characterized in that: the anti-counterfeit label not easy to damage comprises a label main body and a clamping ring, the surface of the label main body is provided with an electroplating groove, electronic information is electroplated inside the electroplating groove, a protective film is arranged inside the label main body, one end of the protective film is provided with a first anti-counterfeit layer, the other end of the first anti-counterfeit layer is provided with a first adhesive layer, the other end of the first adhesive layer is provided with a second anti-counterfeit layer, an adhesive layer is arranged inside the label main body, a ring body is arranged inside the clamping ring, one end of the ring body is provided with a clamping groove, a clamping hole is formed inside the clamping groove, the other end of the ring body is provided with a joint, and a connecting rod is arranged inside the joint.

P34593

PRINTING – LABEL

CN215792733U

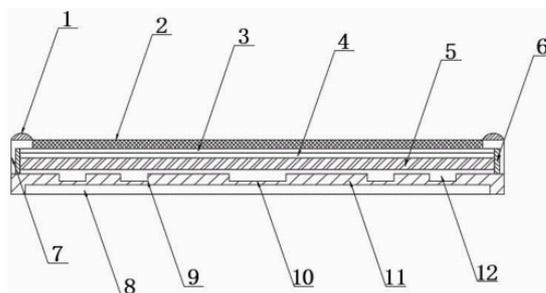
Priority Date: 30/08/2021

ANHUI JIUSHUN PHOTOELECTRIC TECHNOLOGY

MULTI-POSITIONING LASER ANTI-COUNTERFEITING PRINTING PAPER

The application relates to multi-positioning laser anti-counterfeiting printing paper, which comprises a base layer, wherein an outer adhesive layer is embedded into the lower surface of the base layer, an inner adhesive layer is arranged on the upper surface of the base layer, a matching circular groove is formed in the center of the upper surface of the base layer, two matching circular grooves are formed in the outer side of the matching circular groove on the upper surface of the base layer, the inner adhesive layer is filled in the matching circular grooves and the matching circular grooves, an anti-counterfeiting layer is attached to the upper surface of the inner adhesive layer, a sealing layer is arranged on the upper surface of the anti-counterfeiting layer, a light reflecting layer is arranged on the upper surface of the sealing layer, a frosting layer is arranged on the upper surface of the base layer, the matching circular grooves and the matching circular grooves are formed in the upper surface of the base layer, the inner adhesive layer is filled in the matching circular grooves and the matching circular grooves, the matching degree between the inner adhesive layer and the base layer is improved, and the anti-counterfeiting layer and the base layer are firmer and more stable, the service life of the anti-counterfeiting layer is prolonged.

CLAIM 1. Radium-shine anti-fake printing paper of multiple location, including basic unit (11), its characterized in that: the lower surface embedding of basic unit (11) is provided with outer adhesive linkage (8), and the upper surface of basic unit (11) sets up interior adhesive linkage (12), the upper surface central point of basic unit (11) puts and has seted up agreeing with circular slot (10), and the upper surface of basic unit (11) is provided with two agreeing with annular (9) in the outside of agreeing with circular slot (10), interior adhesive linkage (12) are filled in the inside of agreeing with annular (9) and agreeing with circular slot (10), the upper surface laminating of interior adhesive linkage (12) has anti-fake layer (5), the upper surface of anti-fake layer (5) is provided with sealing layer (4), the upper surface of sealing layer (4) is provided with reflector layer (3), the upper surface of reflector layer (3) is provided with dull polish layer (2).



P34603

PRINTING

CN215705404U

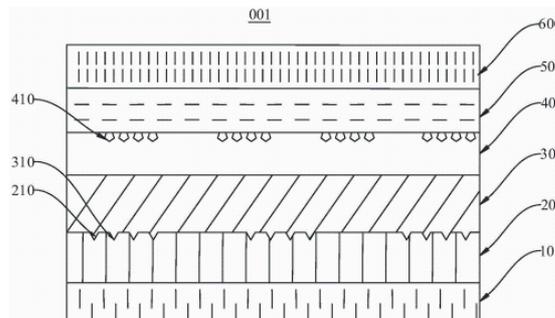
Priority Date: 16/08/2021

WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT

ANTI-COUNTERFEITING HOT STAMPING FILM AND ANTI-COUNTERFEITING PRODUCT

The embodiment of the application provides an anti-fake thermoprinting film and an anti-fake product, and relates to the field of anti-fake printing. The anti-counterfeiting hot stamping film comprises a base film layer, a structural layer, a first imaging layer, a second imaging layer and an adhesive layer which are sequentially stacked, wherein a groove structure is arranged on the surface of the structural layer close to the first imaging layer, the surface of the first imaging layer close to the structural layer is copied to form a first micro image-text array, a second micro image-text array is arranged on the surface of the second imaging layer far away from the first imaging layer, and the peeling strength between the structural layer and the first imaging layer is smaller than that between other layers. The anti-fake thermoprint membrane in this application embodiment is difficult to be imitated, has good anti-fake effect, pastes the anti-fake product that is equipped with the functional layer in the anti-fake thermoprint membrane and also has good anti-fake effect.

CLAIM 1. The utility model provides an anti-fake thermoprint membrane, its characterized in that, is including base film layer, structural layer, first formation of image layer, second formation of image layer and the glue film that superposes in proper order and set up, the structural layer is close to the surface on first formation of image layer is provided with groove structure, first formation of image layer is close to the surface replication of structural layer groove structure forms first little picture and text array, second formation of image layer is kept away from the surface on first formation of image layer is equipped with the little picture and text array of second, the structural layer with peel strength between the first formation of image layer is less than the peel strength between other layers.



P34620

PRINTING – LABEL – LUMINESCENCE

CN114023181

Priority Date: 19/11/2021

SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP

FLUORESCENT LIGHT ANGLE COLOR-CHANGING ANTI-COUNTERFEITING LABEL AND PREPARATION METHOD THEREOF

The invention belongs to the technical field of anti-counterfeiting labels, and particularly relates to a fluorescent angular color-changing anti-counterfeiting label and a preparation method thereof. The fluorescent angular color-changing anti-counterfeiting label comprises a base material layer, a separation layer, a printing layer, a fluorescent angular color-changing material layer, a color glue layer and a release paper layer which are sequentially arranged from top to bottom; the printing layer comprises variable information, and the variable information and the images of the fluorescent angular color-changing anti-counterfeiting label under a normal light source and a fluorescent light source have a corresponding relation. The fluorescent light angle color-changing anti-counterfeiting label is high in anti-counterfeiting strength, difficult to counterfeit and obvious in touch sense of anti-counterfeiting particles; the preparation method has the advantages of simple process, high production efficiency, environment-friendly process and no anti-counterfeiting particle anti-sticking problem in the production process.



CLAIM 1. A fluorescent angular color-changing anti-counterfeiting label is characterized in that: the color-changing paper comprises a base material layer (1), a separation layer (2), a printing layer (3), a fluorescent light angle color-changing material layer (4), a color glue layer (5) and a release paper layer (6) which are arranged from top to bottom in sequence; the printing layer (3) comprises variable information, and the variable information and the images of the fluorescent angular color-changing anti-counterfeiting label under a normal light source and a fluorescent light source have a corresponding relationship.

P34632

CN113954563

Priority Date: 26/11/2021

SHANGHAI MAY MAY NOBLE PRINTING

NANOMETER MICRO-CARVING ANTI-COUNTERFEITING GOLD STAMPING PROCESS

The invention relates to the technical field of gold stamping processes, and particularly discloses a nano micro-engraving anti-counterfeiting gold stamping process which comprises the following steps: designing a pattern according to a drawing, and engraving the pattern of a copper plate gold stamping plate by using a laser nanometer micro engraving machine; and secondly, sequentially plating a zinc oxide layer, a titanium oxide layer and a protective layer on the surface of the copper plate bronzing plate with the micro-engraved patterns, and thirdly, performing flat-ironing treatment on the copper plate bronzing plate and finally performing pressure-ironing treatment on the copper plate gold stamping plate. Through the process treatment, the reflected light color on the surface of the copper plate gold stamping plate presents corresponding specific color at different incident angles, a special colorful effect is formed, and the stereoscopic impression of micro-engraved patterns can be effectively improved.

CLAIM 1. A nanometer micro-carving anti-counterfeiting gold stamping process is characterized by comprising the following steps: the method comprises the following steps: firstly, carving patterns on a copper plate gold stamping plate by using a laser nanometer micro-carving machine according to patterns designed by a drawing; secondly, sequentially plating a zinc oxide layer, a titanium oxide layer and a protective layer on the surface of the copper plate bronzing plate with the micro-carving patterns, and step three, performing flat ironing treatment on the copper plate gold stamping plate, and finally performing pressing treatment on the copper plate gold stamping plate.

Click on the title to return to table of contents

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

N8413

HOLOGRAPHY PROCESS

WO202228838

Priority Date: 06/08/2020

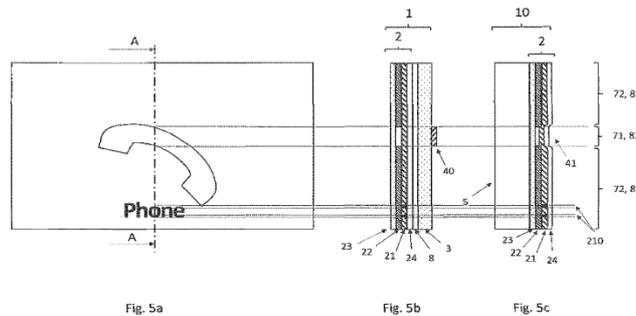
LEONHARD KURZ STIFTUNG

TRANSFER FILM, PLASTICS INJECTION-MOULDED PART AND METHOD FOR THE PRODUCTION THEREOF

The invention relates to methods for the production of a transfer film (1), in particular an IMD transfer film (1), wherein the following steps are carried out, in particular in the indicated sequence: a) provision of a carrier layer (3), b) provision of a transfer layer (2) comprising a decorative layer (21), wherein the transfer layer (2) is arranged on the carrier layer (3), c) application of one or more shape elements (40) to the carrier layer (3), wherein the one or more shape elements (40) have a three-dimensional shape and are applied in-register to the decorative layer (21). Furthermore, the invention relates to a method for coating a plastics injection-moulded part with the transfer film, and to the transfer film and to the plastics injection-moulded part.

FEUILLE DE TRANSFERT, PIÈCE EN PLASTIQUE MOULÉE PAR INJECTION ET PROCÉDÉ POUR LEUR FABRICATION

L'invention concerne un procédé de fabrication d'une feuille de transfert (1), notamment d'une feuille de transfert IMD (1), consistant à réaliser les étapes suivantes, en particulier dans l'ordre indiqué : a) préparation d'une couche de support (3), b) préparation d'une couche de transfert (2) comprenant une couche décorative (21), la couche de transfert (2) étant disposée ou appelée à être disposée sur la couche de support (3), c) application d'un ou de plusieurs éléments de moulage (40) sur la couche de support (3), ledit ou lesdits éléments de moulage (40) présentant une forme tridimensionnelle et étant appliqués avec ajustement précis sur la couche décorative (21). L'invention concerne également un procédé de revêtement d'une pièce en plastique moulée par injection avec la feuille de transfert, ainsi que la feuille de transfert et la pièce en plastique moulée par injection.



CLAIM 1. Method for producing a transfer film (1), in particular an IMD transfer film (1), wherein the following steps are carried out, in particular in the stated sequence: a) providing a carrier layer (3), b) providing a transfer layer (2) comprising a decorative layer (21), wherein the transfer layer (2) is or will be arranged on the carrier layer (3), c) applying one or more mould elements (40) to the carrier layer (3), wherein the one or more mould elements (40) have a three-dimensional shape and are applied in register with the decorative layer (21).

N8437

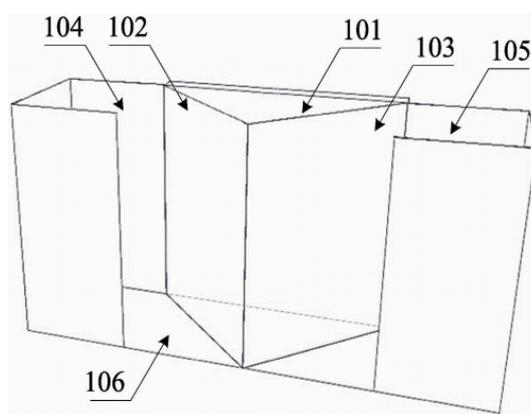
CN215813741U

Priority Date: 01/07/2021

BEIJING DITING HORIZON CULTURE TECHNOLOGY

HOLOGRAPHIC IMAGING STRUCTURE AND STAGE EQUIPMENT

The application relates to the field of holographic imaging, in particular to a holographic imaging structure and stage equipment. The holographic imaging structure comprises a display screen, a first holographic medium, a first image source, a second holographic medium and a second image source; the display screen displays a foreground picture; a first holographic medium and a second holographic medium which are connected with each other and are consistent with the height direction of the display screen are arranged in front of the display screen, the first holographic medium and the second holographic medium form a first preset included angle, and the first holographic medium and the second holographic medium respectively form a second preset included angle and a third preset included angle with the display screen; the first image source is positioned on one side of the first holographic medium far away from the display screen; the second image source is positioned on one side of the second holographic medium far away from the display screen; the virtual image formed by the first holographic medium and the second holographic medium is positioned behind the display screen to display a background picture. The holographic imaging structure does not need to sink the ground, can be applied to various fields, and is higher in safety.



CLAIM 1. A holographic imaging structure comprising a display screen (101), a first holographic medium (102), a first image source, a second holographic medium (103) and a second image source; the display screen (101) is used for displaying a foreground picture; the first holographic medium (102) and the second holographic medium (103) which are connected are arranged in the direction, close to a viewer, of the display screen (101), the height direction of the first holographic medium (102) and the height direction of the second holographic medium (103) are consistent with the height direction of the display screen (101), the first holographic medium (102) and the second holographic medium (103) form a first preset included angle, the first holographic medium (102) and the display screen (101) form a second preset included angle, and the second holographic medium (103) and the display screen (101) form a third preset included angle; the first image source is positioned on one side of the first holographic medium (102) far away from the display screen (101) so that light rays are incident on the first holographic medium (102); the second image source is positioned on one side of the second holographic medium (103) far away from the display screen (101) so that light rays are incident on the second holographic medium (103); the virtual image formed by the first holographic medium (102) and the second holographic medium (103) is positioned on the side, away from the viewer, of the display screen (101) to display a background picture.

Click on the title to return to table of contents

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

N8409

WO202235068

Priority Date: 11/08/2020

INDUSTRY ACADEMIA COOPERATION OF SEJONG UNIVERSITY

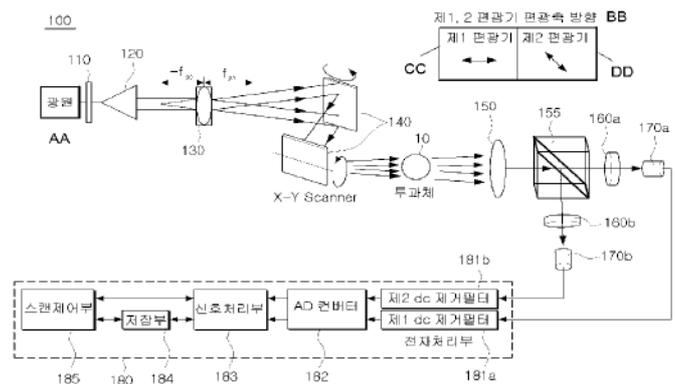
GEOMETRIC PHASE IN-LINE SCANNING HOLOGRAPHY SYSTEM FOR TRANSMISSIVE OBJECT

The present invention relates to a geometric phase in-line scanning holography system for a transmissive object. According to the present invention, is provided a geometric phase in-line scanning holography system for a transmissive object, comprising: a polarization sensitive lens, which receives a linear polarization beam to generate a first spherical wave of right-sided circularly polarized light having a negative focal distance and a second spherical wave of left-sided circularly polarized light having a positive focal distance; a scan means for scanning the transmissive object by using an interference beam generated between the generated first and second spherical waves; a first beam splitter, which receives a beam having been transmitted through the transmissive object, so as to split the received beam into first and second output beams; first and second polarizers for polarizing the first and second output beams, respectively; and first and second photodetectors for detecting output beams having passed through the first and second polarizers.

SYSTÈME D'HOLOGRAPHIE À PHASE GÉOMÉTRIQUE À BALAYAGE EN LIGNE POUR OBJET TRANSMISSIF

La présente invention concerne un système d'holographie à phase géométrique à balayage en ligne pour un objet transmissif. Selon la présente invention, un système d'holographie à phase géométrique à balayage en ligne pour un objet transmissif comprend : une lentille sensible à la polarisation qui reçoit un faisceau de polarisation linéaire pour générer une première onde sphérique de lumière à polarisation circulaire droite ayant une distance focale négative et une seconde onde sphérique de lumière à polarisation circulaire gauche ayant une distance focale positive ; un moyen de balayage servant à balayer l'objet transmissif à l'aide d'un faisceau d'interférence généré entre les première et seconde ondes sphériques générées ; un premier diviseur de faisceau qui reçoit un faisceau ayant été transmis à travers l'objet transmissif de façon à diviser le faisceau reçu en premier et en second faisceaux de sortie ; des premier et second polariseurs servant respectivement à polariser les premier et second faisceaux de sortie ; et des premier et second photodétecteurs servant à détecter les faisceaux de sortie ayant traversé les premier et second polariseurs.

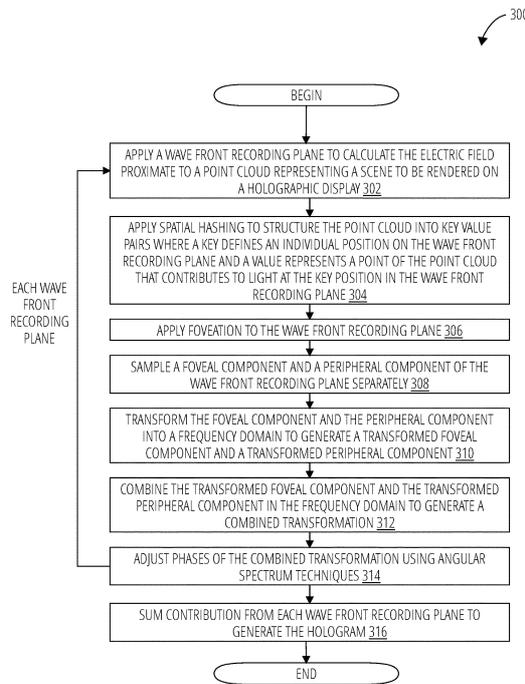
CLAIM 1. A polarization-sensitive lens receiving the linearly polarized beam and generating a first spherical wave of right-handed circularly polarized light having a negative focal length and a second spherical wave of left-handed circularly polarized light having a positive focal length; Scanning means for scanning a transmission body which is a transmission object using an interference beam generated between the generated first and second spherical waves; A first beam splitter configured to receive a beam transmitted through the transmitter and split the received beam into first and second output beams; First and second polarizers polarizing the first and second output beams, respectively; and First and second photodetectors detecting respective output beams passing through the first and second polarizers.



- 100... Transmissive object
- 140... X-Y Scanner
- 180... Electronic processing unit
- 181a... First dc cancellation filter
- 181b... Second dc cancellation filter
- 182... AD converter
- 183... Signal processing unit
- 184... Storage unit
- 185... Scan control unit
- AA... Light source
- BB... Polarizing axis directions of first and second polarizers
- CC... First polarizer
- DD... Second polarizer

FOVEATION AND SPATIAL HASHING IN LAYER-BASED COMPUTER-GENERATED HOLOGRAMS

The computational scaling challenges of holographic displays are mitigated by techniques for generating holograms that introduce foveation into a wave front recording planes approach to hologram generation. Spatial hashing is applied to organize the points or polygons of a display object into keys and values.



CLAIM 1. A non-transitory computer-readable storage medium, the computer-readable storage medium including instructions that when executed by a computer, cause the computer to: generate a plurality of wave front recording planes; apply spatial hashing to a summation of at least one field contribution propagated from points of a display object to each of the wave front recording planes; and separately propagate a foveal component and a peripheral component of the wave front recording planes to a foveated hologram.

N8456

CN114037627

Priority Date: 29/10/2021

WUYI UNIVERSITY

METHOD AND DEVICE FOR SUPPRESSING ZERO-ORDER IMAGE OF HOLOGRAM, ELECTRONIC EQUIPMENT AND STORAGE MEDIUM

The invention discloses a method for inhibiting a zero-order image of a hologram, and relates to the field of holographic images. The method is realized based on Hilbert-Huang transform, and comprises the following steps: acquiring a first holographic image; performing two-dimensional empirical mode decomposition on the first holographic image to obtain at least one eigenmode function set; filtering and screening all the eigenmode function sets obtained by decomposition to obtain a first eigenmode function set, wherein the first eigenmode function set comprises a plurality of eigenmode function components and margins, and the zero frequency corresponding to the combination of the plurality of eigenmode function components and the margins is the minimum; and carrying out data processing on the first eigenmode function set through Hilbert transform to obtain a second holographic image. The two-dimensional empirical mode decomposition can decompose different types of first holographic images into an eigenmode function set and a corresponding margin, and a single recorded first hologram is used, so that a zero-order image can be restrained, and the imaging quality is improved.

CLAIM 1. A method of suppressing a zero order image of a hologram, comprising the steps of: acquiring a first holographic image; performing two-dimensional empirical mode decomposition on the first holographic image to obtain at least one eigenmode function set, wherein the eigenmode function set comprises a plurality of eigenmode function components with different frequencies and a margin; filtering and screening all the eigenmode function sets obtained by decomposition to obtain a first eigenmode function set, wherein the first eigenmode function set comprises a plurality of eigenmode function components and the margin, and the zero frequency corresponding to the combination of the plurality of eigenmode function components and the margin is the minimum; and performing data processing on the first eigenmode function set through Hilbert transformation to obtain a second holographic image.

N8468

CN113973198

Priority Date: 22/07/2020

CHINA MOBILE COMMUNICATIONS | CHINA MOBILE SOFTWARE TECHNOLOGY

HOLOGRAPHIC IMAGE GENERATION METHOD, DEVICE AND EQUIPMENT AND COMPUTER READABLE STORAGE MEDIUM

The embodiment of the application provides a holographic image generation method, a device, equipment and a computer readable storage medium, wherein the method comprises the following steps: acquiring at least two images and a time stamp corresponding to each image; determining at least two image processing units for processing the at least two images; inputting each image into an image processing unit in sequence according to the sequence of the timestamps, and performing holographic processing on the images through the corresponding image processing units to obtain holograms of the images; and inputting the hologram of each image into a spatial light modulator in sequence to obtain the holographic image. By the method and the device, the efficiency of holographic processing can be improved, and accelerated calculation of the dynamic holographic image is effectively realized.

CLAIM 1. A method of generating a hologram, comprising: acquiring at least two images and a time stamp corresponding to each image; determining at least two image processing units for processing the at least two images; inputting each image into an image processing unit in sequence according to the sequence of the timestamps, and performing holographic processing on the images through the corresponding image processing units to obtain holograms of the images; and inputting the hologram of each image into a spatial light modulator in sequence to obtain the holographic image.

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

N8413

DECORATIVE HOLOGRAM

WO202228838

Priority Date: 06/08/2020

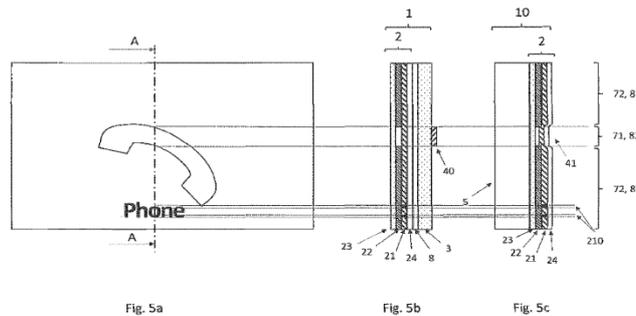
LEONHARD KURZ STIFTUNG

TRANSFER FILM, PLASTICS INJECTION-MOULDED PART AND METHOD FOR THE PRODUCTION THEREOF

The invention relates to methods for the production of a transfer film (1), in particular an IMD transfer film (1), wherein the following steps are carried out, in particular in the indicated sequence: a) provision of a carrier layer (3), b) provision of a transfer layer (2) comprising a decorative layer (21), wherein the transfer layer (2) is arranged on the carrier layer (3), c) application of one or more shape elements (40) to the carrier layer (3), wherein the one or more shape elements (40) have a three-dimensional shape and are applied in-register to the decorative layer (21). Furthermore, the invention relates to a method for coating a plastics injection-moulded part with the transfer film, and to the transfer film and to the plastics injection-moulded part.

FEUILLE DE TRANSFERT, PIÈCE EN PLASTIQUE MOULÉE PAR INJECTION ET PROCÉDÉ POUR LEUR FABRICATION

L'invention concerne un procédé de fabrication d'une feuille de transfert (1), notamment d'une feuille de transfert IMD (1), consistant à réaliser les étapes suivantes, en particulier dans l'ordre indiqué : a) préparation d'une couche de support (3), b) préparation d'une couche de transfert (2) comprenant une couche décorative (21), la couche de transfert (2) étant disposée ou appelée à être disposée sur la couche de support (3), c) application d'un ou de plusieurs éléments de moulage (40) sur la couche de support (3), ledit ou lesdits éléments de moulage (40) présentant une forme tridimensionnelle et étant appliqués avec ajustement précis sur la couche décorative (21). L'invention concerne également un procédé de revêtement d'une pièce en plastique moulée par injection avec la feuille de transfert, ainsi que la feuille de transfert et la pièce en plastique moulée par injection.



CLAIM 1. Method for producing a transfer film (1), in particular an IMD transfer film (1), wherein the following steps are carried out, in particular in the stated sequence: a) providing a carrier layer (3), b) providing a transfer layer (2) comprising a decorative layer (21), wherein the transfer layer (2) is or will be arranged on the carrier layer (3), c) applying one or more mould elements (40) to the carrier layer (3), wherein the one or more mould elements (40) have a three-dimensional shape and are applied in register with the decorative layer (21).

Click on the title to return to table of contents

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

N8411

WO202233929

Priority Date: 10/08/2020

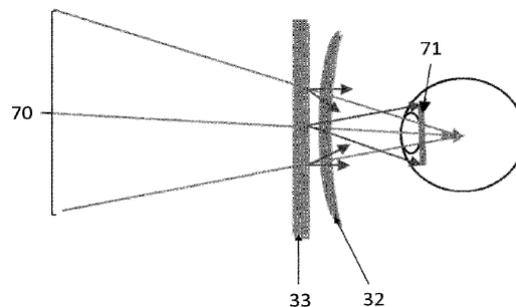
ESSILOR INTERNATIONAL

OPTICAL ELEMENT COMPRISING AT LEAST ONE HOLOGRAPHIC DIFFUSIVE ELEMENT

The disclosure relates to an optical element intended to be worn in front of an eye of a wearer. The optical element has two main surfaces and comprises at least one holographic diffusive element having diffusive properties resulting from spatial variations of refractive index of said holographic diffusive element. The spatial variation of refractive index is greater than 0.001 at at least one given wavelength, on a distance less than 30µm. The disclosure also comprises an optical equipment comprising such an optical element and methods for recording a holographic medium onto an optical lens.

ÉLÉMENT OPTIQUE COMPRENANT AU MOINS UN ÉLÉMENT DE DIFFUSION HOLOGRAPHIQUE

La divulgation se rapporte à un élément optique destiné à être porté devant un œil d'un porteur. L'élément optique a deux surfaces principales et comprend au moins un élément de diffusion holographique ayant des propriétés de diffusion résultant de variations spatiales d'indice de réfraction dudit élément de diffusion holographique. La variation spatiale d'indice de réfraction est supérieure à 0,001 à au moins une longueur d'onde donnée, sur une distance inférieure à 30 µm. L'invention concerne également un équipement optique comprenant un tel élément optique et des procédés d'enregistrement d'un support holographique sur une lentille optique.



CLAIM 1. Optical element intended to be worn in front of an eye of a wearer, the optical element having two main surfaces wherein the optical element comprises at least one holographic diffusive element having diffusive properties resulting from spatial variations of refractive index of said holographic diffusive element, said spatial variation of refractive index being greater than 0.001 at at least one given wavelength, on a distance less than 30µm.

N8423

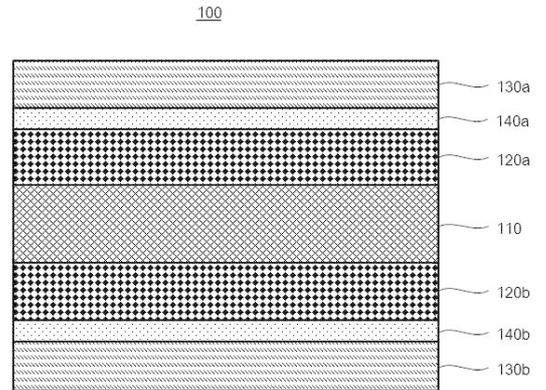
KR20220014914
Priority Date: 27/07/2020

HEESUNG ELECTRONICS

HOLOGRAPHIC OPTICAL DEVICE AND HEAD-UP DISPLAY DEVICE INCLUDING THE SAME

A holographic optical device is provided. A holographic optical device includes: a photopolymer layer including an interference pattern generated by interference between reference light and object light reflected from a target object; a first scattering coating layer formed on an upper surface of the photopolymer layer and scattering light of at least a wavelength corresponding to the interference pattern among external light; A second scattering coating layer formed on a lower surface of the photopolymer layer to scatter incident light to reduce reflection of the incident light; a first protective layer attached to an upper portion of the first scattering coating layer; and a second protective layer attached to a lower portion of the second scattering coating layer.

CLAIM 1. A photopolymer layer including an interference pattern generated by interference between reference light and object light reflected from a target object; a first scattering coating layer formed on an upper surface of the photopolymer layer and scattering light of at least a wavelength corresponding to the interference pattern in external light; A second scattering coating layer formed on a lower surface of the photopolymer layer to scatter incident light, thereby reducing reflection of the incident light; a first protective layer attached on top of the first scattering coating layer; and a second protective layer attached on bottom of the second scattering coating layer.



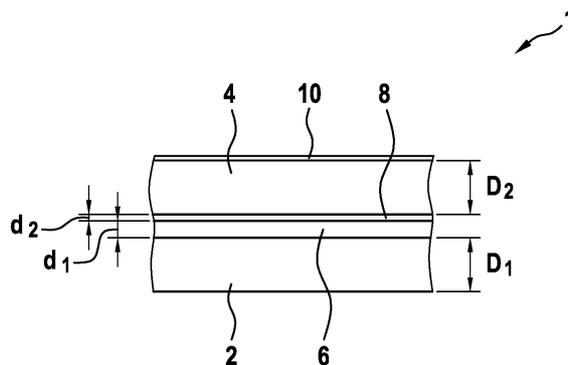
N8433

DE102020210277
Priority Date: 13/08/2020

ROBERT BOSCH

HOLOGRAPHIC OPTICAL ELEMENT AND METHOD FOR THE PRODUCTION THEREOF

The invention relates to a holographic element comprising a first carrier film having a first film thickness and a first coefficient of thermal expansion, a second carrier film having a second film thickness and a second coefficient of thermal expansion, a first photopolymer layer having a hologram fixed therein, and a second photopolymer layer bonded to the first photopolymer layer, wherein the photopolymer layers are disposed between the carrier films; wherein a ratio of the first film thickness to the second film thickness is in the range of 0.8 to 1.2 and a ratio of the first coefficient of thermal expansion to the second coefficient of thermal expansion is in the range of 0.8 to 1.2. The invention also relates to a method for producing a holographic element.



CLAIM 1. Holographic optical element (1) comprising a first carrier film (2) having a first film thickness (D);1 and a first coefficient of thermal expansion; a second carrier film (4) having a second film thickness (D.2And a second coefficient of thermal expansion; a first photopolymer layer (6) having a hologram fixed therein; and a second photopolymer layer (8) bonded to the first photopolymer layer, wherein the photopolymer layers are disposed between the carrier films; wherein a ratio of the first film thickness (d.1) to the second film thickness (D2) is in the range of 0.8 to 1.2 and a ratio of the first coefficient of thermal expansion to the second coefficient of thermal expansion is in the range of 0.8 to 1.2.

N8453

CN114044855

Priority Date: 09/11/2021

SHENYANG AEROSPACE UNIVERSITY

PHOTOPOLYMERIZATION HOLOGRAPHIC STORAGE MATERIAL BASED ON POLYURETHANE AS MATRIX AND PREPARATION METHOD THEREOF

The invention discloses a photopolymerization holographic storage material based on polyurethane as a matrix and a preparation method thereof, wherein the photopolymerization holographic storage material comprises the following steps: preparing a polyurethane solution, and sequentially adding a thickening agent, a monomer, an initiator and a photosensitizer into the polyurethane solution to obtain a mixed viscous liquid; and (3) coating the mixed viscous liquid on a carrier, drying and forming, and naturally attaching the mixed viscous liquid on the carrier to obtain the photopolymerization holographic storage material. The storage material prepared by the method has excellent optical performance and storage characteristics, and also has the advantages of light weight, corrosion resistance, high temperature resistance, difficult aging and deformation, long service life and the like.



CLAIM 1. A preparation method of a photopolymerization holographic storage material based on polyurethane as a matrix is characterized by comprising the following steps: preparing a polyurethane solution, and sequentially adding a thickening agent, a monomer, an initiator and a photosensitizer into the polyurethane solution to obtain a mixed viscous liquid; and (3) coating the mixed viscous liquid on a carrier, drying and forming, and naturally attaching the mixed viscous liquid on the carrier to obtain the photopolymerization holographic storage material.

Click on the title to return to table of contents

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

N8410

WO202233996

Priority Date: 10/08/2020

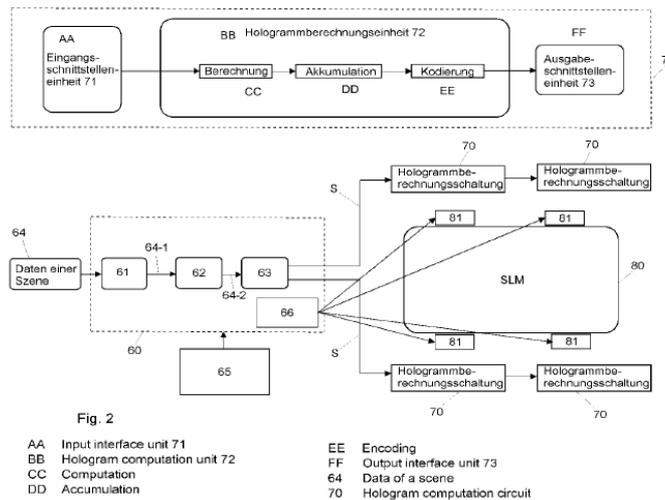
SEEREA TECHNOLOGIES

APPARATUS AND METHOD FOR COMPUTING HOLOGRAM DATA

The invention relates to a preprocessing circuit for at least one hologram computation circuit, an apparatus and a method for computing a hologram. The preprocessing circuit has an input interface unit for receiving data for a scene to be displayed, a processing unit for processing the received data in a defined manner and for converting the data into a system-independent format by including specific parameters required for displaying the scene, and an output interface unit for outputting and transmitting the converted data to at least one hologram computation circuit.

DISPOSITIF ET PROCÉDÉ POUR CALCULER DES DONNÉES D'HOLOGRAMME

L'invention concerne un circuit de prétraitement pour au moins un circuit de calcul d'hologramme, un dispositif et un procédé pour calculer un hologramme. Le circuit de prétraitement comprend un ensemble interface d'entrée pour recevoir des données d'une scène à représenter, une unité de traitement pour réaliser un traitement défini des données reçues et pour convertir ces données en un format indépendant d'un système, avec inclusion de paramètres spécifiques nécessaires à la représentation de la scène, et un ensemble interface de sortie pour sortir et transmettre les données converties à au moins un circuit de calcul d'hologramme.



CLAIM 1. A preprocessing circuit for at least one hologram calculation circuit, comprising: - an input interface unit for receiving data of a scene to be displayed, - a processing unit for the defined processing of the received data and for the conversion of the data into a system-independent format including specific parameters required for the representation of the scene, and - an output interface unit for outputting and communicating the converted data to at least one hologram calculation circuit.

N8418

WO202218064

Priority Date: 22/07/2020

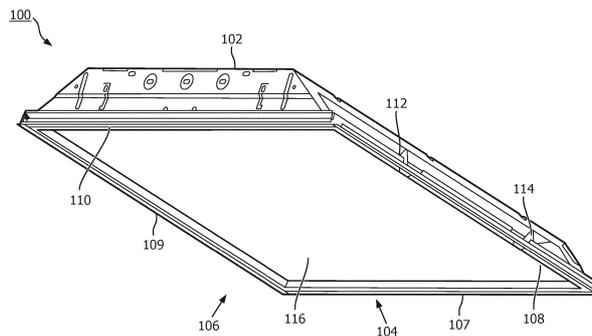
SIGNIFY HOLDING

LUMINAIRE WITH LENS HAVING A HOLOGRAPHIC THREE-DIMENSIONAL PATTERNED LAYER

A luminaire includes a housing (102) with an inner cavity a light source (122) mounted to an inner top surface of the housing. The luminaire also includes a door frame (104), wherein the door frame includes a first side rail (108), a second side rail (109), a third side rail (107), and a fourth side rail (110). The four side rails of the door frame define a light emitting opening for the luminaire. A film stack (116) is supported by the door frame and placed in the light emitting opening so that light from the light source passes through the film stack as it is emitted through the light emitting opening. The film stack (116) includes a diffuser film (129) and a photopolymer film (127). The photopolymer film (127) is embossed with optical structures that create a holographic pattern that appears to be three-dimensional.

LUMINAIRE À LENTILLE AYANT UNE COUCHE HOLOGRAPHIQUE TRIDIMENSIONNELLE À MOTIFS

Un luminaire comprend un logement (102) qui possède une cavité interne, une source de lumière (122) étant montée sur une surface supérieure interne du logement. Le luminaire comprend également un cadre de porte (104), le cadre de porte comprenant un premier rail latéral (108), un deuxième rail latéral (109), un troisième rail latéral (107) et un quatrième rail latéral (110). Les quatre rails latéraux du cadre de porte délimitent une ouverture d'émission de lumière pour le luminaire. Un empilement de films (116) est soutenu par le cadre de porte et placé dans l'ouverture d'émission de lumière de sorte que la lumière provenant de la source de lumière passe à travers l'empilement de films lorsqu'elle est émise à travers l'ouverture d'émission de lumière. L'empilement de films (116) comprend un film diffuseur (129) et un film photo-polymère (127). Le film photo-polymère (127) est estampé au moyen des structures optiques qui créent un motif holographique qui semble être tridimensionnel.



CLAIM 1. A luminaire comprising: a housing (102) configured to be installed in a recess in a ceiling, the housing (102) comprising an inner top surface to which a light source (122) is mounted; a frame (104) attached to the housing (102), the frame (104) comprising: a first side rail (108); a second side rail (109); a third side rail (107); a fourth side rail (110); and a film stack (116) comprising a plurality of films, the film stack (116) supported by the first side rail (108), the second side rail (109), the third side rail (107), and the fourth side rail (110), wherein the plurality of films comprises a photopolymer film (127) with optical structures that provide a holographic three-dimensional pattern, a diffuser film (129), and a textured acrylic film (125), wherein the diffuser film (129) is stacked on top of the photopolymer film (127), and the photopolymer film (127) is stacked on top of the textured acrylic film (125) such that the diffuser film (129) is the closest of the plurality of films to the light source (122).

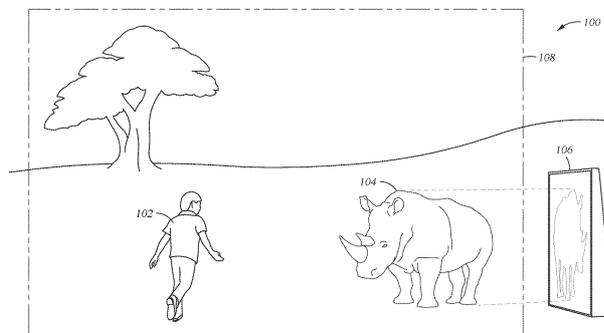
N8419

US20220026849
Priority Date: 22/07/2020

DISNEY ENTERPRISES

HOLOGRAPHIC IMAGERY FOR ON SET EYELINE REFERENCE

Techniques for using holographic imagery for eyeline reference for performers are disclosed. A first computer generated object is identified for display to a first performer at a designated physical position on a set. A first holographic projection of the first computer generated object is generated using a first holographic display. The first holographic display is configured to make the first holographic projection appear, to the first performer, to be located at the designated physical position on the set. One or more images of the performer are captured using an image capture device with a field of view that encompasses both the first performer and the designated physical position on the set. The captured one or more images depict the first performer and do not depict the first holographic projection.



The first computer generated object is added to the captured one or more images after the capturing.

CLAIM 1. A method, comprising: identifying a first computer generated object for display to a first performer at a designated physical position on a set; generating a first holographic projection of the first computer generated object using a first holographic display, wherein the first holographic display is configured to make the first holographic projection appear, to the first performer, to be located at the designated physical position on the set; and capturing one or more images of the performer using an image capture device with a field of view that encompasses both the first performer and the designated physical position on the set, wherein the captured one or more images depict the first performer and do not depict the first holographic projection, and wherein the first computer generated object is added to the captured one or more images after the capturing.

N8421

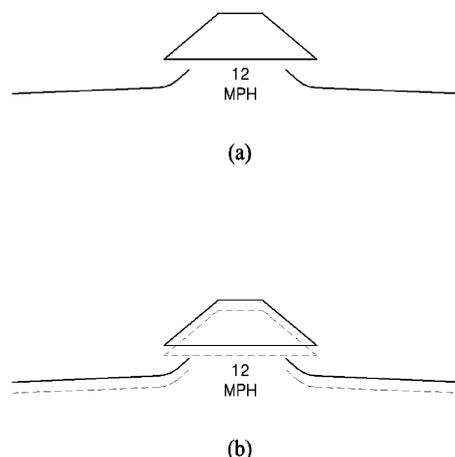
US20220026713
Priority Date: 21/10/2020

HYUNDAI MOBIS

HOLOGRAPHIC HUD

A holographic head-up display (HUD) including: a picture generation unit (PGU) including at least one laser light source to generate an optical image to be projected on a HUD; a first mirror to reflect the optical image from the PGU; a second mirror to reflect the optical image reflected by the first mirror; and a holographic optical element (HOE) to diffract the optical image reflected by the second mirror at a first diffraction angle to provide an output optical image in a target direction. The first mirror includes a reflective compensatory HOE to diffract the optical image from the PGU at a second diffraction angle, and in response to change of a wavelength of the optical image from the PGU, the reflective compensatory HOE is configured to diffract the optical image from the PGU at a third diffraction angle different from the second diffraction angle such that the HOE provides the output optical image in the target direction.

CLAIM 1. A holographic head-up display (HUD), comprising: a picture generation unit (PGU) including at least one laser light source to generate an optical image to be projected on a HUD; a first mirror to reflect the optical image from the PGU; a second mirror to reflect the optical image reflected by the first mirror; and a holographic optical element (HOE) to diffract the optical image reflected by the second mirror at a first diffraction angle to provide an output optical image in a target direction, wherein: the first mirror comprises a reflective compensatory HOE to diffract the optical image from the PGU at a second diffraction angle; and in response to change of a wavelength of the optical image from the PGU, the reflective compensatory HOE is configured to diffract the optical image from the PGU at a third diffraction angle different from the second diffraction angle such that the HOE provides the output optical image in the target direction.



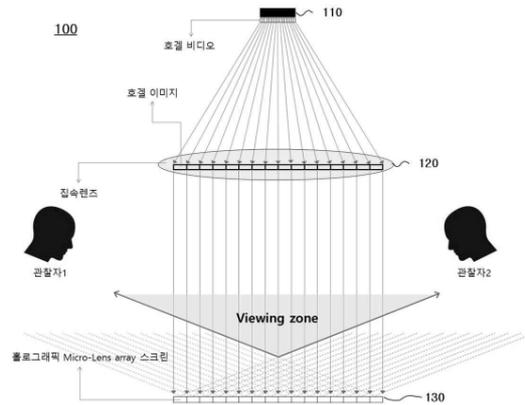
N8422

KR20220016763
Priority Date: 03/08/2020

KWANGWOON UNIVERSITY INDUSTRY ACADEMIC
COLLABORATION FOUNDATION

TABLE-TOP THREE-DIMENSIONAL DISPLAY USING HOLOGRAPHIC MICROLENS ARRAY SCREEN

A holographic video display apparatus including a hogel video projector and a holographic microlens array screen is provided. A hogel video projector projects hogel video. A holographic microlens array screen generates a multi-view hologram from the hogel video. The holographic microlens array screen includes a reflector and a plurality of microlenses. The plurality of microlenses are two-dimensionally arranged on the reflector.



CLAIM 1. A holographic video display device, comprising: a hogel video projector for projecting hogel video; and a holographic microlens array screen for generating a multi-view hologram from the hogel video, Wherein the holographic microlens array screen comprises a reflector and a plurality of microlenses, and the plurality of microlenses are two-dimensionally arranged on the reflector.

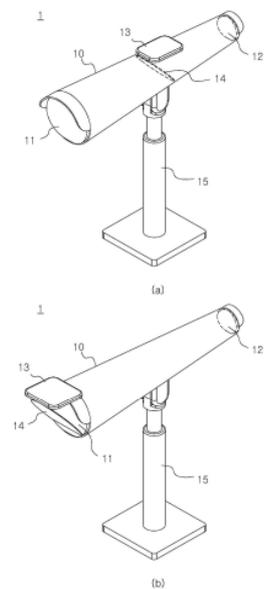
N8424

KR20220014808
Priority Date: 29/07/2020

KIM, YONG-JOO | KIM, GEUN HONG

HOLOGRAPHIC TELESCOPE AND SYSTEM THEREFOR

There are provided a hologram telescope and a system thereof. the hologram telescope includes: a main body formed in a cylindrical shape having a length; an objective lens formed at one end of the main body to make an image of an object; an eyepiece formed at the other end of the main body to make an image of the object; A display formed on the main body to output additional information, and a hologram foil formed close to the display to allow the additional information output through the display to be projected onto an object. In addition, a system for providing additional information to an object viewed through the hologram telescope includes: a hologram telescope capable of showing the object to a user and allowing the additional information to be projected onto the object to be viewed, A sensor unit configured to measure a coordinate value according to an angle of the hologram telescope, and a server configured to recognize a visual range of the hologram telescope in which an object is viewed through the coordinate value measured through the sensor unit, and generate additional information to be viewed on the hologram telescope.



CLAIM 1. An imaging device comprising: a main body portion formed in a cylindrical shape having a length; an objective lens formed at one end of the main body portion to make an image of an object; an eyepiece formed at the other end of the main body portion to make an image made through the objective lens magnified; A display formed on the main body to output additional information, and a hologram foil formed close to the display to allow the additional information output through the display to be projected onto and viewed from an object.

N8425

KR20220014515

Priority Date: 29/07/2020

HEOCHANGYUN

IMAGE DISPLAY APPARATUS AND METHOD USING HOLOGRAM ARRAY AND LIGHT MODULATOR

The present invention relates to an image display apparatus and a method thereof capable of displaying characters or variously changing images in real time by using a hologram array designed with a computer and a spatial light modulator. Input/output devices for displaying images are largely different from existing electronic display devices in that light is used and processed in parallel. Therefore, it has a fundamental and important sense of enabling reproduction of a three-dimensional stereoscopic image because it is very fast and large-capacity images are displayed in parallel at the speed of the display, and in particular, since the images are stored as holograms. Therefore, the present invention can be very useful in the field of optical information processing and optical communication, in a novel manner for displaying an image using light.

N8426

KR20220014510

Priority Date: 29/07/2020

HEOCHANGYUN

THREE-DIMENSIONAL DISPLAY IMPLEMENTATION USING HOLOGRAM AND SYSTEM THEREOF

The present invention relates to a three-dimensional display system using a hologram. According to the present invention, there is provided a linear light source generating unit generating a linear light source from an incident plane wave and emitting a cylindrical wave; and a planar light modulator disposed behind the linear light source generating unit and including a cylindrical concave lens coupled to a rear surface of the planar light modulator, And a composite optical modulator configured to modulate the incident cylindrical wave with a predetermined diffraction pattern to generate a hologram in front of the composite optical modulator. According to the three-dimensional display system using the hologram, a compound light modulator in which a flat plate light modulator and a cylindrical concave lens are combined is used, thereby ensuring a wide viewing angle without using a high resolution light modulator.

N8429

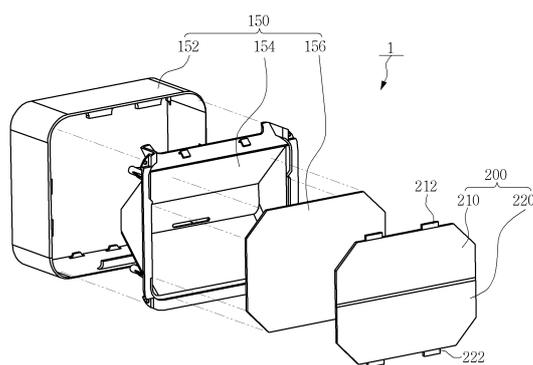
KR102359889

Priority Date: 25/11/2021

JUNG, SEON TAE

HOLOGRAM ELEVATOR INTERLOCKING REAL TOUCH KEYPAD

The present invention relates to a hologram elevator for interlocking a real touch keypad comprising a real touch display unit that is preliminarily interlocking with the hologram touch display unit by providing a hologram touch key button to the air to enable a non-contact element operation, A hologram elevator for interlocking a real touch keypad according to the present invention projects a keypad hologram having a plurality of keybuttons on the air, A hologram touch display unit configured to detect a touch position of a user with respect to the keypad hologram; a real touch display unit configured to be openable and closable on a front surface of the hologram touch display unit and configured to display a real touch key button; and an opening/closing controller configured to be installed on a front surface of the hologram touch display unit and configured to detect an approach of a user to open and close the real touch display unit.



CLAIM 1. A portable electronic device, comprising: a hologram touch display unit configured to project a keypad hologram having a plurality of key buttons onto an air and sense a touch position of a user with respect to the keypad hologram; a display unit configured to be openable and closable on a front surface of the hologram touch display unit, A hologram elevator that interlocks with a real touch keypad, the hologram elevator comprising: a real touch display unit that displays a real touch keybutton; and an opening/closing controller that is installed on a front surface of the hologram touch display unit and detects an approach of a user to open/close the real touch display unit.

N8430

EP3955050

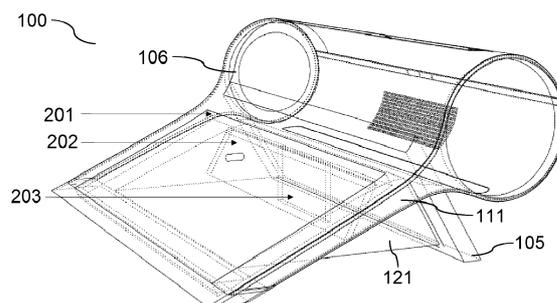
Priority Date: 10/08/2020

BSH HAUSGERAETE

SMART SPEAKER WITH A HOLOGRAM PROJECTOR

A smart speaker (100) comprising a main body (106) with at least one loudspeaker (108), wherein the main body (106) extends along a longitudinal axis which is parallel to a ground that the smart speaker (100) stands on when the smart speaker is deployed. Furthermore, the smart speaker (100) comprises a rear foot plate (111) extending downwards along a rear foot axis from the main body (106) towards the ground that the smart speaker (100) stands on when the smart speaker is deployed; wherein the rear foot plate (111) lies within a plane defined by the longitudinal axis and the rear foot axis. In addition, the smart speaker (100) comprises a hologram projector (210) comprising a display (203) and a holographic plate (201), wherein the holographic plate (201) is configured to generate a hologram (200) based on an image (205) that is output on the display (203), and wherein the holographic plate (201) is aligned with the rear foot plate (111).

CLAIM 1. A smart speaker (100) comprising - a main body (106) with at least one loudspeaker (108); wherein the main body (106) extends along a longitudinal axis which is parallel to a ground that the smart speaker (100) stands on when the smart speaker is deployed; - a rear foot plate (111) extending downwards along a rear foot axis from the main body (106) towards the ground that the smart speaker (100) stands on when the smart speaker is deployed; wherein the rear foot plate (111) lies within a plane defined by the longitudinal axis and the rear foot axis; and - a hologram projector (210) comprising a display (203) and a holographic plate (201); wherein the holographic plate (201) is configured to generate a hologram (200) based on an image (205) that is output on the display (203); wherein the holographic plate (201) is aligned with the rear foot plate (111).



N8431

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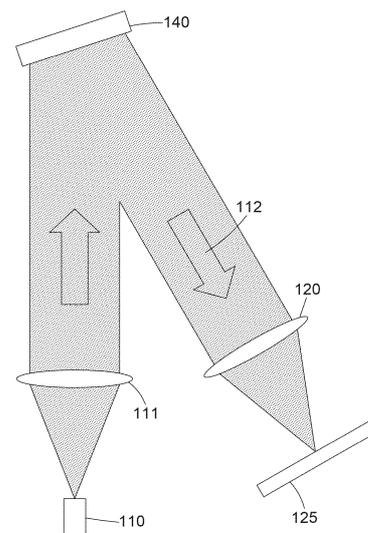
Priority Date: 05/08/2020

ENVISICS

HOLOGRAPHIC FINGERPRINT

A holographic projector comprising a spatial light modulator arranged to display a hologram of a light pattern for projection and to spatially-modulate light, in accordance with display, to form a holographic reconstruction, wherein the holographic reconstruction is spatially-separated from the spatial light modulator. If the holographic projection is operating properly, the formed holographic reconstruction should correspond to the light pattern. The holographic projector also comprises a detector array comprising a plurality of light detection elements arranged to detect light corresponding to a respective plurality of positions of the holographic reconstruction and to provide a respective plurality of output signals related to light detection, and a fault detection circuit arranged to compare one or more of the plurality of output signals from the respective plurality of light detection elements with one or more of a plurality of expected signals based on the light distribution of the light pattern.

CLAIM 1. A holographic projector comprising: a spatial light modulator arranged to display a hologram of a light pattern for projection and to spatially-modulate light to form a holographic reconstruction, wherein the holographic reconstruction is spatially-separated from the spatial light modulator; a detector array comprising a plurality of light detection elements arranged to detect light corresponding to a respective plurality of positions of the holographic reconstruction and to provide a respective plurality of output signals related to light detection; and a fault detection circuit arranged to compare one or more of the plurality of output signals from the respective plurality of light detection elements with one or more of a plurality of expected signals based on the light distribution of the light pattern.



N8432

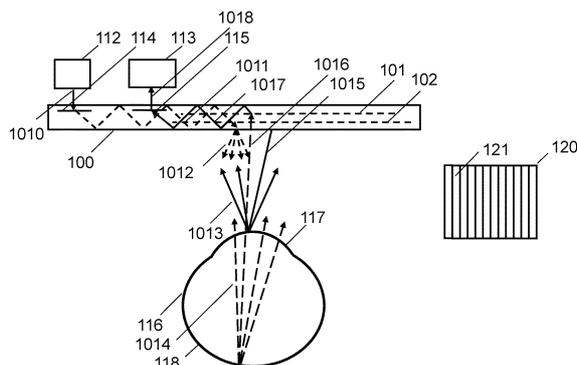
EP3198192

Priority Date: 26/09/2014

DIGILENS

HOLOGRAPHIC WAVEGUIDE OPTICAL TRACKER

There is provided an object tracker comprising: a first waveguide; a source of illumination light; a detector optically coupled to said waveguide; and at least one grating lamina formed within said waveguide. Illumination light propagating along a first optical path from said source to an object in relative motion to the object tracker. Image light reflected from at least one surface of an object is deflected by said grating lamina into a second optical path towards said detector.



CLAIM 1. An object tracker for tracking an object comprising: a first waveguide; a source of light for illuminating said object having at least one surface; a detector optically coupled to said first waveguide; and a first grating formed within said first waveguide, wherein image light reflected from said at least one surface of said object is deflected by said first grating into a total internal reflection (TIR) path towards said detector, wherein said first grating comprises a plurality of grating elements, each having a grating vector configured to provide a unique perspective view of said object.

N8434

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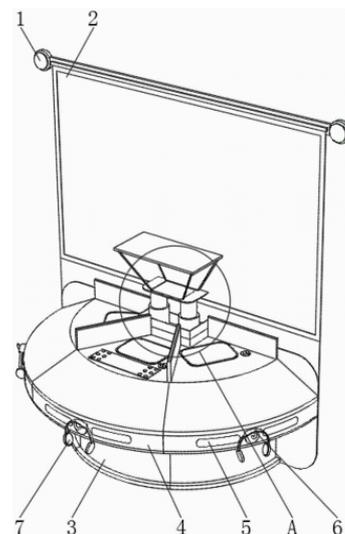
Priority Date: 01/09/2021

SUZHOU POWER SUPPLY BRANCH STATE GRID ANHUI ELECTRIC POWER

HOLOGRAPHIC 3D DISPLAY DEVICE FOR ELECTRIC POWER BUSINESS HALL

The utility model provides a holographic 3D display device for an electric power business hall, and relates to the technical field of information display devices. According to the utility model, through arranging the display board and the display frame, the lifting rod drives the display frame to move upwards, and a three-dimensional image can be projected in the three-dimensional space of the display frame, so that a client can more intuitively know objective information of an object, and through combining the 3D display of the display board and the 3D display of the display frame, a learning and displaying device can be provided for the client in an all-around manner, the dynamic display board and the holographic 3D display frame are taken as the main parts, the display policy information and the propaganda notice of the client are comprehensively displayed, the display information can be updated in time, the novelty and the attraction of the display device are improved, the propaganda and displaying effect is good, and the information can be quickly transmitted to the client.

CLAIM 1. The utility model provides a holographic 3D display device for electric power business office, includes show board (2), base (3), operation panel (4), show frame (13), earphone (7) and installation pole (1), its characterized in that: the bottom of show board (2) and the rear side fixed connection of operation panel (4), the bottom of operation panel (4) and the top fixed connection of base (3), the top rear side both ends symmetry fixedly connected with baffle (10) of operation panel (4), the top both ends symmetry fixedly connected with baffle (8) of operation panel (4), the top fixedly connected with bounding wall (15) of operation panel (4), the top both ends symmetry fixedly connected with lifter (14) of bounding wall (15).



N8435

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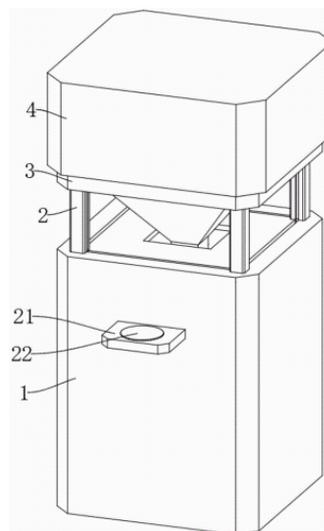
Priority Date: 18/08/2021

SHANGHAI HUANHANG INFORMATION TECHNOLOGY

HOLOGRAPHIC CABINET OF MULTIASPECT FORMATION OF IMAGE

The utility model provides a holographic cabinet with multiple imaging surfaces, which belongs to the technical field of holographic cabinets and comprises a holographic cabinet body, wherein a projector is arranged in the holographic cabinet body, a first gap for accommodating the projector is formed in the holographic cabinet body, the projector is arranged in the first gap, a plurality of spectroscopes are arranged at the top end of the holographic cabinet body, the plurality of spectroscopes are spliced into a rhombohedron, and the rhombohedron is used for diffracting light waves projected by the projector to reproduce the whole image of an original object; the side end of the rhombohedron is provided with toughened glass which is used for protecting the spectroscope and preventing the spectroscope from being damaged by mistake, and the toughened glass is controlled to be opened and closed by a lifting mechanism; the top of spectroscope is equipped with the protective housing, and the protective housing is used for preventing that holographic cabinet from accumulating too many dust and preventing that holographic cabinet from taking place to collide with and provide the protection to comparatively fragile positions such as spectroscope, and the protective housing controls through drive assembly and goes up and down.

CLAIM 1. A multi-surface imaging holographic cabinet comprises a holographic cabinet body (1), and is characterized in that a projector (20) is arranged in the holographic cabinet body (1), a first gap for accommodating the projector (20) is formed in the holographic cabinet body (1), a plurality of spectroscopes (11) are arranged at the top end of the holographic cabinet body (1), and the plurality of spectroscopes (11) are spliced into a rhombohedron; tempered glass (10) for protecting the spectroscope (11) is arranged at the side end of the rhombohedron, and the tempered glass (10) is controlled to be opened and closed through a lifting mechanism; the top of spectroscope (11) is equipped with and is used for preventing holographic cabinet accumulation dust protective housing (4), protective housing (4) are through drive assembly control lift.



N8436

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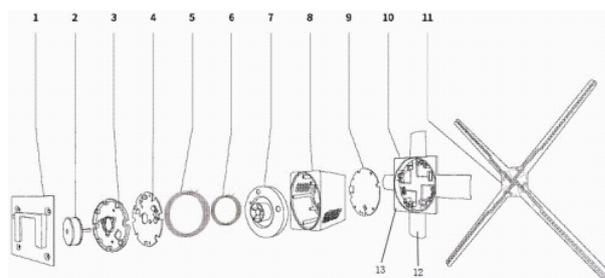
Priority Date: 16/04/2021

SHENZHEN JIWOKOS TECHNOLOGY

HOLOGRAPHIC ROTARY DISPLAY EQUIPMENT WITH FUNCTION OF ADJUSTING DISPLAY FRAME RATE

The utility model discloses holographic rotary display equipment with a function of adjusting a display frame rate, which comprises an equipment body, wherein the equipment body consists of a rotating part assembly and a fixed assembly, and the rotating part assembly comprises a wireless power supply receiving end coil, a rotating part fixing part, a main control board and an LED lamp panel; the LED lamp driving device comprises a power interface fixing base, a brushless Hall driving motor, a motor and driving plate fixing piece, a motor driving plate, a wireless power supply transmitting end coil and a fixing piece protecting shell.

CLAIM 1. A holographic rotary display device with adjustable display frame rate function comprises a device body, and is characterized in that: the device body consists of a rotating part assembly (12) and a fixing assembly (13), wherein the rotating part assembly (12) comprises a wireless power supply receiving end coil (6), a rotating part fixing piece (7), a main control board (9) and an LED lamp panel (11); the fixing assembly (13) comprises a power interface fixing base (1), a brushless Hall driving motor (2), a motor and driving plate fixing piece (3), a motor driving plate (4), a wireless power supply transmitting end coil (5) and a fixing piece protecting shell (8).



N8438

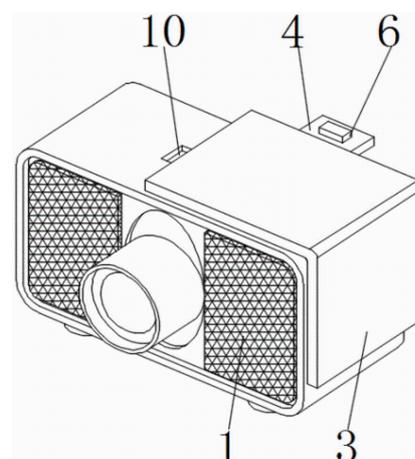
CN215813704U

Priority Date: 26/07/2021

FUJIAN GUANGNENG ENERGY TECHNOLOGY

BASED ON HOLOGRAPHIC WATER SMOKE WATERTIGHT FITTINGS FOR PROJECTING APPARATUS OF 3D FOG SCREEN

The utility model discloses a 3D fog screen based waterproof device for a holographic water mist projector, which comprises a projector body and a dustproof net arranged on the right side of the projector body, wherein the top of the projector body is connected with an L-shaped cover plate in a sliding mode, the back of the L-shaped cover plate is fixedly connected with a convex plate, the bottom of the right side of the back of the projector body is fixedly connected with a rear plate, the top of the rear plate is provided with an ejector rod in a penetrating mode, the front side of the ejector rod is fixedly connected with a sliding block, the front side of the sliding block is connected with the projector body in a sliding mode, and a fixing plate is sleeved on the surface of the ejector rod. The waterproof device for the D-fog screen-based holographic water mist projector solves the problem that the service life of the whole machine cannot be guaranteed because the existing water mist projector is likely to be polluted by water stains when in use due to the fact that the working environment is in a place with water, and the water stains enter the interior of the existing water mist projector to cause the failure of an internal circuit.



CLAIM 1. A 3D-based holographic water mist projector waterproof device with a mist screen comprises a projector body (1); a dust screen (2) arranged on the right side of the projector body (1); the method is characterized in that: the utility model discloses a projector, including projecting apparatus body (1), the top sliding connection of projecting apparatus body (1) has L type apron (3), back fixedly connected with flange (4) of L type apron (3), bottom fixedly connected with back plate (5) on projecting apparatus body (1) back right side, the top of back plate (5) is run through and is provided with ejector pin (6), the front side fixedly connected with slider (7) of ejector pin (6), the front side and projecting apparatus body (1) sliding connection of slider (7), fixed plate (8) have been cup jointed on the surface of ejector pin (6), the equal fixedly connected with spring (9) in both sides of fixed plate (8) bottom, the bottom and back plate (5) fixed connection of spring (9), the top of ejector pin (6) is run through to the top of fixed plate (8).

N8439

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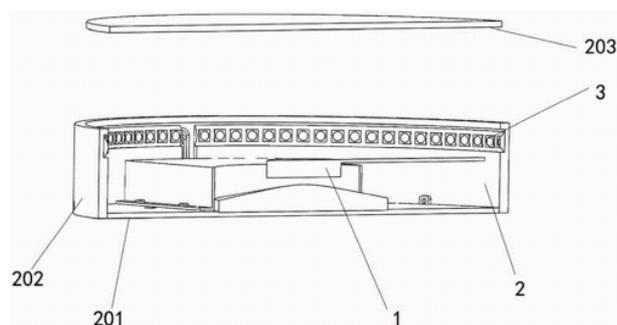
Priority Date: 25/05/2021

ZHAI JUNMING

HOLOGRAPHIC PROJECTION DEVICE CAPABLE OF BEING USED FOR ILLUMINATION

The utility model provides a holographic projection device which can be used for illumination, comprising: a 3D holographic fan body and a housing; the 3D holographic fan body is configured to implement holographic projection; the housing covers the 3D holographic fan body; the housing comprises a rear plate, side plates and a front plate; the housing is connected with the 3D holographic fan body through the rear plate; the side plate is provided with an LED lamp strip; the LED light strip is configured to enable illumination. According to the utility model, the LED lamp strip for illumination is arranged on the basis of the 3D holographic fan, when the holographic projection is not carried out but the conventional illumination is carried out, the 3D holographic fan is powered off, and the LED lamp strip for illumination is powered on, so that the holographic projection device for illumination has sufficient brightness, uniform light and resource saving when the conventional illumination is carried out.

CLAIM 1. A holographic projection device usable for illumination, comprising: a 3D holographic fan body and a housing; the 3D holographic fan body is configured to implement holographic projection; the housing covers the 3D holographic fan body; the housing comprises a rear plate, side plates and a front plate; the housing is connected with the 3D holographic fan body through the rear plate; the side plate is provided with an LED lamp strip; the LED light strip is configured to enable illumination.



N8440

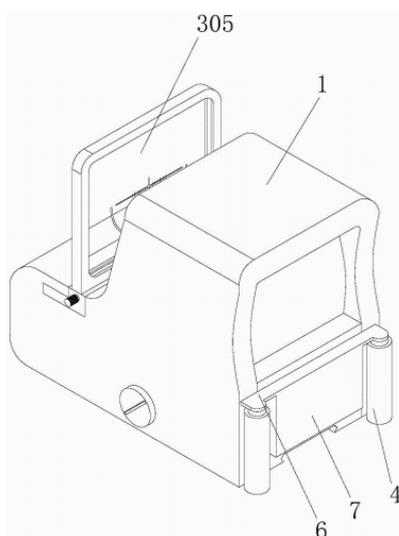
CN215766729U

Priority Date: 11/10/2021

XIAMEN HAIPAI INVESTMENT & MANAGEMENT

RANGE SCALE POSITIONING STRUCTURE OF OPTICAL AUXILIARY HOLOGRAPHIC SIGHTING DEVICE

The utility model discloses a distance scale positioning structure of an optical auxiliary holographic sight, belonging to the technical field of sight accessories, the technical scheme is characterized by comprising a holographic sight body, wherein the left side of the top of the holographic sight body is provided with an installation groove, the inner wall of the installation groove is movably connected with a scale mechanism, the right side of the holographic sight body is fixedly connected with an outer cylinder, the inner wall of the outer cylinder is movably connected with an inner cylinder, the scale mechanism is installed by arranging the installation groove, an insert block is inserted into the installation groove before the holographic sight body is used, after the holographic sight body is stably installed, a distance scale can be seen through the ocular position of the holographic sight body so as to facilitate the aiming observation of medium and long distances, when the position is deflected so as to debug a scale frame, a screw rod is rotated to enable a threaded block in threaded connection with the screw rod to move along the screw rod, and a top groove limits the moving position of the threaded block, so as to achieve the effect of adjusting the position of the scale mirror frame.



CLAIM 1. The utility model provides a distance scale location structure of supplementary holographic sight of optics, includes holographic sight body (1), its characterized in that: the holographic sighting telescope comprises a holographic sighting telescope body (1), and is characterized in that a mounting groove (2) is formed in the left side of the top of the holographic sighting telescope body (1), a scale mechanism (3) is movably connected to the inner wall of the mounting groove (2), an outer cylinder (4) is fixedly connected to the right side of the holographic sighting telescope body (1), an inner cylinder (5) is movably connected to the inner wall of the outer cylinder (4), a connecting plate (6) is fixedly connected to the top of the inner cylinder (5), and a protective shell (7) is fixedly connected to the bottom of the connecting plate (6); scale mechanism (3) are including inserted block (301), apical groove (302), screw rod (303), screw thread piece (304) and scale picture frame (305), inserted block (301) swing joint is at the inner wall of mounting groove (2), the top at inserted block (301) is seted up in apical groove (302), screw rod (303) swing joint is at the rear side of apical groove (302) inner wall, screw thread piece (304) threaded connection is in the outside of screw rod (303), scale picture frame (305) fixed connection is at the top of screw thread piece (304).

N8441

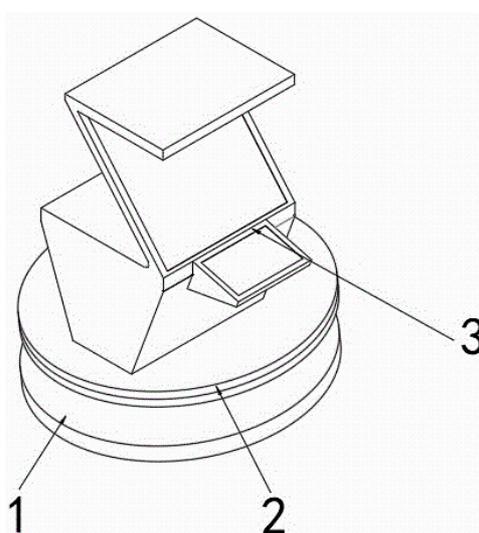
CN215764290U

Priority Date: 09/08/2021

GUANGZHOU JUHUI ELECTRONIC

ONE HUNDRED EIGHTY DEGREE HOLOGRAPHIC DISPLAY MACHINE

The utility model discloses a one-hundred-eighty degree holographic display machine, which relates to a display machine and comprises a display machine body and a connecting disc arranged at the bottom of the display machine body, wherein the connecting disc mainly comprises a fixed disc and a rotating disc, the bottom surface of the rotating disc is rotatably connected with the top surface of the fixed disc, the top surface of the rotating disc is fixedly connected with the bottom end of the display machine body, one end of the bottom surface of the fixed disc is rotatably connected with the top end of a vertically arranged supporting block, the bottom end of the supporting block is fixedly connected with one end of the top surface of a base, the other end of the bottom surface of the fixed disc is rotatably connected with the top end of an adjusting column, and the bottom end of the adjusting column is slidably connected with the top surface of the base. The utility model can adjust the levelness of the display machine, so that the display machine is kept in a horizontal state, thereby improving the display effect of the display machine.



CLAIM 1. A one hundred eighty degree holographic display machine comprises a display machine body (3) and a connecting disc (2) arranged at the bottom of the display machine body (3), and is characterized in that the connecting disc (2) mainly comprises a fixed disc (7) and a rotating disc (8), the bottom surface of the rotating disc (8) is rotatably connected with the top surface of the fixed disc (7), the top surface of the rotating disc (8) is fixedly connected with the bottom end of the display machine body (3), the bottom surface of the rotating disc (8) is fixedly welded with a vertically arranged driving shaft (4), the bottom end of the driving shaft (4) penetrates through the lower part of the fixed disc (7) and is fixedly welded with a driven helical gear, the fixed disc (7) is fixedly provided with a driving motor (5) through a bolt, an output shaft of the driving motor (5) is fixedly welded with a driving helical gear, the driving helical gear is meshed with the driven helical gear, one end of the bottom surface of the fixed disc (7) is rotatably connected with the top end of a vertically arranged supporting block, the bottom of supporting shoe and the top surface one end fixed connection of base (1), the bottom surface other end of fixed disk (7) rotates with the top of adjusting post (6) to be connected, adjusts the bottom of post (6) and the top surface sliding connection of base (1).

N8442

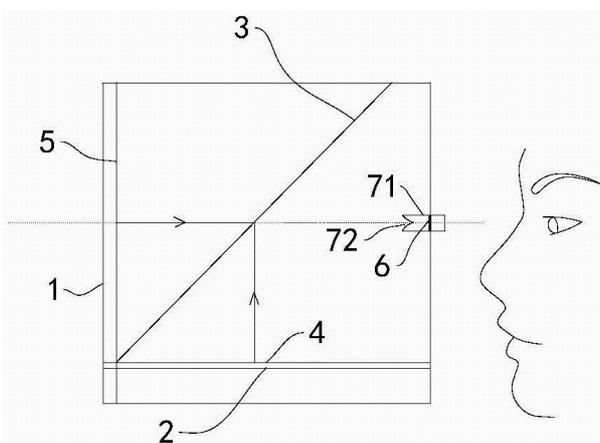
CN215729303U

Priority Date: 01/09/2021

BEIJING JINGCUN TECHNOLOGY

MULTIMEDIA HOLOGRAPHIC LIGHT AND SHADOW TRANSMISSION DISPLAY DEVICE

The utility model relates to a multimedia holographic light and shadow transmission display device, which comprises a holographic cabinet, wherein a signal source server and an observation window are arranged on the holographic cabinet; the display device also comprises a holographic screen, a foreground signal source carrier backlight screen and a background signal source carrier backlight screen; the foreground signal source carrier backlight screen and the background signal source carrier backlight screen are respectively in communication connection with the signal source server; the background signal source carrier backlight screen is positioned on one side far away from the observation window and is vertically arranged; the foreground signal source carrier backlight screen is positioned in the area below the holographic cabinet and is horizontally arranged; the foreground signal source carrier backlight screen and the background signal source carrier backlight screen are perpendicular to each other; the holographic screen is obliquely arranged and is positioned in the projection area. Through the technical scheme, vivid holographic stereoscopic images can be projected, so that a user can watch the images personally on the scene, the contents displayed in the images can be deeply experienced, the video display device can also adapt to occasions of various different types, and the video display device has good common adaptation.



CLAIM 1. A multimedia holographic light and shadow transmission display device is characterized by comprising a holographic cabinet (1), wherein a signal source server pre-storing images and an observation window used for viewing the images are arranged on the holographic cabinet (1); the display device also comprises a holographic screen (3), a foreground signal source carrier backlight screen (4) and a background signal source carrier backlight screen (5); the foreground signal source carrier backlight screen (4) and the background signal source carrier backlight screen (5) are respectively in communication connection with the signal source server so as to respectively display a foreground image and a background image according to the media signals output by the signal source server; the background signal source carrier backlight screen (5) is arranged in the holographic cabinet (1) and is positioned on one side far away from the observation window, and the background signal source carrier backlight screen (5) is vertically arranged; the foreground signal source carrier backlight screen (4) is positioned in an area below the holographic cabinet (1) and is horizontally arranged; the foreground signal source carrier backlight screen (4) and the background signal source carrier backlight screen (5) are perpendicular to each other so as to form a projection area together; the holographic screen (3) is obliquely arranged and is positioned in the projection area, so that the foreground image and the background image can form a superposed image after being projected by the holographic screen (3).

N8443

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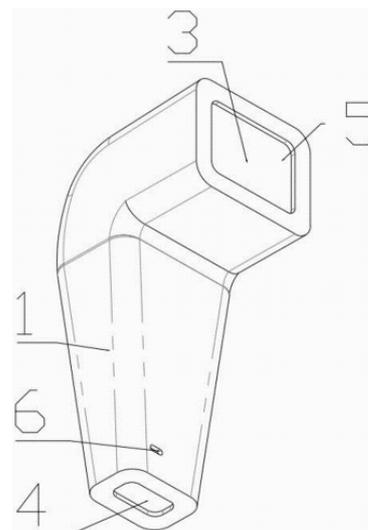
Priority Date: 12/08/2021

URUMQI VOCATIONAL UNIVERSITY

PORTABLE HOLOGRAPHIC IMAGER

The utility model discloses a portable holographic imager, which comprises a shell, wherein a cavity is arranged in the shell, a miniature holographic imager is arranged in the cavity, a shooting opening is formed in the lower end of the shell, and a projection opening is formed in the upper end of the shell; the front end of the shell is provided with a data access port, and the product is small in size, convenient to carry, capable of being carried about for use at any time and any place and convenient to use.

CLAIM 1. A portable holographic imager, comprising: the multifunctional holographic imaging device comprises a shell (1), wherein a cavity (2) is arranged in the shell (1), a miniature holographic imaging instrument (3) is arranged in the cavity (2), a shooting opening (4) is formed in the lower end of the shell (1), and a projection opening (5) is formed in the upper end of the shell (1); the front end of the shell (1) is provided with a data access port (6).



N8444

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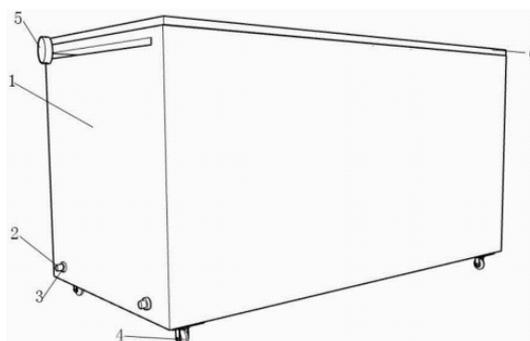
Priority Date: 09/09/2021

JINLING INSTITUTE OF TECHNOLOGY

HOLOGRAPHIC PLAYING EQUIPMENT FOR INTERACTIVE IMAGES

The utility model discloses interactive image holographic playing equipment, which comprises a machine body, the top end of the inner cavity of the body is movably connected with a rotating shaft, two ends of the rotating shaft are movably connected with a rotating shaft protection end in a penetrating way, the two ends of the rotating shaft protection end are fixedly connected with the machine body and the angle adjusting shell, the end points of the two ends of the rotating shaft are fixedly connected with gears, a support column is fixedly connected with the front end of the gear, one end of the support column is fixedly connected with a screen, the middle part of the top end of the inner cavity of the machine body is fixedly connected with a clamping groove, the inner cavity of the clamping groove is movably connected with a clamping groove block, the top end of the clamping groove block is fixedly connected with a motor box, the inner cavity of the motor box is fixedly connected with two bases, the screen angle is automatically adjusted by the gears, the rotating shaft and the supporting columns in the angle adjusting shell and the driving of the large motor, and the large gear and the gear belt are driven by the motor to do work so as to automatically adjust the distance.

CLAIM 1. A holographic playing device of interactive image comprises a machine body (1), and is characterized in that: the top end of the inner cavity of the machine body (1) is movably connected with a rotating shaft (2), two ends of the rotating shaft (2) are movably connected with a rotating shaft protection end (3) in a penetrating mode, the two ends of the rotating shaft protection end (3) are fixedly connected with the machine body (1) and an angle adjusting shell (5), end points of the two ends of the rotating shaft (2) are fixedly connected with gears (15), the front end of each gear (15) is fixedly connected with a supporting column (16), one end of each supporting column (16) is fixedly connected with a screen (6), the middle of the top end of the inner cavity of the machine body (1) is fixedly connected with a clamping groove (18), the inner cavity of each clamping groove (18) is movably connected with a clamping groove block (17), the top end of each clamping groove block (17) is fixedly connected with a motor box (19), the inner cavity of each motor box (19) is fixedly connected with two bases (21), and the top end of each base (21) is fixedly connected with a large motor (22), the top end of the other base (21) is fixedly connected with a motor (9), and the top end of the motor (9) is fixedly connected with a large gear (23).



N8445

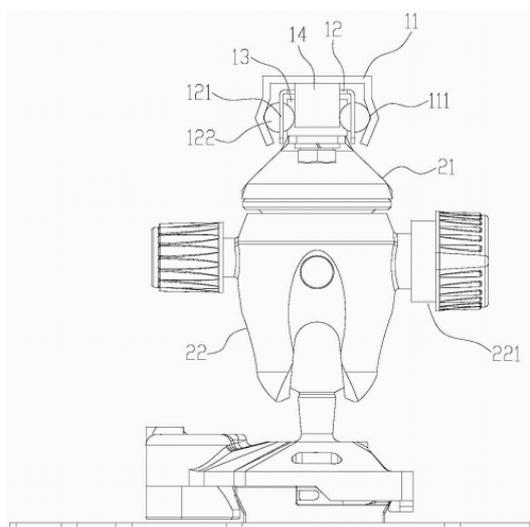
CN215721820U

Priority Date: 14/07/2021

SICHUAN JINLIXIN SMART CITY TECHNOLOGY

INTERACTIVE 3D HOLOGRAPHIC PROJECTOR CONVENIENT TO INSTALLATION

The utility model provides an interactive 3D holographic projector convenient to installation, relates to projection technical field. This projecting apparatus includes interactive 3D holographic projection appearance body, linear mount, and connect the quick-witted linkage that connects of linear mount and interactive 3D holographic projection appearance body, quick-connect linkage includes the last seat of hanging of being connected with linear mount, and with interactive 3D holographic projection appearance body through a lower quick-connect structure that articulates the bolted connection, the upper end of peg is equipped with the anticreep bolt cap, the pedestal side of going up the seat of hanging is along being equipped with the open mounting hole that is convenient for peg from the side and packs into, the top of lower quick-connect structure is equipped with and supplies to peg male spliced eye, the lateral part of lower quick-connect structure is equipped with the retaining member that is used for locking the peg. According to the utility model, through the lower quick-connection structure, the upper hanging seat and the hanging bolt, the interactive 3D holographic projector body can be quickly hung and mounted on the linear fixing frame, the dismantling and the mounting are convenient, and the flexible adjustment and the stable mounting and fixing can be realized.



CLAIM 1. The interactive 3D holographic projector convenient to install is characterized by comprising an interactive 3D holographic projector body (3), a linear fixing frame (1) and a quick-connection hanging device (2) connected with the linear fixing frame (1) and the interactive 3D holographic projector body (3), wherein the quick-connection hanging device (2) comprises an upper hanging seat (21) connected with the linear fixing frame (1) and a lower quick-connection structure (22) connected with the interactive 3D holographic projector body (3) through a hanging bolt (23), an anti-falling bolt cap is arranged at the upper end of the hanging bolt (23), an open type mounting hole (211) convenient for the hanging bolt (23) to be installed from the side face is formed in the side edge of a seat body of the upper hanging seat (21), and an inserting hole for the hanging bolt (23) to be inserted is formed in the top of the lower quick-connection structure (22), and a locking piece (221) used for locking the hanging bolt (23) is arranged on the side part of the lower quick connection structure (22).

N8446

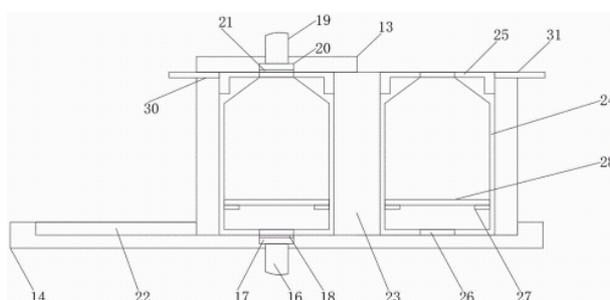
CN215696401U

Priority Date: 19/08/2021

ZHANG YANSHUN | QU JIANMEI

THREE-DIMENSIONAL HOLOGRAPHIC DISPLAY DEVICE FOR MEDICAL IMAGE DIAGNOSIS

The utility model relates to the technical field of medical equipment and discloses a three-position holographic display device for medical image diagnosis, which comprises a base, an imaging area and imaging glass, wherein an air suction cavity is formed in the base, a plurality of air suction holes are formed in the inner top wall of the air suction cavity, a support is fixed at the right end of the top of the base, a top block is fixed at the top of the support, an air blowing cavity is formed in the bottom of the top block, an imaging light source is installed on the inner top wall of the air blowing cavity, a plurality of air blowing holes are formed in the inner bottom wall of the air blowing cavity, a fan is installed on the right side of the support, and an air blowing pipe is installed at the top of the fan. This a three-dimensional holographic display device for medical image diagnosis through setting up first fixed plate, second fixed plate, sliding block, two dust collection tube, two top caps of ventilating, fender ring and filter ring, can extract the dust collection tube of treating the clearance fast, need not to squat for a long time and clear up on the ground to staff's operation.



CLAIM 1. A three-dimensional holographic display device for medical image diagnosis comprises a base (1), an imaging area (2) and imaging glass (3), and is characterized in that an air suction cavity (4) is formed in the base (1), a plurality of air suction holes (5) are formed in the inner top wall of the air suction cavity (4), a support (6) is fixed to the right end of the top of the base (1), a top block (7) is fixed to the top of the support (6), an air blowing cavity (8) is formed in the bottom of the top block (7), an imaging light source (9) is installed on the inner top wall of the air blowing cavity (8), a plurality of air blowing holes (10) are formed in the inner bottom wall of the air blowing cavity (8), a fan (11) is installed on the right side of the support (6), an air blowing pipe (12) is installed on the top of the fan (11), and one end of the air blowing pipe (12) is communicated with the air blowing cavity (8), a first fixing plate (13) is fixed at the lower end of the right side of the support (6), a second fixing plate (14) is fixed at the right side of the base (1), an air suction pipe (16) is installed at the right side of the fan (11), one end of the air suction pipe (16) penetrates through the bottom of the second fixing plate (14) and is fixed with a first connecting head (17), a connecting pipe (19) is fixed at the right side of the base (1), the left end of the connecting pipe (19) is communicated with the air suction cavity (4), the right end of the connecting pipe (19) penetrates through the first fixing plate (13) and is fixed with a second connecting head (20), a sliding groove (22) is formed in the top of the second fixing plate (14), a sliding block (23) is formed in the sliding groove (22), two dust collection cylinders (24) are inserted into the top of the sliding block (23), and a ventilation top cover (25) is connected to the top of the dust collection cylinders (24) through threads, an air inlet hole (26) is formed in the bottom of the dust collection cylinder (24), a baffle ring (27) is fixed to the lower end of the inner side of the dust collection cylinder (24), a filter ring (28) is attached to the top of the baffle ring (27), slots (30) are formed in the two sides of the sliding block (23), pull plates (31) are fixed to one sides of the two ventilation top covers (25), and the two pull plates (31) are respectively connected with the two slots (30) in an inserted mode.

N8447

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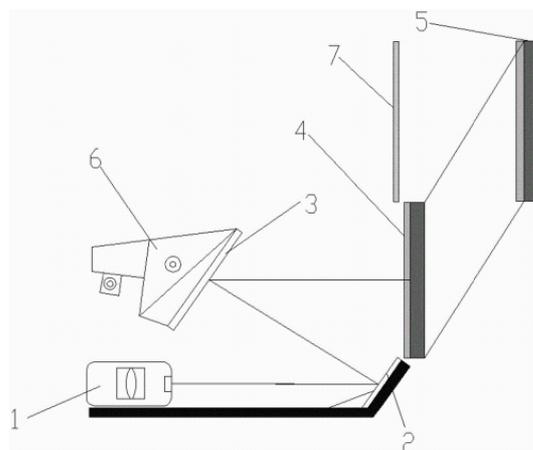
Priority Date: 30/06/2021

XIAMEN HAIPAI INVESTMENT & MANAGEMENT

HOLOGRAPHIC DIFFRACTION SIGHTING DEVICE DENSITY ADJUSTING LIGHT PATH SYSTEM

The utility model provides a holographic diffraction sighting device density position adjusting optical path system which is arranged in a shell and comprises a light source, a first reflector, a second reflector, a filter and a window piece which are sequentially arranged along an optical path. The light source is used for emitting laser beam expanding light, the first reflecting mirror is positioned right in front of the light source and used for receiving the laser beam expanding light and reflecting the laser beam expanding light to the second reflecting mirror; the second reflector is fixed on the reflecting path of the first reflector through an adjusting mechanism; the filter is positioned on the reflection path of the second reflector and used for deriving parallel light from the reflection light of the second reflector to the window piece; the window sheet is used for dividing the parallel light into a holographic surface quasi image; wherein the adjusting mechanism is used for adjusting the plane position of the second reflector.

CLAIM 1. A holographic diffraction sighting device density position adjusting optical path system is arranged in a shell and is characterized by comprising a light source, a first reflector, a second reflector, a filter and a window piece which are sequentially arranged along an optical path; the light source is used for emitting laser beam expanding light; the first reflector is positioned right in front of the light source and used for receiving the laser beam expanding light and reflecting the laser beam expanding light to the second reflector; the second reflector is fixed on the reflecting path of the first reflector through an adjusting mechanism; the filter is positioned on the reflection path of the second reflector and is used for deriving parallel light from the reflection light of the second reflector to the window piece; the window sheet is used for dividing the parallel light into a holographic surface quasi image; wherein the adjusting mechanism is used for adjusting the plane position of the second reflector.



N8448

CN215647085U

Priority Date: 02/08/2021

YUNNAN GEESE TECHNOLOGY

HOLOGRAPHIC VIDEO IMAGE SYSTEM BASED ON 5G COMMUNICATION TECHNOLOGY

The utility model discloses a holographic video image system based on a 5G communication technology, belonging to the technical field of video playing; including center, signal receiver, controlgear and video playback equipment on the line: the on-line center is responsible for storing the video image content to be played; the signal receiving device sends signals through 5G signals and simultaneously receives video image contents sent by the center on the line; the control equipment is a control center of the device, and the control center is responsible for receiving a control instruction, simultaneously carrying out playing preparation on received video image content and checking whether a received signal is correct. The utility model has the beneficial effects that: the system performs holographic playing of video images based on the 5G communication technology, performs holographic video image playing by matching the transmission speed of the 5G communication technology with the on-line storage center, saves the memory of the playing equipment, improves the video transmission efficiency, and is stable in transmission and improves the fluency of video image playing in a 5G signal coverage area.

CLAIM 1. A holographic video image system based on 5G communication technology comprises an online center, a signal receiving device, a control device and a video playing device, and is characterized in that: the online center is responsible for storing the video image content to be played; the signal receiving device sends signals through 5G signals and simultaneously receives video image contents sent by the center on the line; the control equipment is a control center of the device, and the control center is responsible for receiving a control instruction, simultaneously carrying out playing preparation on received video image content and checking whether a received signal is correct; the video playing equipment plays video image contents sent by the control center and receives an externally input control instruction at the same time.

N8449

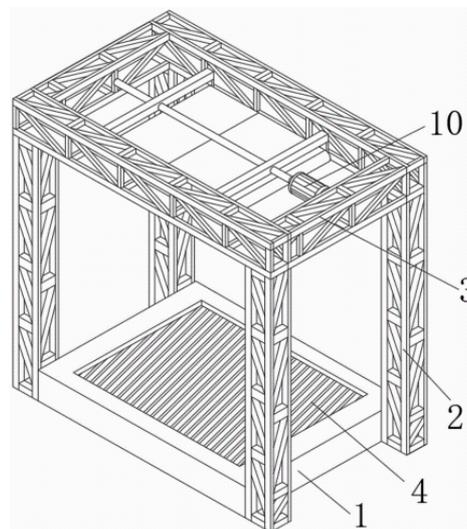
CN215643635U

Priority Date: 23/09/2021

SHANGHAI ZHIGUANG CULTURE COMMUNICATION

HOLOGRAPHIC STAGE APPLICATION DEVICE

The utility model discloses a stage holographic application device, which relates to the technical field of stage holographic technology and comprises a stage plate, wherein four groups of vertical frames are arranged on the outer side of the stage plate, a top frame is arranged at the top end of each vertical frame, an LED is embedded in the inner top wall of the stage plate, a rotating rod is arranged in the stage plate, the outer wall of the rotating rod is connected with a rotating cylinder, a transmission belt is sleeved on the outer wall of the rotating cylinder, a connecting plate is arranged on the inner side of the transmission belt, and a stepping motor is arranged on the outer side of the rotating rod. According to the stage holographic LED stage, the rotating rod is driven to rotate by the stepping motor, the rotating rod drives the rotating drum to rotate, the driving belt is sleeved on the outer wall of the rotating drum and drives the connecting plate to cover and shield the LED, so that the LED is protected when the stage is not used, the service life of the LED is prolonged, gaps with the same area as the LED are correspondingly arranged at two ends of the connecting plate, the LED can be used in stage holographic mode when the gaps rotate to the position corresponding to the LED, and the use effect of the LED is guaranteed.



N8450

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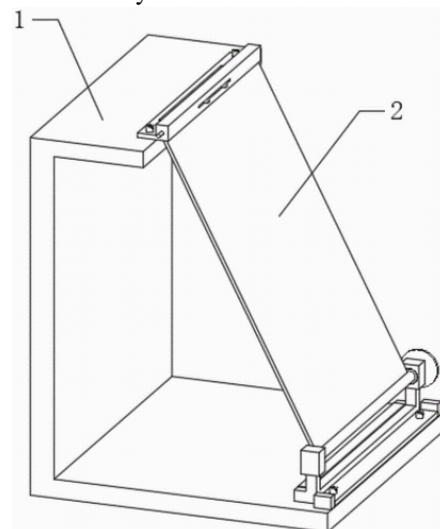
Priority Date: 19/05/2021

GUANGZHOU XINQIDIAN CULTURAL TOURISM TECHNOLOGY

TRANSPARENT HOLOGRAPHIC FILM FOR 3D HOLOGRAPHIC PROJECTION DISPLAY

The utility model discloses a transparent holographic film for 3D holographic projection display, and relates to the field of holographic projection display. This a transparent holographic membrane for 3D holographic projection show includes holographic projection show seat, holographic membrane body, top joint seat and below joint seat, the shape of holographic projection show seat is horizontal "U" shape, divide into stand board and two sets of diaphragms, and top diaphragm weak point is in the bottom diaphragm, the assembly of holographic membrane body is on holographic projection show seat. This a transparent holographic membrane for 3D holographic projection show when using, conveniently installs the location fast to holographic membrane body for holographic membrane body mounted position is accurate on holographic projection show seat, and conveniently forms best show angle after holographic projection show seat installation is accomplished, makes the projection effectual, need not use holographic membrane body in the later stage, can pull down the preservation with holographic membrane body.

CLAIM 1. A transparent holographic film for 3D holographic projection display, comprising: the holographic projection display seat (1) is in a transverse U shape and is divided into a standing plate and two groups of transverse plates, and the transverse plate at the top is shorter than the transverse plate at the bottom; the holographic film comprises a holographic film body (2), wherein the holographic film body (2) is assembled on a holographic projection display seat (1); the upper clamping seat (3) is arranged at the top of the holographic film body (2), and the upper clamping seat (3) is fixed above the holographic projection display seat (1); the holographic projection display device comprises a lower clamping seat (4), wherein the lower clamping seat (4) is arranged at the bottom of the holographic film body (2), and the lower clamping seat (4) is fixed below the holographic projection display seat (1).



N8451

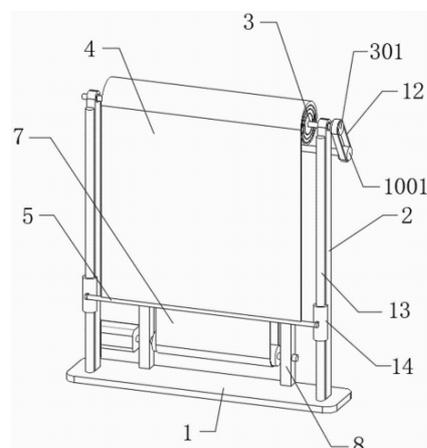
CN215642249U

Priority Date: 19/05/2021

GUANGZHOU XINQIDIAN CULTURAL TOURISM TECHNOLOGY

ELECTRIC REEL LIFTING TYPE HOLOGRAPHIC PROJECTION SCREEN

The utility model discloses an electric scroll lifting type holographic projection screen, and relates to the field of holographic projection screens. This holographic projection screen of electronic spool over-and-under type includes device bottom plate, projection screen main part and motor body, the two sets of stands of top fixedly connected with of device bottom plate, it is two sets of the lateral wall upper end of stand is rotated through the bearing and is connected with projection screen roller, the two sets of support columns of top fixedly connected with of device bottom plate, it is two sets of rotate between the support column and be connected with big drive belt. This holographic projection screen of electric reel over-and-under type conveniently drops projection screen main part when using, carries out holographic projection show, also conveniently rolls projection screen main part after the show, realizes the protection to projection screen main part and accomodates, prevents that projection screen main part is impaired, and the experience result of use of device is good, can satisfy the user demand.



N8452

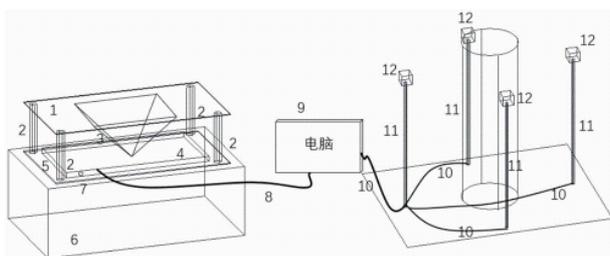
CN215600056U

Priority Date: 09/07/2021

ZHEJIANG UNIVERSITY

REAL-TIME PSEUDO-HOLOGRAPHIC PROJECTION SYSTEM

The utility model discloses a real-time pseudo-holographic projection system. A projection rack lower plate is arranged on the top surface of the projection rack placing table, the projection rack upper plate is arranged on the projection rack lower plate through projection rack supports at four corners, a pyramid projection plate is fixedly arranged on the bottom surface of the projection rack upper plate, a display screen is arranged on the projection rack lower plate, and the display screen is connected with a computer; the pyramid projection plate is arranged in an inverted pyramid shape, and the pyramid tip of the pyramid projection plate is positioned in the center of the display screen; the projection system is characterized by further comprising an area to be projected, an object to be projected is located in the area to be projected, cameras are uniformly arranged at corners of the area to be projected, and the cameras are connected with a computer. The utility model can carry out all-around and real-time projection on an object to be projected, is not influenced by the environment because the background can be subtracted, has more real effect, enhances the sense of reality and is suitable for various occasions.



CLAIM 1. A set of real-time pseudo-holographic projection system is characterized in that: comprises a projection frame upper plate (1), a pyramid projection plate (3), a display screen (4), a projection frame lower plate (5), a projection frame placing table (6) and a camera (12); a projection rack lower plate (5) is arranged on the top surface of a projection rack placing table (6), a projection rack upper plate (1) is installed on the projection rack lower plate (5) through projection rack support columns (2) at four corners, a pyramid projection plate (3) is fixedly arranged on the bottom surface of the projection rack upper plate (1), a display screen (4) is arranged on the projection rack lower plate (5), and the display screen (4) is connected with a computer (9) through an HDMI-Type-C connecting line (8); the pyramid projection plate (3) is arranged in an inverted pyramid shape; the projection system is characterized by further comprising an area to be projected, an object to be projected is located in the area to be projected, a camera (12) is uniformly arranged at the corner of the area to be projected, and the camera (12) is connected with a computer (9) through a USB connecting line (10).

N8454

CN114043939

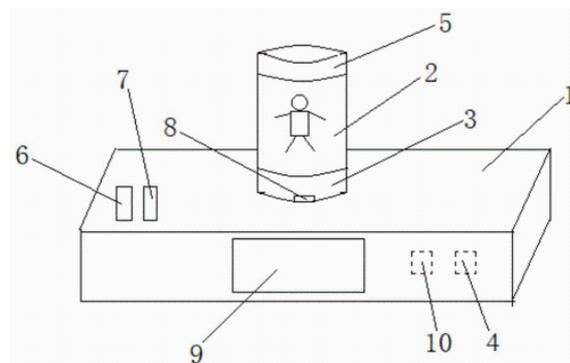
Priority Date: 09/11/2021

DONGFENG MOTOR CO

VEHICLE-MOUNTED CENTRAL CONTROL SYSTEM USING HOLOGRAPHIC PROJECTION TECHNOLOGY AND CONTROL METHOD

The invention relates to the technical field of automobile intelligent control systems, in particular to a vehicle-mounted central control system using a holographic projection technology and a control method. The operation instruction information of a user is collected through a microphone and a camera arranged on a front panel platform of an automobile and sent to a vehicle controller for processing, the vehicle controller generates corresponding feedback display information and sends the feedback display information to a control screen in the automobile for display, then the holographic projection controller judges a corresponding emotion mode to generate a corresponding lifting instruction, an image instruction and a sound instruction, and sends the lifting instruction, the image instruction and the sound instruction to a lifting mechanism, holographic projection display equipment and a sound box respectively to execute corresponding actions, more vivid operation feedback can be provided for the user through holographic projection images and sound box sounds, the scientific and technological feeling and the future feeling of operation of a vehicle-mounted central control system are improved, and the market large environment of a current main customer group with young people is met.

CLAIM 1. A vehicle-mounted central control system using holographic projection technology is arranged on a front panel platform (1) of an automobile and comprises holographic projection display equipment (2), a holographic projection controller (4), a sound (5), a microphone (6), a camera (7), a power module (8), a vehicle in-vehicle control screen (9) and a vehicle controller (10), and is characterized in that the holographic projection display equipment (2) is transparent cylindrical and is provided with a lifting mechanism (3); the microphone (6) and the camera (7) are respectively used for acquiring a gesture instruction and a voice instruction of a user and sending the gesture instruction and the voice instruction to the vehicle controller (10) for processing, and the vehicle controller (10) is used for generating corresponding feedback display information according to the gesture instruction and the voice instruction and sending the feedback display information to the vehicle central control screen (9) for displaying; the holographic projection controller (4) is used for collecting feedback display information in a control screen (9) in the car machine and judging a corresponding emotion mode, the holographic projection controller (4) generates a corresponding lifting instruction, an image instruction and a sound instruction according to different emotion modes, sends the lifting instruction to the lifting mechanism (3), sends the image instruction to the holographic projection display device (2), and sends the sound instruction to the sound box (5).



N8455

CN114040181

Priority Date: 29/10/2021

DONGGUAN RUIZHI PHOTOELECTRIC TECHNOLOGY | YANCHENG BRANCH CHINA TOWER

HOLOGRAPHIC DISPLAY SYSTEM AND HOLOGRAPHIC DISPLAY METHOD

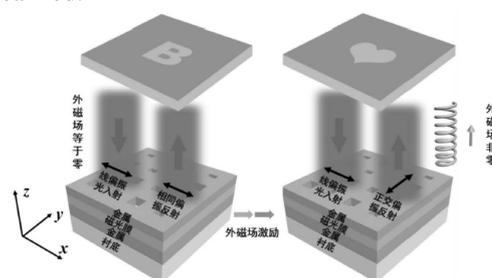
The invention provides a holographic display system and a holographic display method, wherein the system comprises a projection display device, and the projection display device comprises: the method comprises the steps of obtaining a hologram to be displayed, and generating holographic projection by the processing module according to the hologram to be displayed; the display module generates and displays a holographic image according to the holographic projection; the screen monitoring module monitors the cleanness of an external display screen in the display module when the display module displays; the waterproof module carries out infiltration protection to processing module, display module and screen monitoring module.

CLAIM 1. A holographic display system, comprising a projection display device; the projection display device includes: the processing module is used for generating holographic projection according to the hologram to be displayed; the display module is used for displaying the holographic image according to the holographic projection; the screen monitoring module is used for monitoring the cleanness degree of the external display screen in the display module; and the waterproof module is used for carrying out water seepage protection on the processing module, the screen detection module and the display module.

MAGNETO-OPTICAL SUPER-SURFACE-BASED MAGNETIC CONTROL DYNAMIC HOLOGRAPHIC DISPLAY METHOD

The invention discloses a magneto-optical super-surface-based magnetic control dynamic holographic display method, and belongs to the technical field of micro-nano optics and holographic display application. The magneto-optical super surface is composed of a metal nano array, a magneto-optical film, a metal film and a substrate. The magneto-optical super surface is not applied or is applied with external magnetic field excitation, so that the magneto-optical film is switched between non-polarization conversion and polarization conversion characteristics, the unit size and other structural parameters of the metal nano array are optimized by a full wave vector method, the structural design and complex amplitude information coding arrangement are carried out on the magneto-optical super surface by combining a computational holography method, so that the magneto-optical super surface can realize that a polarization channel which is the same as incident light when no external magnetic field acts and a polarization channel which is orthogonal to the incident light when the external magnetic field acts have different light field amplitudes and phase modulation, namely, the magneto-optical super surface can generate different holographic distributions in different polarization channels by controlling the external magnetic field excitation and optimizing the structural parameters, and the dynamically encrypted holographic display is realized.

CLAIM 1. The magneto-optical super-surface-based magnetic control dynamic holographic display method is characterized by comprising the following steps of: comprises the following steps of (a) carrying out, the method comprises the following steps: the magneto-optical super surface is composed of a metal nano array, a magneto-optical film, a metal film and a substrate, and a Fabry-Perot resonant cavity constructed between the metal nano array and the metal film can improve the reflectivity of an emergent light beam on one hand and can improve the polarization conversion efficiency of the magneto-optical film under the excitation of an external magnetic field on the other hand; the top layer of the magneto-optical super-surface is provided with a metal rectangular nano-pore structure which is periodically arranged, and active optical field regulation and dynamic holographic display of the magneto-optical super-surface are realized through the amplitude and phase change of a reflected light beam generated by the change of the geometric dimension of the metal rectangular pore and the polarization conversion characteristic of the reflected light beam caused by the change of the dielectric tensor of the magneto-optical material when an external magnetic field is excited; the geometric size parameters and the incident light wavelength of the structure are optimized by using a full-wave vector method, parameters such as the thickness of a metal rectangular hole, the thickness of a magneto-optical film, the thickness of the metal film, the unit period, the incident light wavelength and the like are determined, and the amplitude and the phase distribution of the emergent light beam of the magneto-optical super-surface corresponding to the change of the length and the width of the metal rectangular nano-hole unit under the conditions of no external magnetic field excitation and external magnetic field excitation in the orthogonal polarization channel are respectively calculated under the condition that the parameters are fixed; in order to enable the modulation effect of the emergent light beam of the magneto-optical super surface to be better, the phase modulation range of the emergent light beam of the same and orthogonal polarization channels is ensured to cover $0-2\pi$ as much as possible, and meanwhile, the reflectivity is higher; step two: in order to enable the same magneto-optical super-surface structure to display two independent holograms through the same polarization channel when the magneto-optical super-surface structure is excited without an external magnetic field and the orthogonal polarization channel when the magneto-optical super-surface structure is excited by the external magnetic field, according to the binary phase calculation holographic generation method, four groups of structural parameters corresponding to the same polarization channel without external magnetic field excitation and the orthogonal polarization channel with external magnetic field excitation, which satisfy the condition of uniform amplitude and phase difference value combination of $(0, 0)$, $(0, \pi)$, $(\pi, 0)$, (π, π) are selected from the full wave vector calculation result of the step one, because the polarization channels which are the same as and orthogonal to the incident light beam are mutually independent, the reflectivity of the emergent light beams of the selected four groups of structures only needs to be as uniform as possible in each polarization channel, in addition, the phase values of the emergent light beams of the selected four groups of structures corresponding to the two polarization channels are arbitrary, and the requirements can be met only by ensuring that the phase difference values of the two polarization channels meet the four combinations; step three: two independent holograms corresponding to two conditions of no external magnetic field excitation and external magnetic field excitation are generated based on a phase calculation holographic method, and the structural size of each unit of the magneto-optical super-surface array is replaced by four selected groups of structural parameters according to the phase calculation holographic generation method and the phase value combination form of each pixel of the generated hologram corresponding to the same and orthogonal polarization channels, namely the magneto-optical super-surface array structural design and the coding arrangement of complex amplitude information are carried out.



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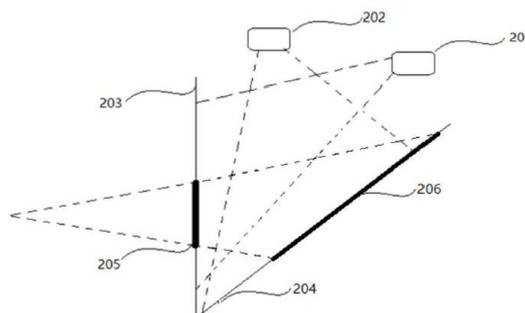
Priority Date: 15/11/2021

BEIJING MENGTEBO INTELLIGENT ROBOT TECHNOLOGY

HOLOGRAPHIC PROJECTION METHOD AND SYSTEM

Embodiments of the present disclosure provide a holographic projection method and system, the method comprising: acquiring first projection content and second projection content, wherein the second projection content is used for enhancing the stereoscopic effect of the first projection content when being projected; projecting the first projection content onto a first projection screen at a first preset angle; determining a second projection angle according to an included angle between a second projection screen and the first projection screen; and projecting the second projection content onto the second projection screen at a second projection angle, wherein holographic films are pasted on the first projection screen and the second projection screen, and the first projection screen is a transparent screen. In this way, the three-dimensional effect of the projection content can be enhanced, the user requirements are met, and the user experience is improved.

CLAIM 1. A holographic projection method, comprising: acquiring first projection content and second projection content, wherein the second projection content is used for enhancing the stereoscopic effect of the first projection content when being projected; projecting the first projection content onto a first projection screen at a first preset angle; determining a second projection angle according to an included angle between a second projection screen and the first projection screen; and projecting the second projection content onto the second projection screen at a second projection angle, wherein holographic films are pasted on the first projection screen and the second projection screen, and the first projection screen is a transparent screen.



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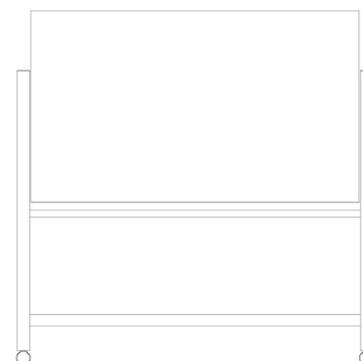
Priority Date: 04/11/2021

OOK BEIJING EDUCATION TECHNOLOGY

METHOD AND DEVICE FOR GENERATING 3D HOLOGRAPHIC VIDEO IN INTELLIGENT CLASSROOM

The disclosure provides a method and a device for generating a 3D holographic video in an intelligent classroom. The method comprises the following steps: acquiring a first 3D holographic video segment of a teaching teacher and a demonstration manuscript image for demonstrating teaching information; generating a three-dimensional display board model for demonstrating the teaching information based on the demonstration manuscript image; acquiring a holographic display board image comprising a display board image based on the three-dimensional display board model; and fusing each frame of 3D holographic video image in the first 3D holographic video segment with the holographic display board image to generate a second 3D holographic video segment interacted between the whole body image and the display board image of the teaching teacher. And a virtual scene of the teaching process of the teaching teacher is created through the second 3D holographic video segment, so that the virtual scene is closer to a real scene, the distance sense of the students to remote teaching is reduced, and the real feeling and the enthusiasm of participating in the teaching are improved.

CLAIM 1. A generation method for 3D holographic video in an intelligent classroom is characterized by comprising the following steps: acquiring a first 3D holographic video segment of a teaching teacher and a demonstration manuscript image for demonstrating teaching information, wherein the first 3D holographic video segment is a 3D holographic video segment of a whole body image of the teaching teacher synchronously photographed by the demonstration manuscript image in a demonstration time period during teaching; generating a three-dimensional display board model for demonstrating the teaching information based on the demonstration manuscript image; acquiring a holographic display board image comprising a display board image based on the three-dimensional display board model; and fusing each frame of 3D holographic video image in the first 3D holographic video segment with the holographic display board image to generate a second 3D holographic video segment interacted between the whole body image and the display board image of the teaching teacher.



N8461

CN114005309

Priority Date: 28/10/2021

BEIJING TSBINA ELECTRONICS

TEACHING METHOD FOR INTERACTIVE CLASSROOM BY UTILIZING HOLOGRAPHIC INTERACTION EQUIPMENT

The application discloses a teaching method for an interactive classroom by utilizing holographic interaction equipment, which comprises the following steps: constructing teaching contents; demonstrating teaching contents; interactive teaching; and (4) interactive information acquisition and real-time teaching evaluation. The intelligent education system can improve the intelligence education level, develop the cognitive ability, promote the thinking development, arouse innovation consciousness, highlight the status of students, pay attention to the protection of curiosity, imagination and learning desire of students, arouse learning interest and improve the learning ability; the experiment teaching device can practically enhance the interest and attraction of experiment teaching through the holographic interaction device, improve the experiment teaching quality and effect, and can present the process that objects and phenomena which cannot be observed and controlled in the real world due to space-time limitation, change too fast or too slow, and the experiment which has danger, destructiveness and harm to the environment.

CLAIM 1. A teaching method for an interactive classroom by utilizing holographic interaction equipment is characterized by comprising the following steps: the teaching method comprises the following steps: (1) building teaching contents, storing knowledge contents required to be mastered by students in holographic interaction equipment, and performing real-time interactive dynamic virtual space-time scaling and virtual process display by utilizing the holographic interaction equipment; (2) teaching content demonstration, namely displaying a holographic picture according to the content and direction to be taught, and performing omnibearing teaching display through holographic interaction equipment; (3) interactive teaching, 4 groups of touch screens of a single machine can realize grouping cooperative interactive learning, and the 4 groups of touch screens are operated independently and do not conflict with each other; interactive classroom teaching can be managed by Ethernet and multiple unified teaching data exchange. The main imaging module is a square screen, the physical resolution is larger than or equal to 1920 multiplied by 1920, and the imaging proportion is 1:1, the imaging contrast is more than or equal to 1000: 1; (4) interactive information acquisition, namely acquiring interactive information of students in a classroom through holographic interactive equipment, and autonomously assisting teachers to finish digital recording of teaching traces through a network transmission technology; (5) and (4) real-time teaching evaluation, namely, completing multi-dimensional evaluation covering the class front, the class middle and the class back by utilizing the interactive information acquired by the holographic interactive equipment.

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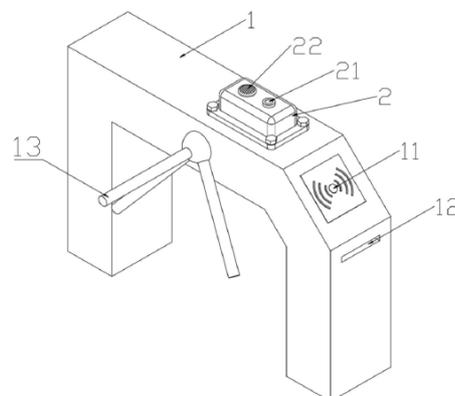
Priority Date: 08/12/2021

SHENZHEN SHENGHONGWEI INTELLIGENT TECHNOLOGY

HOLOGRAPHIC IMAGE SYSTEM FOR GATE PASSAGE DOOR

The invention discloses a holographic image system for a gate passage door, which comprises a gate body, wherein a card swiping and code scanning sensing device is arranged on the front side of the gate body, a card swallowing port is arranged on the front side of the gate body, and the gate passage door is arranged on one side of the card swiping and code scanning sensing device, and is characterized in that: the holographic projection device comprises a gate body, a holographic projection lens and a sound production device, wherein the holographic projection lens and the sound production device are arranged on the upper surface of the holographic projection device, and the gate body is arranged on the front end of the gate body.

CLAIM 1. The utility model provides a holographic image system for floodgate access door, includes floodgate body (1), the front side of floodgate body (1) is equipped with the card of punching the card and sweeps a yard induction system (11), and the front side of floodgate body (1) is equipped with swallows bayonet socket (12), and the card of punching the card is swept one side of yard induction system (11) and is equipped with floodgate access door (13), its characterized in that: a holographic projector (2) is detachably mounted at a position, close to the front, of the top end of the gate body (1), and a holographic projection lens (21) and a sound generating device (22) are mounted on the upper surface of the holographic projector (2).



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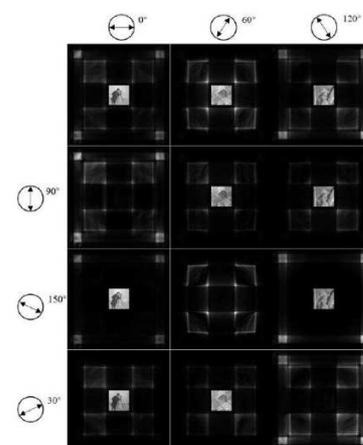
Priority Date: 03/11/2021

BEIHANG UNIVERSITY OF AERONAUTICS & ASTRONAUTICS

POLARIZATION HOLOGRAM CALCULATION METHOD BASED ON HIGH-FREQUENCY PHASE FACTOR

The invention provides a polarization hologram calculation method based on a high-frequency phase factor, which comprises the following three steps: firstly, for an arbitrary 3D object, recording the complex amplitude light field distribution, dividing the complex amplitude light field into two complex amplitude components with mutually vertical vibration directions, namely a P component and an S component, and calculating the amplitude ratio and the phase difference of the P component and the S component; secondly, adding high-frequency phase factors to the light fields of the P component and the S component respectively, eliminating the influence of light field crosstalk among different projection depths, realizing independent control of a polarization state, and controlling the P wave and the S wave of incident light respectively by using two complex amplitude holograms; and thirdly, synthesizing the amplitudes of the two complex amplitude holograms into a single amplitude, generating the amplitude by using a diffraction element, and compensating the phase part of the complex amplitude hologram by using a single spatial light modulator, so that the two complex amplitude holograms realize the polarization holographic 3D display effect after diffraction.

CLAIM 1. A polarization hologram calculation method based on high-frequency phase factors is characterized by comprising the following three steps: firstly, for an arbitrary 3D object, recording the complex amplitude light field distribution, dividing the complex amplitude light field into two complex amplitude components with mutually vertical vibration directions, namely a P component and an S component, and calculating the amplitude ratio and the phase difference of the P component and the S component; secondly, adding high-frequency phase factors to the light fields of the P component and the S component respectively, eliminating the influence of light field crosstalk among different projection depths, realizing independent control of a polarization state, and controlling the P wave and the S wave of incident light respectively by using two complex amplitude holograms; and thirdly, synthesizing the amplitudes of the two complex amplitude holograms into a single amplitude, generating the amplitude by using a diffraction element, and compensating the phase part of the complex amplitude hologram by using a single spatial light modulator, so that the two complex amplitude holograms realize the polarization holographic 3D display effect after diffraction.



N8464

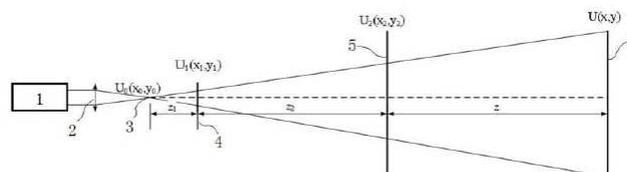
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Priority Date: 08/10/2021

TSINGHUA SHENZHEN INTERNATIONAL GRADUATE SCHOOL

LARGE-VIEW-FIELD HOLOGRAPHIC PROJECTION METHOD AND SYSTEM BASED ON DEEP LEARNING ACCELERATED CALCULATION

The invention provides a large-view-field holographic projection method and a system based on deep learning accelerated calculation, which comprises the following steps: s1, calculating a hologram generated in the lens-free projection system through a Gausserberg-Saxon algorithm and an angular spectrum method, and making a data set for U-shaped neural network training; s2, constructing a convolution neural network structure based on the U-shaped neural network; and S3, inputting the data set into the U-shaped neural network for training and storing the trained U-shaped neural network model. The invention can solve the problems of low convergence speed and the like of the traditional iterative algorithm, improves the imaging quality of the neural network, has good performance of the calculated hologram, realizes dynamic real-time projection and has certain universality.



CLAIM 1. The large-view-field holographic projection method based on deep learning acceleration calculation is characterized by comprising the following steps of: s1, calculating a hologram generated in the lens-free projection system through a Gausserberg-Saxon algorithm, and making a data set for U-shaped neural network training; s2, constructing a convolution neural network structure based on the U-shaped neural network; and S3, inputting the data set into the U-shaped neural network for training and storing the trained U-shaped neural network model.

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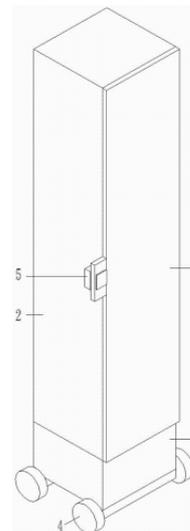
Priority Date: 10/11/2021

SHANGHAI FENGPEI DIGITAL TECHNOLOGY

HOLOGRAPHIC VIDEO CONFERENCE SYSTEM

The application discloses a holographic video conference system, which relates to the technical field of video conferences and comprises a moving body; the device is characterized by further comprising a control module, a wireless network communication module, a holographic image projection module, a data and signal conversion module, a loudspeaker module, an audio and video acquisition module and a 3D data scanning acquisition module, wherein the control module is respectively and electrically connected with the wireless network communication module, the holographic image projection module, the data and signal conversion module, the loudspeaker module, the audio and video acquisition module and the 3D data scanning acquisition module. The conference system and the conference method improve the participation sense of the personnel in the conference, avoid the condition that the members not on the spot have small opening difference, realize the supervision among the personnel on the conference site, and improve the conference effect.

CLAIM 1. Holographic video conferencing system, its characterized in that: comprises a moving body; the device is characterized by further comprising a control module, a wireless network communication module, a holographic image projection module, a data and signal conversion module, a loudspeaker module, an audio and video acquisition module and a 3D data scanning acquisition module, wherein the control module is respectively and electrically connected with the wireless network communication module, the holographic image projection module, the data and signal conversion module, the loudspeaker module, the audio and video acquisition module and the 3D data scanning acquisition module.



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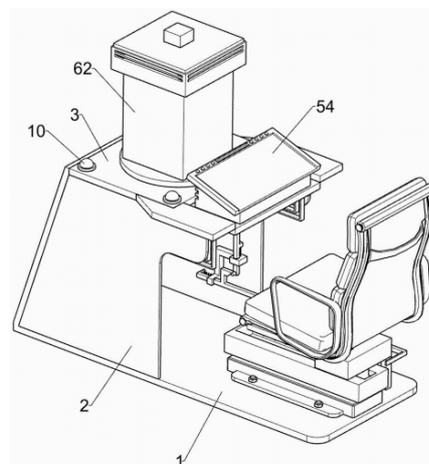
Priority Date: 25/10/2021

SUN HUAN | THE INVENTORS HAVE WAIVED THE RIGHT TO BE CITED

BUILDING DESIGN SYSTEM FOR DISPLAYING HOLOGRAPHIC PROJECTION TYPE THREE-DIMENSIONAL SPACE MODEL

The invention relates to the field of buildings, in particular to a building design system for displaying a holographic projection type three-dimensional space model, which comprises a slope frame, a fixed vertical plate, a circular groove plate, a seat adjusting part and the like; the equal rigid coupling in both sides has fixed riser around the slope frame top, and the common rigid coupling in two fixed riser tops has circular frid, circular frid and slope frame rigid coupling, and slope frame top is equipped with seat adjusting part. Through manual rotation white reflection of light dish, can throw the cover with four inclined planes and adjust suitable angle, through the cooperation of touching pole and induction ring, the angle of the architectural model on the electron drawing board can synchronous adjustment, and the designer of being convenient for observes, together removes through designer and seat body, and the designer of being convenient for carries out closely and observes, has realized that the designer of can being convenient for observes the purpose fully comprehensively.

CLAIM 1. The utility model provides a building design system of three-dimensional space model show of holographic projection formula, includes slope frame (1), characterized by, still includes fixed riser (2), circular frid (3), seat adjusting part (4), draws part (5) and holographic projection part (6): the front side and the rear side of the top of the slope frame (1) are fixedly connected with the fixed vertical plates (2); the top parts of the two fixed vertical plates (2) are fixedly connected with the circular groove plate (3) together, and the circular groove plate (3) is fixedly connected with the gradient frame (1); the seat adjusting part (4) is arranged above the gradient frame (1), and the seat adjusting part (4) is used for enabling a designer to work in the most comfortable posture; the building model drawing device comprises a drawing part (5), wherein the drawing part (5) is arranged above a gradient frame (1), and a designer draws a building model on the drawing part (5); the holographic projection component (6) is arranged above the circular groove plate (3), the building model presents a three-dimensional effect under the operation of the holographic projection component (6), and the holographic projection component plays a role in observing the building model conveniently.



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

N8412

WO202232074

Priority Date: 07/08/2020

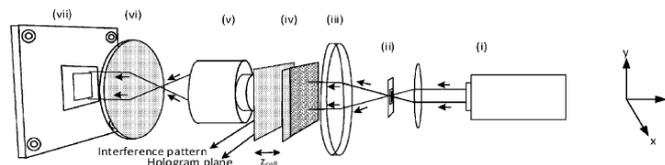
UNIVERSITY OF CALIFORNIA | UNIVERSITY OF MASSACHUSETTS

SIMPLE IN-LINE DIGITAL HOLOGRAPHY SYSTEM FOR MEASURING 3D CELL SHAPE

The present disclosure presents systems, apparatuses, and methods of holographic imaging. In this regard, a method comprises transmitting light and illuminating a semi-transparent sample object; and forming, at a hologram plane, an interference pattern of a real image of the sample object from a scattered object beam and an unscattered reference beam from the transmitted light. To do so, the scattered object beam and the unscattered reference beam are in-line with one another, and a distance between the hologram plane to the sample object is set at a distance that substantially weakens a virtual image of the sample object formed from the scattered object beam and the unscattered reference beam. Accordingly, the method further comprises recording the interference pattern of a hologram formed from the scattered object beam and the unscattered reference beam at a detector; and reconstructing a 3D optical field of the hologram without phase retrieval.

SYSTÈME D'HOLOGRAPHIE NUMÉRIQUE EN LIGNE SIMPLE PERMETTANT LA MESURE D'UNE FORME DE CELLULE 3D

La présente divulgation concerne des systèmes, des appareils et des procédés d'imagerie holographique. À cet égard, un procédé consiste à émettre une lumière et à éclairer un objet échantillon semi-transparent; et à former, au niveau d'un plan d'hologramme, un motif d'interférence d'une image réelle de l'objet d'échantillon à partir d'un faisceau d'objet diffusé et d'un faisceau de référence non diffusé provenant de la lumière émise. À cet effet, le faisceau d'objet diffusé et le faisceau de référence non diffusé sont en ligne l'un par rapport à l'autre, et une distance entre le plan d'hologramme et l'objet d'échantillon est réglée sur une distance qui affaiblit sensiblement une image virtuelle de l'objet d'échantillon formé à partir du faisceau d'objet diffusé et du faisceau de référence non diffusé. En conséquence, le procédé consiste en outre à enregistrer le motif d'interférence d'un hologramme formé à partir du faisceau d'objet diffusé et du faisceau de référence non diffusé au niveau d'un détecteur; et à reconstruire un champ optique 3D de l'hologramme sans extraction de phase.



CLAIM 1. A holographic imaging method comprising: transmitting light and illuminating a semi-transparent sample object; forming, at a hologram plane, an interference pattern of a real image of the sample object from a scattered object beam and an unscattered reference beam from the transmitted light, wherein the scattered object beam and the unscattered reference beam are in-line with one another, wherein a distance between the hologram plane to the sample object is set at a distance that substantially weakens a virtual image of the sample object formed from the scattered object beam and the unscattered reference beam; recording the interference pattern of a hologram formed from the scattered object beam and the unscattered reference beam at a detector; and reconstructing a 3D optical field of the hologram of the sample object to the hologram plane without phase retrieval.

N8417

WO202218730

Priority Date: 21/07/2020

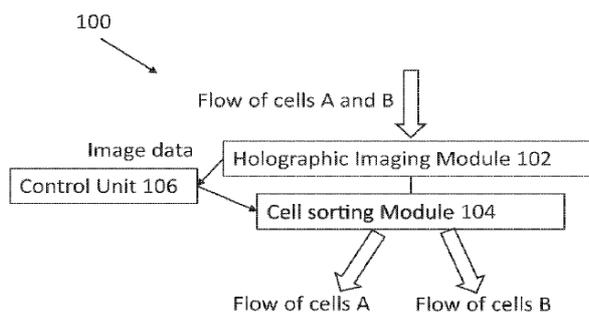
FRAUNHOFER | RAMOT AT TEL AVIV UNIVERSITY

A SYSTEM AND METHOD THEREOF FOR REAL-TIME AUTOMATIC LABEL-FREE HOLOGRAPHY-ACTIVATED SORTING OF CELLS

The present invention relates to an automatic real-time label-free holography-activated sorting of the cell's technique. The technique provides high-discriminative power on the level of the individual cell. The technique includes rapid automated cell 5 processing during cell visualization and flow, with high discriminative power on the level of the individual cell. The technique may be useful in detection of cancer and to identify different stages of oncogenesis.

SYSTÈME ET PROCÉDÉ POUR LE TRI ACTIVÉ PAR HOLOGRAPHIE SANS MARQUEUR AUTOMATIQUE EN TEMPS RÉEL DE CELLULES

La présente invention concerne une technique de tri automatique activé par holographie sans marqueur en temps réel de cellules. La technique permet d'obtenir un pouvoir hautement discriminatif au niveau de la cellule individuelle. La technique comprend un traitement de cellule automatisé rapide pendant la visualisation et l'écoulement de cellules, avec un pouvoir hautement discriminatif au niveau de la cellule individuelle. La technique peut être utile dans la détection de cancer et pour identifier différents stades d'oncogénèse.



CLAIM 1. A method comprising: performing a holographic imaging of a flow of a heterogeneous population of cells to enable label-free quantitative imaging of the flow of cells; automatically processing image data of the holographic imaging to identify a certain type of cells during the flow; and automatically sorting the certain type of cells during flow, thereby obtaining a real-time, automatic, label-free holography-activated sorting of the cells.

N8428

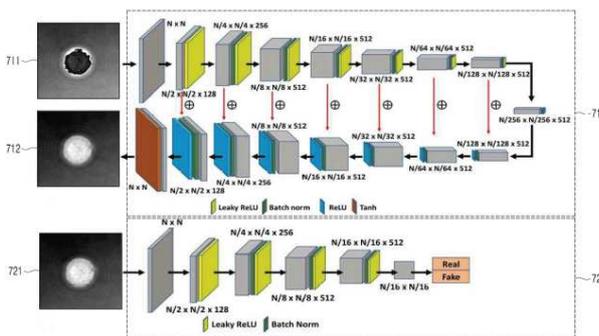
KR20220007432

Priority Date: 10/07/2020

DAEGU GYEONGBUK INSTITUTE OF SCIENCE & TECHNOLOGY

APPARATUS AND METHOD FOR PHASE SPREADING A DIGITAL HOLOGRAM PHASE IMAGE BASED ON DEEP LEARNING

An apparatus for performing phase spreading according to an embodiment of the present disclosure includes: a processor; and a memory electrically connected to the processor and storing at least one code executed by the processor, wherein the memory stores instructions that, when executed through the processor, Receive at least one phase wrapped phase image generated from a hologram that is a digital holographic image, and Storing code to cause input of a phase-folded phase image to a Machine Learning based discriminant model to produce a phase unwrapped phase image, The discrimination model may be a discrimination model learned based on a conditional generative adversarial network (cGAN).



CLAIM 1. An electronic device, comprising: a processor; and a memory electrically connected to the processor and storing at least one code performed on the processor, wherein the memory stores instructions that when executed through the processor, cause the processor to: receive at least one phase wrapped phase image generated from a hologram which is a digital holographic image, Store code to cause input of the phase-folding phase image to a Machine Learning based discrimination model to generate a phase unwrapped phase image, Wherein the discriminant model is learned based on a conditional generative adversarial network (cGAN).

N8459

CN114018150

Priority Date: 08/11/2021

HEBEI UNIVERSITY OF ENGINEERING

DIGITAL HOLOGRAPHIC MICROSCOPIC MEASURING DEVICE AND CONTROL METHOD THEREOF

The invention discloses a digital holographic microscopic measuring device, comprising: a dual wavelength light source for generating a laser beam having two wavelengths; a beam splitter for splitting the laser beam into object light and reference light; a light splitter is arranged on the reference light path and used for splitting the reference light into first reference light and second reference light with two wavelengths; phase adjusters are respectively arranged on the first reference light path and the second reference light path and are used for adjusting the interference state of the first reference light and the second reference light with the object light; the image collector is used for receiving the digital holographic image; and an image processor for processing the received digital holographic image. The invention can improve the defects of the prior art and effectively reduce the installation and debugging difficulty of the digital holographic microscopic measuring device.

CLAIM 1. A digital holographic microscopic measuring device is characterized in that: comprises the steps of (a) preparing a mixture of a plurality of raw materials, a dual wavelength light source (1) for generating a laser beam having two wavelengths; a beam splitter (2) for splitting the laser beam into object light and reference light; a light splitter (3) is arranged on the reference light path and is used for splitting the reference light into first reference light and second reference light with two wavelengths; phase adjusters (4) are respectively arranged on the first reference light path and the second reference light path and are used for adjusting the interference state of the first reference light and the second reference light with the object light; an image collector (5) for receiving a digital holographic image; an image processor (6) for processing the received digital holographic image.

N8465

CN114001643

Priority Date: 27/09/2021

SHANGHAI UNIVERSITY OF ENGINEERING SCIENCE

DIGITAL HOLOGRAPHIC MICROSCOPIC PHASE DISTORTION COMPENSATION METHOD AND DEVICE

The invention relates to a digital holographic microscopic phase distortion compensation method and a device, wherein a digital holographic microscopic system is built, a filter is adopted to replace a beam splitter, and the filter is highly transparent to a 671nm wave band and highly reflective to a 532nm wave band; shooting an original hologram of an object to be detected by using a laser with the wavelength of 671 nm; carrying out Fourier transform on the data to obtain a frequency spectrum, extracting the frequency spectrum of the +1 image from the frequency spectrum, carrying out inverse Fourier transform to obtain a wrapping phase, and obtaining an original unwrapping phase by a least square unwrapping algorithm; taking a no-load hologram by using a laser with the wavelength of 532 nm; performing Fourier transform on the obtained frequency spectrum to obtain a frequency spectrum, extracting a +1-level frequency spectrum from the frequency spectrum, performing inverse Fourier transform to obtain a wrapping phase, and obtaining a no-load unwrapping phase by a least square unwrapping algorithm; and subtracting the no-load unwrapped phase from the original unwrapped phase, compensating the phase error, and acquiring the final phase. Compared with the prior art, the invention has the advantages of convenient operation, time saving and the like.

CLAIM 1. A digital holographic microscopic phase distortion compensation method is characterized by comprising the following steps: 1) building a digital holographic microscope system, shooting a hologram of an object to be detected by adopting a first laser with the wavelength of 671nm, and taking the hologram as an original hologram; 2) fourier transformation is carried out on the original hologram to obtain the frequency spectrum of the original hologram, the frequency spectrum of +1 level image is extracted from the frequency spectrum of the original hologram, inverse Fourier transformation is carried out to obtain a wrapping phase, and the original unwrapping phase comprising object information, first-order distortion and second-order phase distortion is obtained through a least square unwrapping algorithm 3) In a digital holographic microscope system, a second laser with the wavelength of 532nm is adopted to shoot a no-load hologram without a detection object; 4) fourier transform is carried out on the no-load hologram to obtain the frequency spectrum of the no-load hologram, the frequency spectrum of +1 level image is extracted from the frequency spectrum of the no-load hologram, inverse Fourier transform is carried out to obtain a wrapping phase, and a no-load unwrapping phase comprising first-order distortion and second-order phase distortion is obtained through a least square unwrapping algorithm 5) Unwrapping the original phase With said no-load unwrapping phase Subtracting, compensating for phase error, and obtaining final phase

N8467

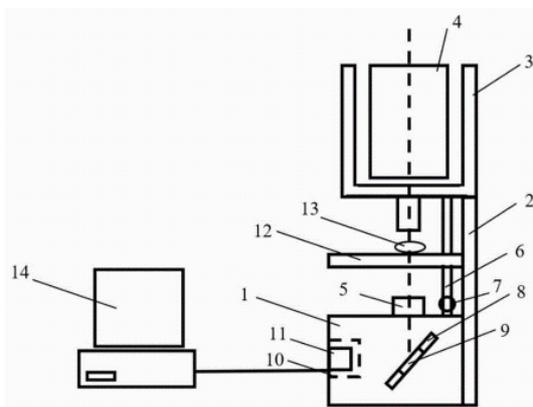
CN113985593

Priority Date: 21/10/2021

SOUTH CHINA UNIVERSITY OF TECHNOLOGY

PORTABLE COAXIAL DIGITAL HOLOGRAPHIC MICROSCOPE BASED ON 3D PRINTING TECHNOLOGY AND IMAGING METHOD

The invention discloses a portable coaxial digital holographic microscope based on a 3D printing technology and an imaging method. The device comprises a base, a supporting plate connected with the upper end of the base, a light source loading groove connected with the upper end of the supporting plate, a light source connected with the inside of the light source loading groove, an objective lens connected with the upper end of the base, a reflector loading table connected with the inside, a reflector and an image sensor, wherein the signal output end of the image sensor is connected with a computer. When light emitted from the LED light source passes through a sample, the light scattered by the sample is used as object light, the light not scattered by the sample is used as reference light, the two beams of light are superposed and amplified by an objective lens, then the two beams of light are received by an image sensor and displayed on a computer to form a holographic image, and then the computer is used for calculating and reconstructing the obtained holographic image to obtain a light intensity image of the three-dimensional position and the focal plane of the sample. In addition, the device is low in cost, convenient to use, and light source and micro objective can change by oneself in order to adapt to the observation of the not unidimensional microcosmic object, are fit for using widely.



CLAIM 1. A portable coaxial digital holographic microscope based on a 3D printing technology is manufactured by adopting the 3D printing technology to form an integrated structure, and is characterized in that the integrated structure consists of a base (1) at the lower end, a supporting plate (2) is fixedly connected to the upper end of the base (1), a light source loading groove (3) is fixedly connected to the upper end of the supporting plate (2), an LED light source (4) is arranged and fixed in the light source loading groove, a microscope objective (5) is connected to the upper end of the base (1), an inserted reflector loading table (8) is arranged in the base (1), a reflector (9) is loaded in the center of the reflector loading table (8), an image sensor loading groove (10) is arranged in the base (1), an image sensor (11) is loaded in the image sensor loading groove (10), and a worm hole is reserved at the upper end of the base (1), a horizontal rotating worm (6) is connected in the base (1), two ends of the horizontal rotating worm (6) are connected with a vertical rotating worm wheel (7), the middle section of the vertical rotating worm wheel (7) is connected with an objective table (12), and the upper end of the vertical rotating worm wheel is connected with a light source loading groove (3); the image sensor (11) is connected with a computer (14).

N8471

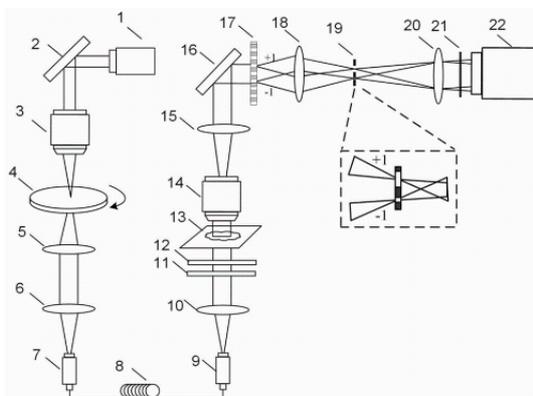
CN113960906

Priority Date: 09/09/2021

XIDIAN UNIVERSITY

POINT DIFFRACTION DIGITAL HOLOGRAPHIC MICROSCOPIC DEVICE BASED ON MULTIMODE OPTICAL FIBER

The invention discloses a point diffraction digital holographic microscopy device based on multimode fiber illumination, which comprises a partially coherent light generation module, a telescope system, a reference light separation module and an image acquisition module, wherein the partially coherent light generation module is used for generating partially coherent illumination light and comprises a laser, a first microscope objective, a ground glass sheet, an imaging unit and a multimode fiber unit, wherein the first microscope objective, the ground glass sheet, the imaging unit and the multimode fiber unit are sequentially arranged along the light path of the laser; the telescope system is used for obtaining object light wave field distribution with sample information; the object reference light separation module is used for carrying out diffraction light separation on object light waves with sample information from the telescope system to generate object light and reference light with orthogonal polarization directions; the image acquisition module is used for acquiring the hologram generated by the object light and the reference light. The microscopic device has the advantages of real-time amplitude/phase quantitative microscopic imaging, good vibration resistance, high signal-to-noise ratio, simple structure and the like.



CLAIM 1. A point diffraction digital holographic microscopic device based on multimode fiber illumination is characterized by comprising a partially coherent light generation module, a telescope system, a reference light separation module and an image acquisition module which are sequentially arranged along the direction of a light path, the partially coherent light generation module is used for generating partially coherent illumination light and comprises a laser (1), and a first microscope objective (3), a ground glass sheet (4), an imaging unit and a multimode optical fiber unit which are sequentially arranged along the optical path of the laser (1), wherein the ground glass sheet (4) is arranged perpendicular to the optical axis and can rotate around the optical axis to generate dynamically scattered partially coherent light, and the multimode optical fiber unit is used for collecting the dynamically scattered partially coherent light and controlling the diameter of the partially coherent light; the telescope system is used for acquiring a scattering signal of a sample by using the partially coherent illumination light and amplifying the scattering signal to obtain light field distribution with sample information; the object reference light separation module is used for diffracting light with sample information from the telescope system to ± 1 order, wherein the ± 1 order diffracted light is respectively left-handed circularly polarized light and right-handed circularly polarized light with orthogonal polarization directions and is used as object light and reference light; the image acquisition module is used for acquiring the hologram generated by the object light and the reference light.

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

N8414

WO202228764

Priority Date: 05/08/2020

ENVISICS

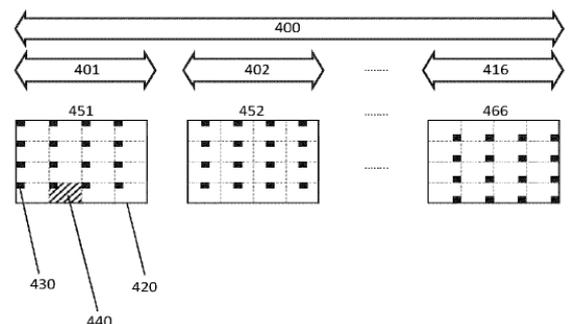
HOLOGRAPHIC LIGHT DETECTION AND RANGING

A light detection and ranging, "LIDAR" system arranged to survey a scene. The LIDAR system comprises a spatial light modulator arranged to display a diffractive pattern comprising a hologram of a light footprint. The LIDAR system further comprises a light source arranged to illuminate the diffractive pattern to form a holographic reconstruction of the light footprint on a holographic replay plane in the scene. In accordance with the present disclosure, the light footprint comprises an array of light features such as an array of light spots. The LIDAR system further comprises a display driver arranged to control the spatial light modulator and change the diffractive pattern with time. The diffractive pattern is changed with time such that each light feature of the array of light features scans a respective sub-area of the scene. The LIDAR system comprises a detection system having a plurality of light detecting elements. The detection system is configured such that each light detecting element detects light from a respective individual field of view within the scene. Each sub-area of the scene contains a plurality of individual fields of view.

DÉTECTION ET MESURE DE DISTANCE PAR LUMIÈRE HOLOGRAPHIQUE

L'invention concerne un système de détection et de mesure de distance par onde lumineuse (LIDAR) conçu pour surveiller une scène. Le système LIDAR comprend un modulateur spatial de lumière conçu pour afficher un schéma de diffraction comprenant un hologramme d'une empreinte lumineuse. Le système LIDAR comprend en outre une source de lumière conçue pour éclairer le schéma de diffraction pour former une reconstruction holographique de l'empreinte lumineuse sur un plan de lecture holographique dans la scène. Selon la présente divulgation, l'empreinte lumineuse comprend un ensemble d'éléments lumineux, tel qu'un ensemble de points lumineux. Le système LIDAR comprend en outre un pilote d'affichage conçu pour commander le modulateur spatial de lumière et modifier le schéma de diffraction au fil du temps. Le schéma de diffraction est modifié au fil du temps de telle sorte que chaque élément lumineux de l'ensemble d'éléments lumineux balaye une sous-zone correspondante de la scène. Le système LIDAR comprend un système de détection comportant une pluralité d'éléments de détection de lumière. Le système de détection est conçu de telle sorte que chaque élément de détection de lumière détecte la lumière provenant d'un champ de vision individuel correspondant à l'intérieur de la scène. Chaque sous-zone de la scène contient une pluralité de champs de vision individuels.

CLAIM 1. A light detection and ranging, "LIDAR" system arranged to survey a scene, the system comprising: a spatial light modulator arranged to display a diffractive pattern comprising a hologram of a light footprint, wherein the light footprint comprises an array of light features; a light source arranged to illuminate the diffractive pattern to form a holographic reconstruction of the light footprint, wherein the holographic reconstruction of the light footprint is projected onto the scene; a display driver arranged to control the spatial light modulator and change the diffractive pattern with time such that each light feature of the array of light features scans a respective sub-area of the scene; a detection system comprising a plurality of light detection elements, wherein the detection system is configured such that each light detection element detects light from a respective individual field of view within the scene and each sub-area of the scene contains a plurality of individual fields of view.

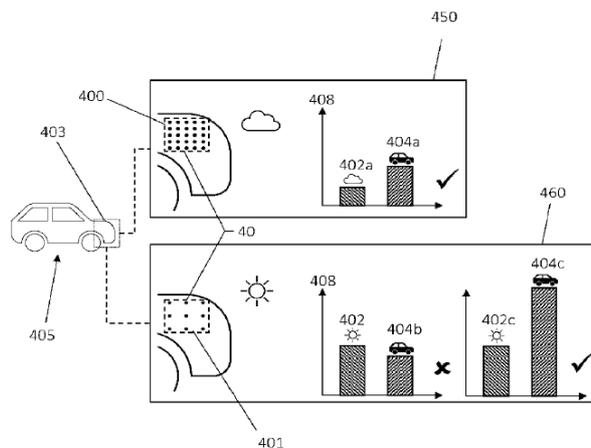


LIDAR COMPRISING A HOLOGRAPHIC PROJECTOR

There is disclosed herein a method of light detection and ranging. The method comprises a first step of forming a first light pattern within a region of a scene by holographic projection. The first light pattern comprises n light spots arranged in a regular array. The method comprises a second step of receiving a light return signal from each light detection element of an array of light detection elements directed at the region of the scene. The method comprises a third step of assessing the intensity of the light return signals. If the light return signals do not meet at least one signal validation criterion, the method further comprises a fourth step and fifth step. The fourth step comprises forming a second light pattern within the region of the scene by holographic projection. The second light pattern comprises m light spots arranged in a regular array, wherein $m \neq n$. The fifth step comprises determining a time-of-flight in association with each light spot of the second light pattern.

LIDAR COMPRENANT UN PROJECTEUR HOLOGRAPHIQUE

La présente invention concerne un procédé de photodétection et de télémétrie. Le procédé comprend une première étape de formation d'un premier motif lumineux dans une région d'une scène par projection holographique. Le premier motif lumineux comprend n points lumineux disposés selon un réseau régulier. Le procédé comprend une deuxième étape de réception d'un signal lumineux de retour à partir de chaque élément de photodétection d'un réseau d'éléments de photodétection dirigés au niveau de la région de la scène. Le procédé comprend une troisième étape d'évaluation de l'intensité des signaux lumineux de retour. Si les signaux lumineux de retour ne satisfont pas au moins un critère de validation de signal, le procédé comprend en outre une quatrième étape et une cinquième étape. La quatrième étape comprend la formation d'un second motif lumineux dans la région de la scène par projection holographique. Le second motif lumineux comprend m points lumineux disposés selon un réseau régulier, où $m \neq n$. La cinquième étape comprend la détermination d'un temps de vol en association avec chaque point lumineux du second motif lumineux.



CLAIM 1. A method of light detection and ranging, the method comprising: forming a first light pattern within a region of a scene by holographic projection, wherein the first light pattern comprises n light spots arranged in a regular array; receiving a light return signal from each light detection element of an array of light detection elements directed at the region of the scene; assessing the intensity of the light return signals and if the light return signals do not meet at least one signal validation criterion, the method further comprises forming a second light pattern within the region of the scene by holographic projection, wherein the second light pattern comprises m light spots arranged in a regular array, wherein $m \neq n$; and determining a time-of-flight in association with each light spot of the second light pattern.

N8427

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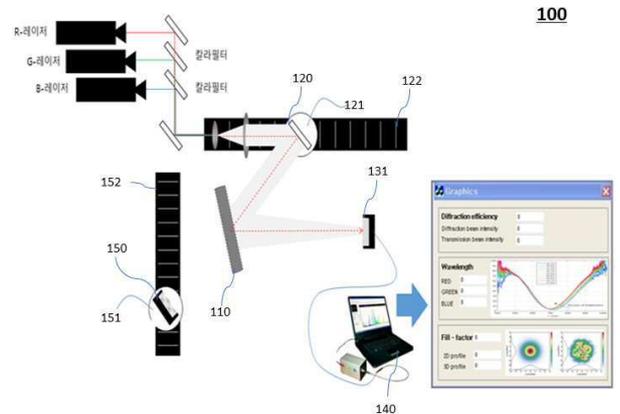
Priority Date: 15/07/2020

KWANGWOON UNIVERSITY INDUSTRY ACADEMIC COLLABORATION FOUNDATION

HOLOGRAPHIC OPTICAL ELEMENT PERFORMANCE EVALUATION APPARATUS

The present specification discloses an apparatus capable of quantitatively evaluating quality of a holographic optical element. The holographic optical element performance evaluation apparatus includes: a measurement table fixing an evaluation target holographic optical element; a mirror reflecting light emitted from a light source onto the evaluation target holographic optical element fixed to the measurement table; a mirror rotation unit rotating the mirror to adjust a reflection angle of the light emitted from the light source; A mirror moving unit configured to move the mirror and the mirror rotating unit in a first axis direction with reference to the measurement table; a first sensor fixing unit configured to fix a sensor for sensing reflected light to an evaluation target holographic optical element fixed to the measurement table; And an analysis unit configured to analyze a characteristic of an evaluation target holographic optical element fixed to the measurement table as a quantitative value using a signal output from the sensor fixed to the first sensor fixing table.

CLAIM 1. A holographic optical device comprising: a measurement table fixing a holographic optical device to be evaluated; a mirror reflecting light emitted from a light source onto the holographic optical device to be evaluated fixed to the measurement table; a mirror rotation unit rotating the mirror to adjust a reflection angle of the light emitted from the light source; A mirror moving unit configured to move the mirror and the mirror rotating unit in a first axis direction with reference to the measurement table; a first sensor fixing unit configured to fix a sensor for sensing reflected light to an evaluation target holographic optical element fixed to the measurement table; And an analysis unit configured to analyze a characteristic of an evaluation target holographic optical element fixed to the measurement table as a quantitative value using a signal output from a sensor fixed to the first sensor fixing table.



N8466

CN113987059

Priority Date: 05/11/2021

HANGZHOU ANHENG INFORMATION SECURITY TECHNOLOGY

HOLOGRAPHIC ARCHIVE ASSET MANAGEMENT METHOD, SYSTEM, COMPUTER AND READABLE STORAGE MEDIUM

The application relates to a holographic archive asset management method, a system, a computer and a readable storage medium, wherein the method comprises the following steps: receiving original asset data sent by different users, and preprocessing the original asset data according to a preset standard to form complete original asset data; performing matching analysis on the initial asset data one by one through a preset asset analysis filing model to form a holographic file; and configuring a corresponding authority account according to the holographic file, and issuing the authority account to users with different authorities to manage the holographic file, wherein the authorities comprise areas and industries of user assets. The method can rapidly clean the original scanning result through the big data holographic archive, thereby automatically and accurately meeting the requirement of real-time property of asset combing, completely releasing work pressure, liberating a large amount of manual time, greatly reducing the data processing time and improving the processing efficiency of asset data.

CLAIM 1. A holographic archive asset management method, characterized in that the method comprises: receiving original asset data sent by different users, and preprocessing the original asset data according to a preset standard to form complete initial asset data; performing matching analysis on the initial asset data one by one through a preset asset analysis filing model to form a holographic archive; And configuring a corresponding authority account according to the holographic file, and issuing the authority account to users with different authorities so as to manage the holographic file.

N8472

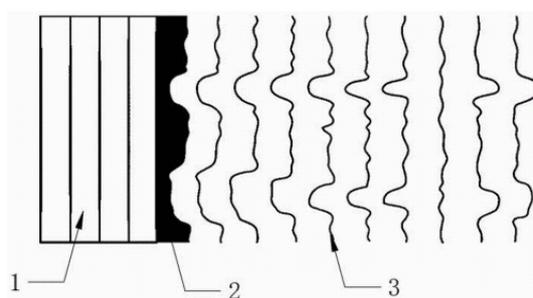
CN113959677

Priority Date: 26/09/2021

SHANGHAI RIQING INTELLIGENT TECHNOLOGY

ULTRA-HIGH-PRECISION ULTRASONIC WAVE SURFACE CONTROL TECHNOLOGY COMBINED WITH 3D HOLOGRAPHIC TECHNOLOGY

The invention relates to the technical field of high-precision ultrasonic object control, in particular to an ultra-high-precision ultrasonic wave surface control technology combined with a 3D holographic technology. The technical scheme is as follows: including the water tank that contains water, be provided with ultrasonic emitter in the water tank, ultrasonic emitter upper end fixedly connected with 3D prints holographic board, the texture of different heights is printed out through high accuracy 3D printing technique in the surface that 3D printed holographic board, and ultrasonic emitter and 3D print the cooperation of holographic board and can produce the water ripple at the surface of water, promote the motion of particulate matter through the water ripple of control surface of water. The ultrasonic wave array can be driven by a single ultrasonic wave transmitter, and compared with the traditional ultrasonic wave array technology, the technology of ultrasonic wave accurate control can be applied to smaller scenes; the method and the device can improve the precision of ultrasonic wave surface and motion control on a small micro scale, namely, the technology can realize ultrahigh precision control freedom degree in unit area.



CLAIM 1. An ultra-high precision ultrasonic wave surface control technology combined with a 3D holographic technology is characterized in that: including water tank (4) that contain water, be provided with ultrasonic transmitter (1) in water tank (4), ultrasonic transmitter (1) upper end fixedly connected with 3D prints holographic board (2), the texture of different heights is printed out through high accuracy 3D printing technique in the surface that 3D printed holographic board (2), and ultrasonic transmitter (1) and 3D print the cooperation of holographic board (2) and can produce water ripple (5) at the surface of water, promote the motion of particulate matter (6) through water ripple (5) of control surface of water.

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HOLOGRAMS - 17 PATENTS

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P34526	WO	202220615	27/01/2022	MULTI PACKAGING SOLUTIONS	US	22/07/2020	US2020063054868	WO202220615	COUNTERFEIT PREVENTATIVE BARCODES	
P34551	JP	2022021626	03/02/2022	TOPPAN PRINTING	JP	22/07/2020	JP2020000125304	JP2022021626	ANTI-COUNTERFEITING MEDIA	
P34552	JP	2022020806	01/02/2022	DAI NIPPON PRINTING	JP	17/11/2021	JP2021000186894	JP2022020806	HINGE FORMING BODY, HINGE-FORMING BODY ARRANGED SHEET, HINGE-FORMING BODY ARRANGED SHEET, HINGE	Passport
P34553	JP	2022019238	27/01/2022	TOPPAN PRINTING	JP	17/07/2020	JP2020000122960	JP2022019238	COLOR SHIFTING DEVICE	
P34554	JP	2022018850	27/01/2022	DAI NIPPON PRINTING	JP	16/07/2020	JP2020000122424	JP2022018850	BLOW MOLD, METAL PLATE, METHOD FOR PRODUCING COMPOSITE CONTAINER, AND COMPOSITE CONTAINER	
P34590	CN	215795679	11/02/2022	ANHUI JIUSHUN PHOTOELECTRIC TECHNOLOGY	CN	30/08/2021	CN2021002064617	CN215795679U	CAT EYE PRINTED PACKAGE WITH HOLOGRAPHIC ANTI-COUNTERFEITING IMAGE	
P34596	CN	215769781	08/02/2022	SHANGHAI TECHSUN RFID TECHNOLOGY SHANGHAI TIANCHEN MICRO NANO TECHNOLOGY	CN	23/09/2021	CN2021002303159	CN215769781U	RFID SEALS LABEL	
P34599	CN	215730521	01/02/2022	WUXI XUDA ANTI COUNTERFEITING TECHNOLOGY	CN	18/08/2021	CN2021001944554	CN215730521U	LASER HOLOGRAPHIC VARIABLE DIGITAL ANTI-COUNTERFEITING LABEL	
P34600	CN	215730514	01/02/2022	WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT	CN	13/07/2021	CN2021001595458	CN215730514U	TRANSPARENT ANTI-COUNTERFEITING FILM AND ANTI-COUNTERFEITING CERTIFICATE CARD	MicroLens
P34602	CN	215728921	01/02/2022	WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT	CN	28/05/2021	CN2021001185020	CN215728921U	ANTI-COUNTERFEITING HOLOGRAPHIC PLATE AND ANTI-COUNTERFEITING HOLOGRAPHIC FILM	
P34610	CN	215620811	25/01/2022	KUNMING XIAOSONG PLATE MAKING & PRINTING	CN	16/06/2021	CN2021001328947	CN215620811U	HOLOGRAPHIC ANTI-FAKE PRINTING SYSTEM OF PACKING CARTON	
P34612	CN	215592982	21/01/2022	ANYANG HUAQIANG PACKAGING INDUSTRY	CN	20/08/2021	CN2021001968385	CN215592982U	HIGH-BARRIER DRUG BAG COMPOSITE FILM	
P34616	CN	114035255	11/02/2022	WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT	CN	29/11/2021	CN2021001429959	CN114035255	HOLOGRAPHIC GRATING FILM, MANUFACTURING METHOD THEREOF AND ANTI-COUNTERFEITING MEDIUM	MicroLens
P34618	CN	114031713	11/02/2022	HUAZHONG UNIVERSITY OF SCIENCE & TECHNOLOGY	CN	15/11/2021	CN2021001348890	CN114031713	DIARYLETHENE-BASED MULTIPLE IMAGE STORAGE MATERIAL, AND PREPARATION AND APPLICATION THEREOF	
P34619	CN	114023183	08/02/2022	GAO LIFENG	CN	08/12/2021	CN2021001494090	CN114023183	ANTI-COUNTERFEIT LABEL	
P34623	CN	114015374	08/02/2022	SHANDONG TAIBAO PACKAGING PRODUCT	CN	13/12/2021	CN2021001514677	CN114015374	HIDDEN HOLLOW-OUT ALUMINIZED PATTERN HOLOGRAPHIC ANTI-COUNTERFEITING ADHESIVE TAPE AND MANUFACTURING METHOD THEREOF	
P34624	CN	113997687	01/02/2022	CHONGQING ZUIMEI PACKAGING PRINTING	CN	29/10/2021	CN2021001274572	CN113997687	HOLOGRAPHIC ANTI-COUNTERFEITING PRINTING EQUIPMENT AND PRINTING METHOD	

VARIOUS OPTICAL EFFECTS - 21 PATENTS

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P34510	WO	202233653	17/02/2022	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	WO	14/08/2020	WO2020250000374	WO202233653	ELONGATE SECURITY ELEMENT AND METHOD FOR PRODUCING AN ELONGATE SECURITY ELEMENT	
P34513	WO	202230563	10/02/2022	TOPPAN PRINTING	JP	04/08/2020	JP2020000132592	WO202230563	LAMINATE, CARD, CARD MANUFACTURING METHOD, CARD PRODUCTION METHOD, INFORMATION RECORDING SHEET FOR CARD, AND CARD USING SAME	
P34528	WO	202218752	27/01/2022	PRAVINCHANDRA PATEL, SHILPAN	IN	19/07/2020	IN2020021011994	WO202218752	DUAL-COLOR SHIFT SECURITY FILM	Passport

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VARIOUS OPTICAL EFFECTS - 21 PATENTS (continuation)

REFERENCE	COUNTRY	PATENT NUMBER	PUBLICATION DATE Day-Month-Year	APPLICANT	PRIORITY	PRIORITY DATE Day-Month-Year	PRIORITY NUMBER	EQUIVALENTS	TITLE	KEY WORDS
P34531	WO	202217634	27/01/2022	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	22/07/2020	DE202010004423	WO202217634 DE102020004423	SECURITY FEATURE HAVING TILT-DEPENDENT MOTIF DEPICTION	
P34539	US	20220028057	27/01/2022	ALIPAY LABS SINGAPORE PTE	US	23/06/2021	US2021017356379	US20220028057	AUTHENTICATION METHOD AND SYSTEM	
P34540	US	11250304	15/02/2022	BANK OF AMERICA	US	23/07/2020	US2020016937148	US20220027694 US11250304	PAYMENT CARD WITH LIGHT-BASED SIGNATURE	
P34541	US	11241902	08/02/2022	TEMPTIME	US	17/09/2020	US2020017024187	US11241902 GB202113157	ENVIRONMENTAL HISTORY MONITOR WITH POSITIONAL DISPLACEMENT AND SECURITY FEATURES	
P34547	KR	20220006934	18/01/2022	NANO BRICK	KR	09/07/2020	KR2020000084946	KR20220006934	FALSE MODULATION PREVENTION DEVICE AND METHOD FOR MANUFACTURING THE SAME	
P34555	JP	2022017637	26/01/2022	NATIONAL PRINTING BUREAU	JP	14/07/2020	JP2020000120303	JP2022017637	PRINTED MATERIAL IDENTIFICATION METHOD	
P34557	JP	2022015799	21/01/2022	NATIONAL PRINTING BUREAU	JP	10/07/2020	JP2020000118898	JP2022015799	LATENT IMAGE PRINTED MATERIAL	
P34566	FR	3112990	04/02/2022	IDEMIA FRANCE	FR	29/07/2020	FR2020000080849	FR3112990	SECURITY DEVICE FOR AN IDENTITY DOCUMENT AND IDENTITY DOCUMENT COMPRISING SUCH A SECURITY DEVICE	Microlens
P34567	EP	3958025	23/02/2022	IMOS GUBELA	DE	14/08/2020	DE202010004967	US20220048309 EP3958025 DE102020004967	RETROREFLECTIVE ELEMENT HAVING A SECURITY ELEMENT	
P34569	EP	3954544	16/02/2022	HUECK FOLIEN	EP	14/08/2020	EP2020000191070	EP3954544 WO202234193	FLAT SECURITY ELEMENT WITH OPTICAL SECURITY FEATURES	
P34570	EP	3954543	16/02/2022	GIESECKE & DEVRIENT CURRENCY TECHNOLOGY	DE	13/08/2020	DE202010004959	EP3954543 DE102020004959 CN114074493	OPTICALLY VARIABLE SECURITY ELEMENT	Microlens
P34574	EP	3943313	26/01/2022	HUECK FOLIEN	EP	21/07/2020	EP2020000187039	EP3943313 WO202218077	SECURITY ELEMENT FOR A VALUABLE DOCUMENT	
P34579	DE	102020210113	10/02/2022	BUNDESDRUCKEREI	DE	10/08/2020	DE202010210113	DE102020210113	SECURITY DOCUMENT WITH VIEWING DIRECTION-DEPENDENT SECURITY FEATURE	
P34585	CN	215814808	11/02/2022	SHENZHEN XINGCHANGMING PRINTING PRODUCT	CN	31/08/2021	CN2021002088604	CN215814808U	ANTI-COUNTERFEIT LABEL NOT EASY TO BE DAMAGED	
P34593	CN	215792733	11/02/2022	ANHUI JIUSHUN PHOTOELECTRIC TECHNOLOGY	CN	30/08/2021	CN2021002061868	CN215792733U	MULTI-POSITIONING LASER ANTI-COUNTERFEITING PRINTING PAPER	
P34603	CN	215705404	01/02/2022	WUHAN HUAGONG IMAGE TECHNOLOGY & DEVELOPMENT	CN	16/08/2021	CN2021001923858	CN215705404U	ANTI-COUNTERFEITING HOT STAMPING FILM AND ANTI-COUNTERFEITING PRODUCT	
P34620	CN	114023181	08/02/2022	SHANDONG TAIBAO INFORMATION TECHNOLOGY GROUP	CN	19/11/2021	CN2021001375947	CN114023181	FLUORESCENT LIGHT ANGLE COLOR-CHANGING ANTI-COUNTERFEITING LABEL AND PREPARATION METHOD THEREOF	
P34632	CN	113954563	21/01/2022	SHANGHAI MAY MAY NOBLE PRINTING	CN	26/11/2021	CN2021001418411	CN113954563	NANOMETER MICRO-CARVING ANTI-COUNTERFEITING GOLD STAMPING PROCESS	

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N8409	WO	202235068	17/02/2022	INDUSTRY ACADEMIA COOPERATION OF SEJONG UNIVERSITY	KR	11/08/2020	KR2020000100457	WO202235068 KR20220020027	GEOMETRIC PHASE IN-LINE SCANNING HOLOGRAPHY SYSTEM FOR TRANSMISSIVE OBJECT	
N8410	WO	202233996	17/02/2022	SEEREAL TECHNOLOGIES	EP	10/08/2020	EP2020000190266	WO202233996	APPARATUS AND METHOD FOR COMPUTING HOLOGRAM DATA	

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N8411	WO	202233929	17/02/2022	ESSILOR INTERNATIONAL	EP	10/08/2020	EP2020000305920	WO202233929	OPTICAL ELEMENT COMPRISING AT LEAST ONE HOLOGRAPHIC DIFFUSIVE ELEMENT	
N8412	WO	202232074	10/02/2022	UNIVERSITY OF CALIFORNIA UNIVERSITY OF MASSACHUSETTS	US	07/08/2020	US2020063062878	WO202232074	SIMPLE IN-LINE DIGITAL HOLOGRAPHY SYSTEM FOR MEASURING 3D CELL SHAPE	
N8413	WO	202228838	10/02/2022	LEONHARD KURZ STIFTUNG	DE	06/08/2020	DE202010120754	WO202228838 DE102020120754	TRANSFER FILM, PLASTICS INJECTION-MOULDED PART AND METHOD FOR THE PRODUCTION THEREOF	
N8414	WO	202228764	10/02/2022	ENVISICS	GB	05/08/2020	GB2020000012142	WO202228764 GB202012142 GB2597771	HOLOGRAPHIC LIGHT DETECTION AND RANGING	
N8415	WO	202228752	10/02/2022	ENVISICS	GB	05/08/2020	GB2020000012155	WO202228752 GB202012155 GB2597929	LIDAR COMPRISING A HOLOGRAPHIC PROJECTOR	
N8416	WO	202220839	27/01/2022	BASTIYALI, TARKAN	US	22/07/2020	US2020016935796	WO202220839	VEHICLE MOUNTABLE HOLOGRAPHIC PROMOTING SYSTEM	
N8417	WO	202218730	27/01/2022	FRAUNHOFER RAMOT AT TEL AVIV UNIVERSITY	US	21/07/2020	US2020063054321	WO202218730	A SYSTEM AND METHOD THEREOF FOR REAL-TIME AUTOMATIC LABEL-FREE HOLOGRAPHY-ACTIVATED SORTING OF CELLS	
N8418	WO	202218064	27/01/2022	SIGNIFY HOLDING	US	22/07/2020	US2020063054977	WO202218064	LUMINAIRE WITH LENS HAVING A HOLOGRAPHIC THREE-DIMENSIONAL PATTERNED LAYER	
N8419	US	20220026849	27/01/2022	DISNEY ENTERPRISES	US	22/07/2020	US2020016935370	US20220026849	HOLOGRAPHIC IMAGERY FOR ON SET EYELINE REFERENCE	
N8420	US	20220026715	27/01/2022	NVIDIA	US	23/07/2020	US2020016937235	US20220026715	FOVEATION AND SPATIAL HASHING IN LAYER-BASED COMPUTER-GENERATED HOLOGRAMS	
N8421	US	20220026713	27/01/2022	HYUNDAI MOBIS	US	21/10/2020	US2020017076686	US20220026713	HOLOGRAPHIC HUD	
N8422	KR	20220016763	10/02/2022	KWANGWOON UNIVERSITY INDUSTRY ACADEMIC COLLABORATION FOUNDATION	KR	03/08/2020	KR2020000096704	KR20220016763	TABLE-TOP THREE-DIMENSIONAL DISPLAY USING HOLOGRAPHIC MICROLENS ARRAY SCREEN	
N8423	KR	20220014914	08/02/2022	HEESUNG ELECTRONICS	KR	27/07/2020	KR2020000092737	KR20220014914	HOLOGRAPHIC OPTICAL DEVICE AND HEAD-UP DISPLAY DEVICE INCLUDING THE SAME	
N8424	KR	20220014808	07/02/2022	KIM, YONG-JOO KIM, GEUN HONG	KR	29/07/2020	KR2020000094731	KR20220014808	HOLOGRAPHIC TELESCOPE AND SYSTEM THEREFOR	
N8425	KR	20220014515	07/02/2022	HEOCHANGYUN	KR	29/07/2020	KR2020000094185	KR20220014515	IMAGE DISPLAY APPARATUS AND METHOD USING HOLOGRAM ARRAY AND LIGHT MODULATOR	
N8426	KR	20220014510	07/02/2022	HEOCHANGYUN	KR	29/07/2020	KR2020000094179	KR20220014510	THREE-DIMENSIONAL DISPLAY IMPLEMENTATION USING HOLOGRAM AND SYSTEM THEREOF	
N8427	KR	20220009304	24/01/2022	KWANGWOON UNIVERSITY INDUSTRY ACADEMIC COLLABORATION FOUNDATION	KR	15/07/2020	KR2020000087255	KR20220009304	HOLOGRAPHIC OPTICAL ELEMENT PERFORMANCE EVALUATION APPARATUS	
N8428	KR	20220007432	18/01/2022	DAEGU GYEONGBUK INSTITUTE OF SCIENCE & TECHNOLOGY	KR	10/07/2020	KR2020000085656	KR20220007432	APPARATUS AND METHOD FOR PHASE SPREADING A DIGITAL HOLOGRAM PHASE IMAGE BASED ON DEEP LEARNING	
N8429	KR	102359889	09/02/2022	JUNG, SEON TAE	KR	25/11/2021	KR2021000164281	KR102359889	HOLOGRAM ELEVATOR INTERLOCKING REAL TOUCH KEYPAD	
N8430	EP	3955050	16/02/2022	BSH HAUSGERAETE	EP	10/08/2020	EP2020000190235	EP3955050	SMART SPEAKER WITH A HOLOGRAM PROJECTOR	
N8431	EP	3951511	09/02/2022	ENVISICS	GB	05/08/2020	GB2020000012165	EP3951511 US20220043394 GB202012165 GB2598088 KR20220017823 CN114063296	HOLOGRAPHIC FINGERPRINT	
N8432	EP	3198192	02/08/2017	DIGILENS	US	26/09/2014	US2014062071534	US20220043511 EP3198192 US20200089319 US20180232048 US10423222 WO201646514 WO201646514	HOLOGRAPHIC WAVEGUIDE OPTICAL TRACKER	

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N8433	DE	102020210277	17/02/2022	ROBERT BOSCH	DE	13/08/2020	DE202010210277	DE102020210277	HOLOGRAPHIC OPTICAL ELEMENT AND METHOD FOR THE PRODUCTION THEREOF	
N8434	CN	215834232	15/02/2022	SUZHOU POWER SUPPLY BRANCH STATE GRID ANHUI ELECTRIC POWER	CN	01/09/2021	CN2021002094338	CN215834232U	HOLOGRAPHIC 3D DISPLAY DEVICE FOR ELECTRIC POWER BUSINESS HALL	
N8435	CN	215815110	11/02/2022	SHANGHAI HUANHANG INFORMATION TECHNOLOGY	CN	18/08/2021	CN2021001944390	CN215815110U	HOLOGRAPHIC CABINET OF MULTIASPECT FORMATION OF IMAGE	
N8436	CN	215814915	11/02/2022	SHENZHEN JIWOKOS TECHNOLOGY	CN	16/04/2021	CN2021000784795	CN215814915U	HOLOGRAPHIC ROTARY DISPLAY EQUIPMENT WITH FUNCTION OF ADJUSTING DISPLAY FRAME RATE	
N8437	CN	215813741	11/02/2022	BEIJING DITING HORIZON CULTURE TECHNOLOGY	CN	01/07/2021	CN2021001485337	CN215813741U	HOLOGRAPHIC IMAGING STRUCTURE AND STAGE EQUIPMENT	
N8438	CN	215813704	11/02/2022	FUJIAN GUANGNENG ENERGY TECHNOLOGY	CN	26/07/2021	CN2021001704996	CN215813704U	BASED ON HOLOGRAPHIC WATER SMOKE WATERTIGHT FITTINGS FOR PROJECTING APPARATUS OF 3D FOG SCREEN	
N8439	CN	215770453	08/02/2022	ZHAI JUNMING	CN	25/05/2021	CN2021001164164	CN215770453U	HOLOGRAPHIC PROJECTION DEVICE CAPABLE OF BEING USED FOR ILLUMINATION	
N8440	CN	215766729	08/02/2022	XIAMEN HAIPAI INVESTMENT & MANAGEMENT	CN	11/10/2021	CN2021002437089	CN215766729U	RANGE SCALE POSITIONING STRUCTURE OF OPTICAL AUXILIARY HOLOGRAPHIC SIGHTING DEVICE	
N8441	CN	215764290	08/02/2022	GUANGZHOU JUHUI ELECTRONIC	CN	09/08/2021	CN2021001840942	CN215764290U	ONE HUNDRED EIGHTY DEGREE HOLOGRAPHIC DISPLAY MACHINE	
N8442	CN	215729303	01/02/2022	BEIJING JINGCUN TECHNOLOGY	CN	01/09/2021	CN2021002100298	CN215729303U	MULTIMEDIA HOLOGRAPHIC LIGHT AND SHADOW TRANSMISSION DISPLAY DEVICE	
N8443	CN	215729302	01/02/2022	URUMQI VOCATIONAL UNIVERSITY	CN	12/08/2021	CN2021001880046	CN215729302U	PORTABLE HOLOGRAPHIC IMAGER	
N8444	CN	215721974	01/02/2022	JINLING INSTITUTE OF TECHNOLOGY	CN	09/09/2021	CN2021002178662	CN215721974U	HOLOGRAPHIC PLAYING EQUIPMENT FOR INTERACTIVE IMAGES	
N8445	CN	215721820	01/02/2022	SICHUAN JINLIXIN SMART CITY TECHNOLOGY	CN	14/07/2021	CN2021001601962	CN215721820U	INTERACTIVE 3D HOLOGRAPHIC PROJECTOR CONVENIENT TO INSTALLATION	
N8446	CN	215696401	01/02/2022	ZHANG YANSHUN QU JIANMEI	CN	19/08/2021	CN2021001948024	CN215696401U	THREE-DIMENSIONAL HOLOGRAPHIC DISPLAY DEVICE FOR MEDICAL IMAGE DIAGNOSIS	
N8447	CN	215676674	28/01/2022	XIAMEN HAIPAI INVESTMENT & MANAGEMENT	CN	30/06/2021	CN2021001482313	CN215676674U	HOLOGRAPHIC DIFFRACTION SIGHTING DEVICE DENSITY ADJUSTING LIGHT PATH SYSTEM	
N8448	CN	215647085	25/01/2022	YUNNAN GEESE TECHNOLOGY	CN	02/08/2021	CN2021001814693	CN215647085U	HOLOGRAPHIC VIDEO IMAGE SYSTEM BASED ON 5G COMMUNICATION TECHNOLOGY	
N8449	CN	215643635	25/01/2022	SHANGHAI ZHIGUANG CULTURE COMMUNICATION	CN	23/09/2021	CN2021002295586	CN215643635U	HOLOGRAPHIC STAGE APPLICATION DEVICE	
N8450	CN	215642250	25/01/2022	GUANGZHOU XINQIDIAN CULTURAL TOURISM TECHNOLOGY	CN	19/05/2021	CN2021001085430	CN215642250U	TRANSPARENT HOLOGRAPHIC FILM FOR 3D HOLOGRAPHIC PROJECTION DISPLAY	
N8451	CN	215642249	25/01/2022	GUANGZHOU XINQIDIAN CULTURAL TOURISM TECHNOLOGY	CN	19/05/2021	CN2021001085394	CN215642249U	ELECTRIC REEL LIFTING TYPE HOLOGRAPHIC PROJECTION SCREEN	
N8452	CN	215600056	21/01/2022	ZHEJIANG UNIVERSITY	CN	09/07/2021	CN2021001556883	CN215600056U	REAL-TIME PSEUDO-HOLOGRAPHIC PROJECTION SYSTEM	
N8453	CN	114044855	15/02/2022	SHENYANG AEROSPACE UNIVERSITY	CN	09/11/2021	CN2021001318103	CN114044855	PHOTOPOLYMERIZATION HOLOGRAPHIC STORAGE MATERIAL BASED ON POLYURETHANE AS MATRIX AND PREPARATION METHOD THEREOF	
N8454	CN	114043939	15/02/2022	DONGFENG MOTOR CO	CN	09/11/2021	CN2021001319260	CN114043939	VEHICLE-MOUNTED CENTRAL CONTROL SYSTEM USING HOLOGRAPHIC PROJECTION TECHNOLOGY AND CONTROL METHOD	

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N8455	CN	114040181	11/02/2022	DONGGUAN RUIZHI PHOTOELECTRIC TECHNOLOGY YANCHENG BRANCH CHINA TOWER	CN	29/10/2021	CN2021001271594	CN114040181	HOLOGRAPHIC DISPLAY SYSTEM AND HOLOGRAPHIC DISPLAY METHOD	
N8456	CN	114037627	11/02/2022	WUYI UNIVERSITY	CN	29/10/2021	CN2021001271402	CN114037627	METHOD AND DEVICE FOR SUPPRESSING ZERO-ORDER IMAGE OF HOLOGRAM, ELECTRONIC EQUIPMENT AND STORAGE MEDIUM	
N8457	CN	114035412	11/02/2022	BELJING UNIVERSITY OF TECHNOLOGY	CN	30/11/2021	CN2021001437461	CN114035412	MAGNETO-OPTICAL SUPER-SURFACE-BASED MAGNETIC CONTROL DYNAMIC HOLOGRAPHIC DISPLAY METHOD	
N8458	CN	114019752	08/02/2022	BELJING MENGTEBO INTELLIGENT ROBOT TECHNOLOGY	CN	15/11/2021	CN2021001349819	CN114019752	HOLOGRAPHIC PROJECTION METHOD AND SYSTEM	
N8459	CN	114018150	08/02/2022	HEBEI UNIVERSITY OF ENGINEERING	CN	08/11/2021	CN2021001314426	CN114018150	DIGITAL HOLOGRAPHIC MICROSCOPIC MEASURING DEVICE AND CONTROL METHOD THEREOF	
N8460	CN	114007098	01/02/2022	OOKO BELJING EDUCATION TECHNOLOGY	CN	04/11/2021	CN2021001298028	CN114007098	METHOD AND DEVICE FOR GENERATING 3D HOLOGRAPHIC VIDEO IN INTELLIGENT CLASSROOM	
N8461	CN	114005309	01/02/2022	BELJING TSBRINA ELECTRONICS	CN	28/10/2021	CN2021001263225	CN114005309	TEACHING METHOD FOR INTERACTIVE CLASSROOM BY UTILIZING HOLOGRAPHIC INTERACTION EQUIPMENT	
N8462	CN	114005207	01/02/2022	SHENZHEN SHENGHONGWEI INTELLIGENT TECHNOLOGY	CN	08/12/2021	CN2021001512278	CN114005207	HOLOGRAPHIC IMAGE SYSTEM FOR GATE PASSAGE DOOR	
N8463	CN	114002932	01/02/2022	BEIHANG UNIVERSITY OF AERONAUTICS & ASTRONAUTICS	CN	03/11/2021	CN2021001291081	CN114002932	POLARIZATION HOLOGRAM CALCULATION METHOD BASED ON HIGH-FREQUENCY PHASE FACTOR	
N8464	CN	114002931	01/02/2022	TSINGHUA SHENZHEN INTERNATIONAL GRADUATE SCHOOL	CN	08/10/2021	CN2021001171388	CN114002931	LARGE-VIEW-FIELD HOLOGRAPHIC PROJECTION METHOD AND SYSTEM BASED ON DEEP LEARNING ACCELERATED CALCULATION	
N8465	CN	114001643	01/02/2022	SHANGHAI UNIVERSITY OF ENGINEERING SCIENCE	CN	27/09/2021	CN2021001134424	CN114001643	DIGITAL HOLOGRAPHIC MICROSCOPIC PHASE DISTORTION COMPENSATION METHOD AND DEVICE	
N8466	CN	113987059	28/01/2022	HANGZHOU ANHENG INFORMATION SECURITY TECHNOLOGY	CN	05/11/2021	CN2021001308563	CN113987059	HOLOGRAPHIC ARCHIVE ASSET MANAGEMENT METHOD, SYSTEM, COMPUTER AND READABLE STORAGE MEDIUM	
N8467	CN	113985593	28/01/2022	SOUTH CHINA UNIVERSITY OF TECHNOLOGY	CN	21/10/2021	CN2021001228076	CN113985593	PORTABLE COAXIAL DIGITAL HOLOGRAPHIC MICROSCOPE BASED ON 3D PRINTING TECHNOLOGY AND IMAGING METHOD	
N8468	CN	113973198	25/01/2022	CHINA MOBILE COMMUNICATIONS CHINA MOBILE SOFTWARE TECHNOLOGY	CN	22/07/2020	CN2020000712801	CN113973198	HOLOGRAPHIC IMAGE GENERATION METHOD, DEVICE AND EQUIPMENT AND COMPUTER READABLE STORAGE MEDIUM	
N8469	CN	113965718	21/01/2022	SHANGHAI FENGPEI DIGITAL TECHNOLOGY	CN	10/11/2021	CN2021001325908	CN113965718	HOLOGRAPHIC VIDEO CONFERENCE SYSTEM	
N8470	CN	113960909	21/01/2022	SUN HUAN THE INVENTORS HAVE WAIVED THE RIGHT TO BE CITED	CN	25/10/2021	CN2021001240538	CN113960909	BUILDING DESIGN SYSTEM FOR DISPLAYING HOLOGRAPHIC PROJECTION TYPE THREE-DIMENSIONAL SPACE MODEL	
N8471	CN	113960906	21/01/2022	XIDIAN UNIVERSITY	CN	09/09/2021	CN2021001057399	CN113960906	POINT DIFFRACTION DIGITAL HOLOGRAPHIC MICROSCOPIC DEVICE BASED ON MULTIMODE OPTICAL FIBER	
N8472	CN	113959677	21/01/2022	SHANGHAI RIQING INTELLIGENT TECHNOLOGY	CN	26/09/2021	CN2021001128451	CN113959677	ULTRA-HIGH-PRECISION ULTRASONIC WAVE SURFACE CONTROL TECHNOLOGY COMBINED WITH 3D HOLOGRAPHIC TECHNOLOGY	